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INVESTIGATION TOWARDS COMPREHENSIVE TEACHING OF FOOD AND
NUTRITION IN ABU DHABI SECONDARY SCHOOLS: AN ETHNOGRAPHIC STUDY

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A thesis submitted in partial fulfilment of the requirements of The University of West
London for the Professional Doctorate Degree in Education (EdD)

November 2024

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November 2024

Thesis submitted for the award of Professional Doctor of Education (EdD)

I, Denise Buttigieg Fiteni, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Dedication

This thesis is dedicated to my parents, Francis and Mary Ann (known as Miriam) Buttigieg, who are no longer with us, and to my stepmother, Nazzarena Buttigieg. Their unwavering love and encouragement have been instrumental in the completion of my graduate studies. I am deeply grateful for all their support and cherish the lasting impact they have had on my life.

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Abstract

The escalating rates of obesity and nutrition-related diseases among adolescents in the United Arab Emirates (UAE) underscore the significance of comprehensive School-Based Food and Nutrition Education (SFNE). This study aimed to investigate factors that underscore the effective implementation of a comprehensive SFNE programme in Abu Dhabi public secondary schools. Through an ethnographic approach, encompassing semi-structured contextual and individualised interviews, participant observations, and document reviews, data were gathered from 29 purposively-sampled teachers of SFNE in international secondary schools in Abu Dhabi. The research focused on understanding the challenges encountered by teachers in teaching and supporting students during their Non-Examinable Assessments (NEAs) to facilitate optimal decision-making regarding culture for learning. Teachers face several challenges, such as limited time, constrained resources, diverse learning needs, cultural norms, and minimal parental involvement. Socio-economic disparities, inadequate technical support, and large class sizes further complicate their efforts. Factors affecting teachers' preparedness encompass curriculum development, the relevance of teachers' academic achievements, resource availability, continuous professional development opportunities, students' self-beliefs, proficiency in utilising relevant technologies, expert collaboration, and the diversity of the classroom environment. Recommendations are proposed to enhance SFNE teacher professional development, strengthen curriculum development and interdisciplinary connections, expand access to resources and technology, foster collaboration and community engagement, and promote culturally relevant and responsive pedagogy. This study advances comprehensive SFNE in Abu Dhabi public secondary schools by offering detailed insights. It presents a robust framework that guides effective programme development and implementation.

Keywords: Curriculum Development, Pedagogy, Teacher-Preparedness, School-Based Food and Nutrition Education (SFNE), Cultural Sensitivity, Non-Examinable Assessments (NEAs), United Arab Emirates (UAE)

Abbreviations

ADEC: Abu Dhabi Education Council

ADEK: Abu Dhabi Department of Education and Knowledge

AI: Artificial Intelligence

AQA: Assessment and Qualifications Alliance

CCEA: Council for the Curriculum, Examinations and Assessment

CD: Curriculum Development

CIE: Cambridge International Examinations

CLEAPSS: Consortium of Local Education Authorities for the Provision of Science Services

CP: Professional Development

CPD: Continuous Professional Development

CWK: Cooking with Kids

D&T: Design and Technology

DCSF: Department for Children, Schools and Families

DfE: Department for Education

DKP: Dubai Knowledge Park

ESC: Emirates Scientists Council

ESE: Education Schools Establishment

FAO: Food and Agriculture Organisation of the United Nation

FEC: Fujairah Education Council

FEPI: Food Environmental Policy Index

FPN: Food Preparation and Nutrition

FTC: The Food Teachers Centre

FSN: Food Science and Nutrition

GCC: Gulf Cooperation Council

GCSE: General Certificate of Secondary Education

HACCP: Hazard Analysis Critical Control Point

HE:F&N: Home Economics: Food and Nutrition

HPS: Health Promoting Schools

IB: International Baccalaureate

IFHE: International Federation for Home Economics

IGCSE: International General Certificate of Secondary Education

IJHE: International Journal of Home Economics

IoT: Internet of Things

IRB: Institutional Review Board

IT: Information Technology

KHDA: Knowledge and Human Development Authority (Dubai)

KHDA: Knowledge and Human Development Authority (Ajman)

LMICs: Low- and Middle-Income Countries

MENA: Middle East and North Africa

MoE: Ministry of Education

NEA: Non-Examinable Assessments

NSM: New School Model

OCR: Oxford, Cambridge and RSA (Royal Society of Arts)

OECD: Organisation for Economic Cooperation and Development

OFQUAL: Office of Qualifications and Examinations Regulation

PoD: People of Determination

PPP: Public–Private Partnership

SDG: Sustainable Development Goals

SEC: Sharjah Education Council

SFNE: School-based Food and Nutrition Education

SoW: Schemes of Work

SQA: Scottish Qualifications Authority

SSTs: Secondary School Teachers

SLT: School Leadership Team

STEAM: Science, Technology, Engineering, Art and Mathematics

TPD: Teacher Professional Development

TVT: Technical Vocational Training

UAE: United Arab Emirates

UK: United Kingdom

UAQE: Umm Al Quwain Education

UNSCN: United Nations System Standing Committee on Nutrition

WG: Welsh Government

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CHAPTER ONE: INTRODUCTION

1.1 Problem Statement

Despite the educational strategies and the visions laid out by the United Arab Emirates' (UAE) Ministry of Education (MoE), there is a significant gap in the current school curricula regarding the provision of comprehensive School-based Food and Nutrition Education (SFNE). The UAE faces alarming rates of obesity, diabetes, cardiovascular diseases, and other nutrition-related diseases (Mamdouh et al. 2023). Roughly, one in four adults (27.8%) in the UAE is living with obesity (World Obesity 2024). Only 34% of adolescents aged 9–13 have healthy eating behaviours, primarily due to poor nutritional knowledge in the UAE (Al-Yateem and Rossiter 2017). Healthy eating behaviours typically refer to consuming a balanced diet that includes appropriate portions of fruits, vegetables, wholegrains, lean proteins, and healthy fats while limiting the intake of processed foods, sugars, and unhealthy fats (Boddy et al. 2019). In adolescents, this can also involve establishing regular meal patterns, such as having breakfast daily, staying hydrated, and moderating snacks to maintain energy balance and support growth and development.

Students in UAE, aged 13–19 years, are significantly more likely to be obese/overweight (37.8%) when compared with their peers in private schools (31.1%) (Baniissa et al. 2020). Evidence also shows that there is a direct and significant correlation between obesity and age, sex, nationality, occupation, and hypertension, indicating a high association between socio-demographic and behavioural risk factors and obesity/overweight in the UAE (Mamdouh et al. 2023). Gulf Cooperation Council (GCC) countries have some of the highest obesity rates in the world, and the UAE is ranked fourth in the GCC region after Kuwait, Saudi Arabia, and Qatar (Aljulifi 2021).

Within this context, a culturally specific SFNE intervention is recommended as a sustainable approach to building seamless nutritional knowledge among adolescents and building the urge to maintain a healthy lifestyle throughout the human lifespan (Al-Yateem

and Rossiter 2017; Fiteni 2023; Mamdouh et al. 2023). These health issues are primarily attributed to physical inactivity, unhealthy diets, and environmental factors (Almughamisi 2021; Baniissa et al. 2020; Mamdouh et al. 2023). Adolescents are particularly vulnerable, yet the current curriculum does not adequately equip them with the life skills and knowledge needed to make healthy food choices and adopt nutritious eating habits. Initially, the country had in place Family Education, a school-based programme to equip adolescents with the life skills and knowledge needed to make healthy life choices related to personal development, relationships, and family dynamics. The subject fostered an understanding of key areas such as emotional well-being, communication skills, sexuality, reproductive health, parenting, and responsible decision-making, with a significant focus on food choices and eating habits. In the early 1970s, Family Education in UAE schools mirrored global trends in Domestic Science and Housecraft, equipping girls with the tools to run a household. Girls were taught skills such as cooking, cleaning, caregiving, sewing, home crafts and budgeting reflecting their societal roles at a time when many married young, while boys were trained in woodwork and technical drawing. This curriculum paralleled global practices in Domestic Science, Technical Drawing, Woodwork, and Metalwork education. However, while other countries continued to evolve and maintain these practical subjects, the UAE did not sustain its momentum in integrating hands-on activities into its education system. Today, UAE public schools no longer offer subjects like Home Economics, Design and Technology (D&T), or any SFNE-related courses. The elimination of Family Education, which previously addressed these areas, left a void that non-food-related subjects cannot fill effectively. Consequently, there is a pressing need to reintroduce a comprehensive SFNE programme within public secondary schools (Emirates Center for Strategic Studies and Research 2011). This study aims to investigate factors that underscore the comprehensive implementation of such a programme in Abu Dhabi's public secondary schools. It explores the preparedness of teachers as well as schools to adopt this curriculum, identify potential challenges, and develop strategies to overcome them. Addressing this gap is crucial for

improving students' health outcomes and fostering a culture of knowledge-based food and nutrition practices among future generations. This study aligns with the UAE's broader educational goals of promoting lifelong learning, innovation, and global competitiveness (Mezirow and Taylor 2009). This thesis argues for the significance of recognising the interplay between cultural capital, habitus, and social structures, as articulated in Bourdieu's theory of practice (Bourdieu 1984). Such recognition is crucial for developing effective and equitable strategies to promote healthy eating habits among students.

The UAE education system has experienced multiple transformations over time. Prior to the country's establishment in 1971, educational services relied on didactic pedagogical approaches rooted in religious teachings (Alhebsi et al. 2015). The MoE in the UAE identifies four iterations of educational transformation: the *Mutawa* and the *Katateeb*, educational circles, semi-organised education, and the modern education system. The *Mutawa* were individuals dedicated to teaching young people reading, writing, moral obligations, and basic Mathematics, emphasising the memorisation of the Quran, Hadith, and Islamic jurisprudence (Gallagher "*Education in the United Arab Emirates*" 2019; Matsumoto 2019). They were religious scholars or leaders who traditionally provided basic education in religious teachings, Quranic studies, and moral conduct. This form of education, rooted in Islamic teachings, was prevalent during the early stages of the UAE's educational development. It is important to note that the role of the *Mutawa* in the UAE context differs from that of contemporary Saudi Arabian usage, where *Mutawa* also refers to the religious police responsible for enforcing moral and social codes. Affluent communities had *Katateeb*, originally an informal educational setting where children were taught Islamic studies and basic academic skills such as reading, writing, and arithmetic (Matsumoto 2019). These physical locations, often resembling modern primary schools, played a crucial role in early education within the UAE. In contemporary times, the term *Katateeb* has also been adapted as the name of an educational application designed for parents and students. This application allows users to access home learning materials, view assignments and tests, and check

grades. It is available in Arabic, reflecting its cultural relevance and utility in modern educational contexts. Educational circles, presided over by professionals and scholars mainly from Saudi Arabia, targeted both children and adults, producing more scholars and professionals who advanced semi-organised education from 1907 to 1953 (Gallagher “Introduction” 2019). This period saw the establishment of schools across the Arabian Peninsula, partially adopting the Egyptian curriculum, which led to the development of the modern education system (Matsumoto 2019).

In 1953, the first modern school in the UAE, Alqasimiah School, was founded in Sharjah, adopting the Kuwaiti curriculum. This success led to the development of more modern schools across the Emirates, structured into primary, preparatory, and secondary levels under Kuwaiti supervision (Alhebsi et al. 2015). With independence in 1971, the UAE developed a local education system inspired by the Kuwaiti model. Education became free and mandatory for all Emiratis, and the curriculum, designed by the MoE and Sports, included Family Education, where girls learned practical skills like cooking and sewing (Ahmed 2011). Curriculum modifications intensified in the 21st century as the UAE’s MoE moved towards an international model, borrowing from the USA and Finland (Tabari 2014). This shift led to the elimination of Family Education, focusing instead on cognitive and life skills, innovation, and technology integration to foster global competitiveness and 21st-century skills (UAE Ministry of Education n.d.; UAE Ministry of Education 2018). Key plans such as the MoE Strategic Plan 2017–2021 and the National Strategy for Higher Education 2030 have been central in shaping the future of education in the UAE. Despite these advancements, the current education system lacks comprehensive SFNE, which is essential for addressing the rising prevalence of obesity and other nutrition-related diseases. This gap underscores the need to reintroduce a robust SFNE programme.

Earlier research maintained that subjects such as Home Economics, Family Education, Domestic Science, Food Technology, and SFNE, which aim at developing practical life

skills, are the ultimate solution to a host of modern woes, especially by addressing critical issues such as obesity and low food literacy (Lichtenstein 2010; Pendergast 2013; Pendergast and Dewhurst 2012; Smith 2016). Such subjects equip individuals with practical knowledge for maintaining healthy lifestyles, sustainable living, and efficient household management (Nickols and Kay 2015; Seidler 2019). They foster essential skills such as budgeting, meal planning, and understanding nutritional needs, vital for adapting to contemporary challenges like economic instability and increasing health concerns (Pendergast et al. 2012; Smith et al. 2004). For this reason, multiple countries such as America, Australia, Canada, Czech Republic, Denmark, England, Finland, Germany, India, Indonesia, Ireland, Japan, Scotland, South Korea, and Sweden, have recognised the need and implemented dedicated SFNE curricula in schools to promote lifelong health and well-being coupled with developing practical skills (Ritchie et al. 2022). In addition, other countries, especially in the Middle East and North Africa (MENA), that have embraced SFNE programmes as part of their educational policies include Egypt, Lebanon, Iran, Malta, Palestine, Pakistan, Saudi Arabia, and Turkey (Mohsen et al. 2022).

Furthermore, in 2020, Saudi Arabia introduced a curriculum called *Family and Everyday Skills*, which includes education on food and nutrition, fashion, sustainability, budgeting, and culinary skills. This programme, largely known as Home Economics, aims to equip students with essential life skills (Alharbi 2021 Alharbi and Renwick 2017; Alharbi 2024). It is in the same spirit that in 2019, his Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai, envisioned a new generation of schools that are to be equipped with Home Economics labs where students practically learn food and nutrition, art and design, and clothing and textile among other hands-on skills (UAE Ministry of Education 2019). To contribute to the vision of the UAE of building a nurturing and sustainable environment for quality living (Ministry of Cabinet Affairs 2021), this study places emphasis on the need for a comprehensive and fully-fledged SFNE for all students. SFNE is unlike Family Education, which was specifically taught to girls. It focuses

on addressing nutrition-based issues, such as obesity, which has become a national concern, while at the same time cultivating a culture of knowledge-based food and nutrition practices among current and future generations. The prevalence of obesity, diabetes, and cardiovascular diseases among adolescents in the UAE highlights the urgent need for comprehensive SFNE in public secondary schools. Given the growing health concerns, there is a critical gap in addressing SFNE for all genders in UAE public schools.

The necessity to introduce SFNE in the mainstream education systems is increasingly recognised by educational experts as well as public health authorities as research continues to highlight the positive impacts of SFNE on students' health outcomes and academic performance (Antwi et al. 2020; Ballam 2019; Fiteni 2023; Ronto et al. 2019). There is a need for the UAE to join other countries by actively developing SFNE in its mainstream education system. Currently, core subjects in the UAE include English, Mathematics, Health Science, Geography, History, Computing, Music, Art, and Physical Education. Although studies admit that non-food curricula, especially Science, can support food education (Barrett 2020; Smith et al. 2022), they are deficient and can barely systematically build knowledge on food choice, food preparation, culinary patterns, and eating habits (Melnick et al. 2022; Pongutta et al. 2023; Smith et al. 2022). The UAE's MoE, with the consultation of the Education Schools Establishment (ESE) responsible for developing the resources for the syllabuses that are developed by the MoE, has already initiated a discussion towards developing and implementing a comprehensive SFNE (UAE Ministry of Education 2021). As the discussions continue to take shape, it is worth exploring factors determining the preparedness of UAE teachers and schools to implement a fully-fledged SFNE curriculum. Additionally, it is vital to precast the challenges that teachers may face in teaching SFNE to support students in accessing, preparing, and eating high-quality meals. The term "high-quality meals" is used here to refer to unrefined, minimally processed foods such as wholegrains, vegetables, healthy proteins and fats, and fruits as recommended in the Healthy

Eating Guide, which is prepared with precision to match diet needs (Harvard University 2023).

The current study is set to rely on Bourdieu's theory of practise in explaining comprehensive teaching of food and nutrition in Abu Dhabi secondary schools. Bourdieu's theory of practise provides a framework for understanding social structures, cultural capital, and habitus. These factors shape individuals' behaviours and lifestyles (Deeming 2014; Grenfell and James 1998). Bourdieu, argues that actions are influenced by social contexts (Bourdieu 1984). Central to Bourdieu's theory is the concept of habitus, which refers to the internalised set of dispositions, preferences, and tastes shaped by one's social position and life experiences (Bourdieu 1984; Mouzelis 2008). Bourdieu introduced the concept of cultural capital to describe the symbolic resources (e.g., knowledge, skills, tastes) individuals acquire through socialisation and education (Burke 2015; Huang 2019; Kamphuis et al. 2015). In food education, cultural capital shapes dietary behaviours and preferences (Kamphuis et al. 2015). Privileged students access resources like nutritional knowledge and cooking skills. Marginalised students lack these, leading to disparities in dietary practices (Murimi et al. 2018). Therefore, SFNE programmes must bridge this gap by providing equitable access.

Bourdieu's concept of cultural capital and habitus is considered a necessary building block for this study. His discussion of habitus does have some profound implications for the practice of teachers, specialist educators and pedagogues. Within formal and informal education, as well as, social pedagogy, there has long been an emphasis on the bearing and attitude of the worker. Naturally, pedagogies express openness to new experiences and readiness to sense and know with the belief that all should share in life and flourish. In this their main concern has always been to holistically, respectfully and knowledgeably build relationships for dialogues and reflections necessary in encouraging informed committed

action. In a nutshell, the Bourdieu's concept is necessary in helping explain questions around the sorts of cultural capital that schools, colleges and local organisations cultivate.

1.2 Personal Statement

My background in Home Economics and my career in education across Malta, the United Kingdom (UK), Italy, and the UAE have shown me the crucial role education plays in driving social change. My experiences as an educator have revealed significant challenges and transformations within Food and Nutrition education. In pursuit of a deeper understanding, I completed a Master of Science in Food, Nutrition, and Health at University College Dublin (2017–2019). This academic journey, combined with practical experience in the UAE, enabled me to become a registered public health nutritionist and food scientist in the UK. My role in the UAE allowed me to closely observe child obesity.

As an Ed.D. candidate, I aim to contribute to healthier and more sustainable societies through Food Science and Nutrition (FSN). Some of the articles that I published are the triple effect of nutrition, decolonising and indigenising home economics pedagogies to advance gender roles in UAE, and food provenance and forensics related to sustainable food practices in the International Journal of Home Economics (IJHE), Scopus, and Informit. I worked with the International Federation for Home Economics (IFHE) to promote resource responsibility. Through this study, I plan to contribute to supporting the UAE MoE's plan to implement a comprehensive SFNE curriculum in public schools (UAE Ministry of Education 2021). Understanding and improving teacher preparedness for SFNE is critical for successfully adopting this curriculum. My research aims to identify and address the factors influencing teacher readiness to teach SFNE, ultimately contributing to better health outcomes for children in the UAE.

1.3 Purpose of the Study

The purpose of this study is to help implement a comprehensive SFNE curriculum in public schools in the UAE. The country has various school systems, including schools applying the MoE curriculum, American System, Australian System, British System, Canadian System, French Baccalaureate System, German System, Indian System, International Baccalaureate (IB) System, Italian System, Japanese System, Pakistan System, Spanish System, and other curricula (UAE Ministry of Education 2020a). The country's MoE has recently begun developing SFNE as a vocational optional subject under FSN (UAE Ministry of Education 2021). The programme aims to understand the fundamental science behind food and nutrition, food processing and engineering processes, food marketing and business, food safety and inspection, and culinary skills in Nutrition (UAE Ministry of Education 2021). To establish a uniform and flawless curriculum, the MoE must work with internal and external stakeholders, including religious organisations and agencies, schools and universities, researchers, principals, teachers, students, and parents (Ashbee 2021; Sealy 2020). Al Ahbabi (2018) states that strengthening the UAE secondary education requires stakeholders to catalyse change and pursue school objectives and education prospects. Abu Dhabi Education Council (ADEC), Abu Dhabi Department of Education and Knowledge (ADEK), Fujairah Education Council (FEC), Ras Al Khaimah Education (RAKE), Sharjah Education Council (SEC), Knowledge and Human Development Authority (KHDA - Dubai), Umm Al Quwain Education (UAQE), Knowledge and Human Development (Ajman), and Authority Emirates Scientists Council (ESC) must participate considerably in the growth process (UAE Ministry of Education 2019). The significance of Academia and research knowledge, including the current study, cannot be understated in the effective implementation of a comprehensive SFNE curriculum in public schools in the UAE.

FSN's success requires a comprehensive strategy that symbiotically takes into account school curricula, extracurricular activities, inclusive school-based environment, local food systems, safety and hygiene measures, teachers' continuing professional development, as well as well-designed formative and summative assessments which depend on the inputs of both MoE and ESE. This study focuses on teachers as curriculum implementers and facilitators. Focusing on teachers is an excellent chance to discover what it takes to give complete FSN material across teaching and learning to enhance learning outcomes (Hattie et al. 2016). This study has two objectives. First, it analyses teachers' perceptions of teaching SFNE and other SFNE topics in Abu Dhabi, the UAE's capital city. Second, it examines SFNE teachers' readiness to assist SFNE pedagogy in Abu Dhabi, especially when initiating Non-Examinable Assessments (NEAs).

1.3.1 Research Questions

According to the Food and Agriculture Organisation of the United Nations (FAO), SFNE offers a wide range of chances to help school children and school communities improve their food habits and perspectives over the long term, start and implement external change in food systems, and spread information about food and nutrition to others (Food and Agriculture Organisation of the United Nations 2020). For instance, Japan's Shokuiku programme has significantly improved students' knowledge about nutrition and their dietary habits through activities like cooking classes and farm visits (Kibayashi and Nakade 2024). Similarly, Finland's nutrition education programme integrates interactive lessons and school gardens into the curriculum, effectively enhancing children's nutritional knowledge and encouraging healthier food choices (Cheng et al. 2020). The Food and Agriculture Organisation of the United Nations (2020) regrets that despite the growing interest in SFNE, it continues to get little funding, and that capacity building is largely weak throughout the educational system. The UAE intends to implement an SFNE programme called FSN in its core curriculum. It is crucial to evaluate the pedagogies that underpin it and seek teachers'

perspectives to encourage the new programme's ongoing growth to avoid or overcome the difficulties that the FAO outlines. Thus, the aim of the study is:

- To guide how the UAE should develop SFNE from a pedagogical perspective.

The specific research questions guiding the study are outlined below.

- What challenges do teachers face in supporting students during their NEAs?
- What factors affect teachers' preparedness to support SFNE curriculum programme development in Abu Dhabi?

These research questions are essential as they address two critical aspects of curriculum implementation: the practical challenges teachers encounter in facilitating NEAs and the broader systemic and individual factors that influence their readiness to support the SFNE curriculum. Understanding these issues is key to designing a curriculum that is both effective and sustainable, ensuring that teachers are equipped to deliver high-quality education that promotes student health and well-being.

1.4 Significance of the Study

This study addresses a critical need for the UAE's education system to combat rising obesity, diabetes, cardiovascular disease, and other nutrition-related health issues through a comprehensive, scientifically grounded SFNE curriculum. This aligns with Sustainable Development Goals (SDGs) 3: Good Health and Wellbeing and 12: Responsible Consumption and Production. The focus on comprehensive implementation of SFNE in school curricula aims to promote healthy eating habits directly among students, which directly contributes to improving overall health, enhancing cognitive function, and reducing the risk of nutrition-related diseases, such as obesity, diabetes and malnutrition which is consistent to the aspirations of SDG 3. Additionally, the study highlights the importance of educating young people on sustainable food practices, encouraging them to adopt responsible consumption habits that minimise waste, promote environmentally friendly food choices, and support sustainable food systems as expressed in SDG 12. This dual focus not only fosters

healthier individuals but also contributes to long-term ecological sustainability and more efficient resource use. Through a focus on the perspectives of SFNE teachers, the study seeks to provide actionable insights that can guide the MoE and other key stakeholders in developing a robust SFNE programme that improves students' dietary habits and long-term health outcomes.

The research is vital because it highlights teachers' unique challenges in their preparedness to support SFNE development, particularly in Abu Dhabi. Their input is instrumental in shaping educational policies and practices that promote not only student well-being but also the future health of the nation (Morgan 2017). Through the incorporation of scientific frameworks into SFNE, the study emphasises the importance of understanding how factors such as food accessibility, cultural influences, and family modelling shape students' food choices and health behaviours (Chiong et al. 2020).

Additionally, the study is grounded in Bourdieu's concepts of cultural and social capital, offering a deeper understanding of how sociocultural factors influence dietary decisions. These theoretical frameworks provide a subtle approach to how children, who are the UAE's future parents and workforce, can be prepared to adopt healthier eating habits (Morgan 2017). The findings from this research have the potential to inform and shape national policies that are essential for ensuring public schools offer high-quality, inclusive, and future-forward food and nutrition education. This study will serve as a blueprint for the MoE and relevant councils (ADEC, SEC, FEC, ADEK, ESC) in creating a curriculum that supports the UAE's broader goals of enhancing the quality of life and reducing the national burden of chronic diseases. Ultimately, this research matters because it directly addresses the health challenges facing the UAE population and offers practical solutions through education that prepares the next generation for healthier, more fulfilling lives.

1.5 Overview of the Thesis

Following this section, the second chapter provides a review of the literature connected with the identified themes, purpose, and objectives of the current study, including theories, frameworks, and empirical literature (Riley and Aubrey 2022). Bourdieusian theory was used as a basis for theoretical development. The third chapter begins with the conceptual framework that underpins the research methodology, followed by a discussion of the research design, methods, procedures, ethical considerations, and data analysis techniques. Chapter four presents the results concerning the research questions, while chapter five discusses those results in connection with the reviewed literature. It also develops a workable and evidence-based conceptual framework to provide a model for comprehensive teaching of SFNE in UAE public secondary schools. The thesis is finalised in chapter six, which is the conclusion.

1.6 Chapter Summary

Chapter one highlights the significant gap in the UAE's current school curricula regarding comprehensive SFNE despite the country's advanced educational strategies and visions. With the UAE facing high rates of obesity, diabetes, and other nutrition-related diseases, the chapter underscores the urgent need for a culturally specific, school-based intervention to enhance nutritional knowledge and healthy eating behaviours among adolescents. It traces the historical evolution of the UAE's education system, from religious-based teachings through various stages of development to the modern education system. The chapter points out the elimination of Family Education, a subject that once provided practical life skills like cooking, sewing, budgeting, which has left a void in the curriculum that other subjects cannot fill. Emphasising the need for a robust SFNE programme, the chapter outlines the study's objective to investigate the preparedness of teachers and schools in Abu Dhabi, identify potential challenges, and develop strategies to overcome these barriers. This study aims to improve students' health outcomes and foster a culture of knowledge-based

food and nutrition practices, aligning with the UAE's broader educational goals of promoting lifelong learning, innovation, and global competitiveness.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The critical literature review appraised relevant empirical studies and theories to provide a contextual background that engendered an understanding of the critical concepts underlying the study. This approach enabled the production of a research framework and conceptualisation of the findings. A particular theory identified to underscore effective and comprehensive SFNE is the Bourdieusian theory. Bourdieu's concepts of cultural capital, habitus, and social structure are fundamental to understanding dietary patterns and the barriers affecting SFNE teaching and learning (Bourdieu 1984; Bourdieu 2005; Hayes et al. 2018; Tull 2018). Bourdieu's Theory of Practice provides a lens through which to understand and address socio-economic disparities influencing students' dietary behaviours in UAE SFNE programmes (Bourdieu 2005). This thesis argues that recognising the interplay of cultural capital, habitus, and social structures allows educators and policymakers to create more effective, equitable strategies for teaching SFNE in culturally diverse UAE schools. Scores of multiple empirical studies are presented in this chapter to further affirm this argument.

2.2 Bourdieu's Theory of Practice

Bourdieu's conceptualisation of social capital is based on the recognition that capital is not only economic and that social exchanges are not purely self-interested and need to encompass capital and profit in all their forms (Deeming 2014). Bourdieu's theory of practice emphasises structural constraints and unequal access to institutional resources based on class, gender, and race.

According to Bourdieu social capital is a property of the individual, rather than the collective, and it is primarily derived from one's social position and status. Social capital enables a person to exert power on the group or individual who mobilises the resources (Davies et al. 2010). For Bourdieu social capital is not uniformly available to members of a

group or collective but available to those who provide efforts to acquire it by achieving positions of power and status and by developing goodwill (Bourdieu 1984). This social capital is irreducibly attached to class and other forms of stratification which in turn are associated with various forms of benefit or advancement (Huang 2019). While framing social capital he perceived it as virtual resources acquired by individuals or groups through the possession of more or less institutionalised relationships of mutual acquaintance and recognition (Burke 2015). As a result of this, social capital resides in the individual and is linked to social connections that a person can utilise for advancement.

Additionally, Bourdieu believes that social capital is revealed through benefits derived from social networks. However, the source of social capital stems from social, economic, and cultural structures that create differential power and status for specific individuals and not others (Grenfell and James 1998). There are taken-for-granted assumptions such as social norms that produce advantages that are created through power and status. Social capital is therefore not so much about having a large social network but having social position that creates the potential for advantage from one's social network.

The theory provides a framework for understanding social structures, cultural capital, and habitus. Habitus refers to the ingrained habits, tastes, and dispositions individuals develop through socialisation experiences within particular social contexts (Mouzelis 2008; Threadgold "*Sociological encounter*" 2020). Students' habitus profoundly shapes their dietary behaviours and preferences (Davies et al. 2010; Woodhall-Melnik and Matheson 2017). For example, students from families with a tradition of home-cooked meals and an emphasis on fresh, wholefoods may develop dietary habits aligned with these social norms (Ronto et al. 2019). However, changing these ingrained behaviours through SFNE is complex because habitus encompasses the mundane knowledge and practices that individuals are often unaware that they possess (Bourdieu et al. 1977; Power 1999). Backett-Milburn et al. (2010) and O'Connell and Brannen (2017) highlight the challenges in shifting deeply

embedded food habits, as these are influenced by subtle social and cultural factors that are not easily altered through education alone. Thus, understanding and addressing these unconscious practices and dispositions requires a multidimensional approach in SFNE. Conversely, students from environments where processed and convenience foods are prevalent may exhibit different dietary patterns (Ronto et al. 2019). Considering habitus in the interventions aimed at promoting healthy eating behaviours can help cultivate a positive food culture within schools that aligns with health-promoting practices.

Bourdieu emphasised the role of social structures, such as socio-economic status, education, and cultural institutions, in shaping individuals' life chances and opportunities (Atkinson and Deeming 2015). Socio-economic disparities often perpetuate unequal access to healthy food options, nutritional knowledge, and dietary resources (Atkinson and Deeming 2015; Beagan et al. 2015; Bourdieu 2005; Backett-Milburn et al. 2010). Comprehensive SFNE programmes should address these structural inequalities by implementing policies and initiatives that promote food justice and equity (Abu Shihab et al. 2023; Cason et al. 2017; Contento et al. 2002; Fredericks et al. 2020). This may consist of school meal programmes, community gardens, nutrition workshops, and partnerships with local vendors to ensure students have access to nutritious food and learn about healthy eating (Glorioso et al. 2020; Graziose et al. 2017; Jung et al. 2019).

The concept of cultural capital, in the initial process of growing up, parents are considered as the first teachers of their children. Similarly, families are seen as the institution that offers education. Education in this specific sense can refer to the training of behaviour and etiquette: a young person is taught on culturally accepted foods while having a conversation with elders (Contento et al. 2002). This kind of education is not the same as the specialised or professional knowledge gained from school or university. Bourdieu argues that family plays an important role for an individual in acquiring cultural capital. For instance, a wealthy family can support their children and enable them to study abroad or get into an exclusive school in order to grasp knowledge and prestigious qualifications (Glorioso et al.

2020). This, according to Bourdieu disintegrates cultural capital into three forms — embodied state, objectified state, and institutionalised state.

Specifically, the embodied state is understood as comprising of elements such as skills, the habitus, styles of conversation and posture. In other words, it is about knowledge and culture as it is communicated through a person's mind. Such kind of knowledge is always provided by both the family and school (Graziose et al. 2017). On the other hand, the objectified state is about material objects such as books, paintings and ceramics, among other material objects. These goods are cultural products that are associated with cultural capital and an individual can acquire cultural capital through possessing them (Jung et al. 2019). Lastly, the institutionalised state of cultural capital can be understood as a recognised certificate or license (Fredericks et al. 2020). The institutionalised state in this sense is comparable and exchangeable. For instance, a culinary certificate from the United Kingdom can be compared with one from the United States in terms of education quality and status.

2.3 Empirical Review

This section reviews key literature relevant to the study, beginning with the state of education in the UAE. The UAE's education system is free, universal, and mandatory up to K-9, as outlined by the UAE Constitution and reinforced by Federal Decree-Law No. 39 of 2022 (UAE Government Communication Department 2024). These reforms have significantly raised literacy rates, with more than 95% of males and females now literate, compared to 58% and 38% in 1975 (Embassy of the UAE Washington DC n.d.). Ranked 45th globally by the Organisation for Economic Cooperation and Development (OECD) and first in the Gulf region (Nagraj 2015), the Emirati education system spans Early Childhood Education (ages 4–6), primary (grades 1–5), preparatory (grades 6–9), and secondary education (grades 10–12), culminating in the Shahadat Al-Thanawiya Al-Amma, which qualifies students for vocational or higher education.

2.3.1 State of Education in the UAE

The UAE has experienced a significant transformation in its education sector over the past few decades. Historically, education in the region was informal, focusing mainly on traditional Islamic teachings within local communities (Gallagher “Introduction” 2019). However, the discovery of oil reserves in the mid-20th century and subsequent economic development highlighted the need for a modern education system to support a rapidly evolving society (Kippels and Ridge 2019). During the early years of the UAE’s formation in the 1970s, education was predominantly provided through private institutions and foreign schools catering to expats (Emirates Center for Strategic Studies and Research 2012). Many Emirati students pursue education abroad due to limited local opportunities (Kippels and Ridge 2019). Recognising the critical role of education in nation-building and development, the UAE government began investing heavily in the sector (Feleskoura 2016). Establishing the MoE in 1971 was a key milestone, tasked with policy formulation, implementing educational programmes, and maintaining quality standards across UAE institutions (Gallagher “Introduction” 2019). Throughout the 1980s and 1990s, the UAE implemented ambitious educational reforms to enhance access, improve quality, and align curricula with global standards (Al-Naqbi and Mustaffa 2021). This period saw significant expansion in educational infrastructure, encompassing the construction of schools and universities (Alhebsi et al. 2015).

The 21st century has brought further advancements with an emphasis on innovation, technology integration, STEM education, and preparing students for the knowledge economy (Al Dulaimi et al. 2022; Matsumoto 2019; Murshidi 2019). Initiatives such as UAE Vision 2021 and the National Agenda have prioritised education as a key driver of sustainable development and national progress (UAE Vision 2021 2010). The UAE’s commitment to education is reflected in its investment in world-class institutions and partnerships with leading international universities (Fullan 2007). Establishing specialised academic zones,

such as Dubai Knowledge Park (DKP) and ADEC, has fostered an environment conducive to research, innovation, and academic excellence (Matsumoto 2019; Warner and Burton 2017). Additionally, the UAE has strongly emphasised Emiratisation, aiming to increase the participation of Emiratis in the workforce, including the education sector. Efforts have been made to attract, retain, and empower Emirati educators through various incentives, scholarships, and professional development programmes (Godwin 2006; Raven 2011; Warner and Burton 2017).

The structure of the education system in the UAE is designed to provide a comprehensive and inclusive learning experience that prepares students for success in a global landscape (Matsumoto 2019). Education is free, universal, and mandatory up to K-9, as stipulated by the UAE's constitution and reinforced by national laws (UAE Government Communication Department 2024).

The curriculum and pedagogy in the UAE promote a well-rounded education, integrating academic knowledge with practical skills, creativity, critical thinking, and ethical values (Borg and Grech 2018). The MoE oversees curriculum development, ensuring national educational goals and international standards are aligned. Arabic and English are the primary languages of instruction. Basic subjects in secondary schools are Arabic, English, Mathematics, and Physical Education, alongside STEM subjects such as Health Sciences, Computer Science, and Geology, and Literacy subjects such as History, Geography, Sociology, and Economics (State University 2024). The current curriculum lacks specific subjects on SFNE. However, initiatives are underway to provide free nutritious meals to all public-school students by 2025, aiming to reduce childhood obesity and improve health and educational outcomes (Education UAE 2023; HiDubai Newswire 2023). Research indicates that students perform better academically, behaviourally, and emotionally when consuming nutritious meals during the school day (Cohen et al. 2021; Illøkken et al. 2021; Wang and Fawzi 2020). However, studies also suggest that providing nutritious meals alone may not

instil healthy eating habits without accompanying practical nutrition education (Hunter et al. 2017; Zenebe et al. 2018). Given its history and commitment to continuous improvement, the UAE is well-positioned to develop and implement a curriculum addressing nutritional gaps.

2.3.2 Significance of School-Based Food and Nutrition Education (SFNE)

Global Nutrition Challenges and the Need for SFNE

Despite ongoing research and interventions, suboptimal nutrition and unsustainable eating practices remain significant threats to global public health (Belarmino et al. 2024; Fieldhouse et al. 2020; Fiteni 2021; O’Hearn et al. 2023). Poor dietary habits contribute to a dual burden of malnutrition, where both obesity and undernutrition coexist, leading to severe health outcomes. This issue is particularly pressing in the UAE, where rising rates of obesity and related diseases among both adults and children reflect the need for urgent action (Global Nutrition Report 2021). Unhealthy diets, coupled with increasingly sedentary lifestyles, exacerbate these health concerns and signal the need for systemic interventions. SFNE offers a promising solution by addressing nutrition gaps early in life. Through SFNE, students can develop critical and practical skills in understanding food choices, nutrition, and healthy eating practices, essential in combating the long-term effects of poor diet. SFNE goes beyond merely teaching facts about food; it fosters healthy eating habits, improves food literacy, numeracy, and encourages sustainable practices.

Socio-economic Disparities in Dietary Habits

Dietary patterns are significantly influenced by socio-economic status. Lower socio-economic groups generally report less healthy dietary intakes, such as lower consumption of fruits and vegetables and higher intake of energy-dense foods, compared to higher socio-economic groups (Cheon and Hong 2017; Mahmood et al. 2021; Manyanga et al. 2017). This disparity in dietary habits contributes to higher prevalence rates of obesity and diet-related chronic diseases among lower socio-economic populations (Djojosoeparto et al. 2022). Over the past few decades, patterns of nutritional inequality have intensified, correlating with

substantial and detrimental changes in the food production environment (Allcott et al. 2019; Jiwani et al. 2020; Meller et al. 2021). To mitigate these disparities, government policies that support healthy food consumption environments in schools are essential (Emmons and Chambers 2021; Osowski and Sydner 2019; Spencer et al. 2019).

The Food-Environment Policy Index (Food-EPI) identifies policies crucial for fostering healthy food environments, such as regulating the availability, accessibility, and quality of foods in schools (Ballam 2003; Djojosoeparto et al. 2022). Governments can create better food environments by implementing these policies, which can help address nutritional inequalities. Government involvement in promoting SFNE is particularly crucial in regions with significant social and economic disparities, such as the UAE. Educational reforms in Abu Dhabi, such as the New School Model (NSM) and the Public–Private Partnership (PPP) initiative, have laid the groundwork for incorporating SFNE into school curricula. These efforts are led by ADEC (Greany and Earley 2021).

International Examples of SFNE Implementation

Globally, many countries have recognised the importance of incorporating SFNE into their education systems. For instance, in 2014 the UK Department for Education has made Cooking and Nutrition compulsory in state-maintained schools for all students from KS1 to KS3 aged 5–14. This initiative aims to teach children culinary skills, principles of nutrition, healthy eating practices, sustainability and to instil a love for cooking to allow for greater expressions of human creativity (UK Parliament 2020). Since 2016, Food Preparation and Nutrition (FPN) has been a selective subject available at Key Stage 4 as part of the General Certificate of Secondary Education (GCSE) for students interested in further studies in food nutrition, health, food science, food safety, food choice, and food provenance (Oxford Cambridge and RSA 2018).

FAO recently surveyed the state of SFNE across 30 low- and middle-income countries (LMICs). The survey found that 9 countries had dedicated policies for SFNE integration and

implementation, while 15 countries featured SFNE to a limited extent. Six countries had outdated policies, and one country had no reference to SFNE. Only 2 of the 30 countries implemented SFNE as a stand-alone subject (Food and Agriculture Organisation of the United Nations 2021). However, the implementation and focus of SFNE in addressing food literacy vary significantly among these countries.

Evidence of SFNE Effectiveness

Empirical research consistently supports the effectiveness of SFNE in improving students' dietary knowledge, attitudes, and behaviours. A quasi-experimental study by Prelip et al. (2012) involving six Los Angeles Unified School District schools found positive results. The study showed that a standardised nutrition curriculum, teacher training and parent nutrition education workshops, led to significant improvements. Additionally, network programmes among schools improved students' knowledge, attitudes, and beliefs towards the consumption of fruits and vegetables. Similarly, Wang et al. (2015) conducted a cluster-randomised intervention trial with 65 seventh-grade students in Mi Yun County, Beijing and found that SFNE significantly improved students' knowledge, attitudes, and behaviours regarding nutrition.

Further supporting these findings, Tamiru et al. (2016) quantitatively studied 1,000 adolescents aged 10–19 to assess the effectiveness of SFNE and nutrition interventions. The study found that teaching and learning about SFNE improved dietary diversity among adolescents. Consequently, SFNE should be incorporated into national school curricula to enrich students and their families. Ronto et al. (2017; 2019) also emphasised that food literacy is crucial in addressing adolescents' dietary behaviours. Numerous studies have validated the relevance of SFNE in fostering sustainable eating and nutrition habits as well as positive health outcomes (Glorioso et al. 2020; Jung et al. 2019; Teo et al. 2019; Teo et al. 2021).

Research indicates that sustainable food choices, balanced diets, and physical activity contribute to healthier and more fulfilling lifestyles. Conversely, diets high in fats, salts, and sugars are linked to poorer health outcomes (Garcia et al. 2017; Moody 2019; Muzaffar et al. 2018). This highlights the need for structured cooking and food preparation education as a cornerstone of health and wellness. Experts argue these essential skills should not be left solely to informal guidance from untrained home-based coaches (parents and caregivers). Instead, they should be incorporated into comprehensive and practical school curricula to ensure that students receive well-rounded, evidence-based education on nutrition (Abu Shihab et al. 2023; Pang et al. 2019). This approach ensures that students have the knowledge and skills necessary to make informed food choices and promote long-term health.

Curriculum Planning in School-Based Food and Nutrition Education

Effective curriculum planning forms the backbone for effective SFNE delivery. A well-planned curriculum should impart theoretical knowledge to children and develop practical skills in making informed dietary choices (Shakeri et al. 2021). Recent literature has again pointed out an interdisciplinary approach to nutrition education, integrating food into other areas of learning, such as Health Science, Humanities, Arts and Design, Physical Education, and Sustainability. In countries like Finland and the UK, including food education in the curriculum enables students to capture wider implications of nutrition, not confined to scientific or health-related contexts, extending further in such areas as environmental stewardship (Izumi et al. 2020). It is one of the interdisciplinary approaches for students to study how food choices influence personal and environmental well-being. In contrast, the UAE curriculum has been criticised for a fragmented approach to food and nutrition education (Shakeri et al. 2021).

Owing to this, which is not integrated with other disciplines, students' knowledge of the issue becomes fragmented and incomplete because of the disintegrated curriculum. Various studies have also highlighted the flaws in curriculum planning, especially in

practical education like cooking lessons. Practical works play an outstanding role in strengthening theoretical knowledge; however, time and resources spent on it remain scarce (Florintino et al. 2023). Schools are usually pressed for time, which reduces the number of practical lessons that can be conducted, thereby reducing the general quality of SFNE and making students unprepared for basic cooking skills. Moreover, cultural relevance also comes in handy in terms of SFNE, an aspect in which much has been left behind. In diverse societies, such as the UAE, a curriculum related to food practices is local and respects cultural norms; this helps increase the level of students' involvement and improves learning outcomes.

Love et al. (2020) show that culturally responsive curricula, which incorporate local food customs, make learning relevant and thus raise the level of interest in nutrition among students. Indeed, the curricula of a few SFNEs are focused on cultural backgrounds during their elaboration; thus, globally, disengagement from students with different cultural contexts is noticed (Boddy et al. 2019). Therefore, an effective practice of SFNE calls for an interdisciplinary curriculum, sufficient time to accommodate practical lessons, and a culturally relevant curriculum. Achieving these in the UAE's school curriculum may result in more holistic and interactive nutrition education, enabling learners to make appropriate dietary decisions.

Challenges and Recommendations for SFNE

Despite the clear benefits of SFNE, challenges remain. In developing countries like India, SFNE programmes have often struggled to deliver the expected skill-based education. This is largely due to outdated curricula and a lack of practical assignments (Rathi et al. 2017). Poor dietary choices and intake continue among Indian adolescents despite efforts to promote healthy food consumption from an early age. These efforts largely rest on teaching SFNE concepts in schools. Similar perspectives are shared by Antwi et al. (2020),

Doustmohammadian et al. (2020), Francis (2006), Kyere et al. (2020), Mercieca (2018), Rector et al. (2021).

Wang and Stewart (2012) highlighted the significance of the Health Promoting Schools (HPS) framework. This framework is a whole-school approach to promoting health developed by the World Health Organisation. However, they identified insufficient professional training for SFNE teachers, inadequate funding, and limited follow-up interventions as significant barriers to developing effective SFNE programmes. Koch et al. (2020) attributed the limited impact of SFNE education to several factors, entailing inequitable access to learning resources and deficient professional development. They also cited a lack of coordination, insufficient investment, and restrained collaboration as contributing issues.

Teachers recognise the value of SFNE education in contemporary society but lament the limited provision of materials, professionalism, and support from school stakeholders (Metos et al. 2018). Inadequate professionalism and professional development are significant issues that constrain the growth of SFNE curricula (Baker et al. 2020; Cason et al. 2017; Gowing et al. 2007; Graziose et al. 2017; Pickering et al. 2007; Rathi et al. 2019; Watson 2008). This study delves into SFNE teachers and their professional practice to evaluate the status of SFNE in the UAE and provide guidance on developing SFNE from a pedagogical perspective.

Advancing SFNE in the UAE

The UAE is currently undergoing significant educational reforms, presenting a unique opportunity to enhance SFNE. Key initiatives such as the NSM and the PPP programme have been established to elevate educational standards and promote a student-centred learning approach. The NSM emphasises creating world-class educational facilities, integrating advanced technology in learning environments, and ensuring all students' health, safety, and well-being. These foundational changes are crucial for incorporating SFNE into the broader

educational framework. Additionally, the UAE government has implemented professional development programmes for school principals, aimed at empowering them to drive and implement change effectively (Stringer and Hourani 2015). These programmes are essential for building the capacity of educational leaders to champion SFNE initiatives within their schools. The formation of the Board of Directors of the ESE in 2019 highlights a strong commitment to enhancing the federal education sector. The Board is focused on developing policies, plans, and standards that improve the learning environment (MoE Ministry of Education 2019, July 15). This integrated approach ensures that SFNE is not only integrated into the curriculum but also supported by a robust infrastructure and a conducive learning environment.

2.3.3 Challenges Teachers Face in Supporting SFNE Students During NEA

Peer-led initiatives often constitute an effective NEA approach (De Lisle et al. 2010; Perikkou et al. 2015). Specifically, this approach uses peers in implementing a diverse range of instructional or behaviour change interventions. Peer education impacts the social environment and can help change social norms, especially among culture-sensitive communities. Al Shebli and Al Hosani (2021) identified classroom observations as a fundamental approach in a similar study. In this, individual teachers observe the proceedings within each classroom session. Individual students' interaction code and active problem-solving skills are constantly engaged while considering the challenges they face as a group or individually.

These challenges are further illustrated by Al Shebli and Al Hosani (2021). Their research investigates the classroom management techniques used by elementary school teachers in the UAE to cope with unruly students. Teachers and administrators in the UAE are becoming increasingly concerned about students' disruptive behaviour when they are in the classroom (Al Shebli and Al Hosani 2021). As a direct result of this, teachers are spending more time maintaining order in their classrooms. This increased focus on discipline

can affect the quality of teaching and learning (Al Shebli and Al Hosani 2021). The primary difficulty at hand is that disruptive students reduce the efficiency of teaching and learning; this is regarded as a serious concern.

In their qualitative study, Reitmeier and Vrchota (2009) examined the factors influencing the adoption and implementation of Cooking with Kids (CWK) programmes in schools. They found that the primary barriers to implementing CWK programmes were linked to limited resources. For instance, getting permission to go into a school classroom for two-hour blocks to teach cooking lessons is challenging due to general testing requirements in schools. These are due to inadequate space, funding, volunteers, and well-trained and qualified Home Economics or Food and Nutrition teachers (Alharbi 2024). The study identified that individual schools should invest more capital necessary to purchase food supplies. Meanwhile, some schools need more space for nutrition classes and practical activities. In some, the available space needs to be improved, even to store everything necessary for a particular recipe.

According to CWK, most schools need more parent volunteers, which hampers the effective inclusion of home-based culture in food and culinary science education (Reitmeier and Vrchota 2009). Further, the study also observed that teacher comfort in cooking lessons is another challenge since most teachers are more comfortable in vegetable and fruit testing lessons than in cooking lessons. The main reason behind this is that testing lessons involve minimal food preparations with no cooking. The study noted that this impacts individual teachers' motivation levels and, consequently, the quality of teaching and support offered to students, significantly impacting individual students' decisions.

Class size has become challenging for SFNE teachers and the School Leadership Team (SLT) (Kelly 2015). The Food Teachers Centre (FTC), a UK-based group of over 7,000 food teachers founded in 2013, has addressed this issue through a discussion known as "The Great Food Class Size Debate" (Davies and Ballam 2023). They identified five major space-related

issues that food teachers face when teaching and assessing SFNE lessons. These challenges encompass insufficient space for students to work safely and overcrowded classrooms with shared equipment.

Additionally, limited support due to time constraints, stressed and burned-out teachers with low morale and high turnover, and lower-than-expected student performance are significant issues that have been experiencing an increase in class sizes where class numbers exceed room limits. This has gravely impacted the quality of practical food education and exposed students to greater safety risks (Food Teachers' Centre 2023). The Consortium of Local Education Authorities for the Provision of Science Services (CLEAPSS) noted that class sizes (in terms of the number of students sharing a classroom) are increasing for various reasons. Major issues include school funding and the availability of expertise in designing food rooms, which are capital-intensive (CLEAPSS 2017). Nonetheless, another issue of much interest is how to determine an effective size of food technology rooms. The UK Department for Children, Schools and Families (DCSF) attempted to address this issue, holding that the space size should be based on group size and layout. The department formulated that space size should range between $(23 + 3.6G) \text{ m}^2$ and $(27 + 4G) \text{ m}^2$, where G is the KS3 and KS4 group size (DCSF n.d.). For instance, a space to contain a group of 20 students should have an area range of between $(23 + 3.6(20)) \text{ m}^2$ and $(27 + 4(20)) \text{ m}^2$, which is 95 m^2 – 107 m^2 .

In addition, a study by McKenzie (2007) sought to identify emerging trends in nutrition education. The study highlights that SFNE programmes in the United States and Europe have a clear behavioural focus within their strategies. In a similar study to ascertain SFNE components, Story et al. (2002) identified school curriculum, implementation, and environmental interventions as essential aspects of SFNE. In regard to the school curriculum, the study asserts that the SFNE curriculum should focus on providing nutrition information and developing culinary skills related to food, nutrition, and health. It should also cover food

science, food safety, food choice, food provenance, and the social and cultural aspects of food and eating. Additionally, it should aim to enhance self-esteem, promote a positive body image, and address other consumer aspects. These have a significant impact on the food choices among individual students. The study also identifies several methods that can be used to teach and support individual students. These consist of, but are not limited to, classroom discussions, worksheets, keeping food records, shopping exercises, tasting, creating, or drama. The study further adds that extra-curricular activities involved in SFNE are challenging. These activities involve school gardening, developing cooking skills, exhibitions, and other workshops. Likewise, new technologies such as the Internet, the World Wide Web (WWW), Artificial Intelligence (AI), and the Internet of Things (IoT) also provide a chance for interactive learning experiences (Buabeng-Andoh 2012; Turner and Rutland 2020; Yoo and Lee 2018).

Kupolati et al. (2018) conducted a study to identify viable systems and procedures for optimal human capital development in the contemporary world. They observed that most education systems face the challenge of misalignment. In this, the effectiveness of these education systems is significantly hampered by contradictions either to the local cultures or the highly volatile workforce demands. Studies further confirm this observation. The UAE education system faces challenges due to misalignment, which inhibits its effectiveness (Tilles-Tirkkonen et al. 2018; Swindle et al. 2019). Despite recognition of this issue, many education systems have policies that fail to address the various aspects of vertical and horizontal dimensions of seamlessness. Explicitly, horizontal seamlessness highlights integration at different levels, incorporating subject areas and disciplines like SFNE. Through this, in a seamless system, technical-vocational training (TVT) and academic pathways do not diverge; they remain separate. In most cases, this can never be achieved when students are placed in different tracks within the school or different schools that cater to diverse ability groups. Additionally, as Kupolati et al. (2018) observed, horizontal seamlessness may apply to schools in different geographical locations and socio-economic contexts. Existing

gaps between schools in these diverse contexts primarily imply differences in opportunities. This highlights the essence of structures for inclusion within the learning environment. These can include, but are not limited to, support structures for students with special needs. In the UAE, these students are known as people of determination (PoD) who are at risk.

Another critical challenge confronting educators is effective communication with parents, particularly those who are not proficient in English. Arabic is the primary medium of instruction in public schools across the UAE and are segregated by gender, with only recent exceptions integrating English. This creates a pressing need for clear and accessible communication channels that accommodate the linguistic needs of non-English-speaking families (Chazy and Thomure 2022; Gilmour et al. 2018).

Parental involvement is a cornerstone of educational success, especially in curricula like SFNE that necessitate practical, hands-on engagement both in and outside the classroom. However, when instructional materials, such as parental letters and recipes, are predominantly prepared in English, a significant barrier emerges for Emirati parents who may not be literate in English (Alharbi 2021; Alharbi 2024). The linguistic divide, reflective of a broader social divide tied to socio-economic disparities, can lead to diminished parental engagement and support, thereby adversely affecting students' ability to fully participate in and benefit from practical lessons. The repercussions of this communication gap are profound. It can undermine the efficacy of the SFNE programme by limiting the home-based reinforcement of classroom learning. This reinforcement is essential for student success (Alreshidi et al. 2021).

The extant literature underscores the indispensable role of parental involvement in enhancing student outcomes, particularly in disciplines that require home-based practice and collaboration. For example, Nghia and Vu (2023) and Fiteni (2021) highlight that students exhibit higher academic achievement when their parents are actively engaged and fully comprehend the educational content. To facilitate engagement with SFNE in UAE public

schools, it is crucial that instructional letters and vernacular recipes, among other communications directed at parents, be translated into Arabic. Accurate translation ensures effective understanding and involvement. SFNE educators are required to establish robust collaborative frameworks with the Arabic department within their schools. This inter-departmental cooperation is vital to ensure that all parental communication is linguistically accessible, thereby enabling full participation and support from the parents. The translation of these materials should be viewed not merely as a procedural necessity but as a strategic imperative that fosters inclusivity and equity within the educational system.

Translating parental letters and instructional materials from English to Arabic is not just a practical consideration. In UAE public schools, where Arabic predominates, it is a critical pedagogical strategy. Addressing this challenge is essential to cultivating a learning environment that is inclusive, supportive, and responsive to the diverse linguistic needs of the student population. Active elimination of language barriers can enable SFNE educators to ensure that all students have equitable access to the curriculum, thereby fostering a more inclusive and effective educational experience (Abdalla and Moussa 2024).

2.3.4 Factors Affecting SFNE Teachers' Preparedness

The performance of an effective teacher in the classroom involves several interrelated processes (Merrill and Lawver 2019). These processes consist of evaluating events, deciding whether to take action in response to events, pursuing specific activities, and maintaining a high level of metacognitive monitoring. Constant event awareness, which involves regularly monitoring classroom events, identifying who or what needs attention, and knowing how to respond and react, is essential to effective classroom management. Teachers need more motivation when they cannot control their classrooms. Nevertheless, teachers may significantly improve their preparedness to meet this challenge if they gain more experience and broaden their skill sets (Allen and Sims 2018).

Recent events have demonstrated that the adaptability and originality of teachers in the classroom inspire their readiness to contribute to SFNE curricular programmes. Their innovative approaches enhance their ability to assist in developing these programmes effectively (Buabeng-Andoh 2012; FitzGerald 2018). However, in most cases, the existing curriculum only allows for increased creativity while delivering services, which inhibits their natural tendency to be inventive. In addition, Hussein (2018) highlights that individual educators are held accountable for the responsible upkeep of food science and culinary labs. In contrast to their assumptions, they discovered that they needed to supplement, repair, and eventually replace certain laboratory supplies, appliances, and equipment using private resources. The most crucial factor in this decision was the regular financial limits faced by educational institutions.

Inadequate time allocation is a significant challenge for teachers, particularly in implementing practical assessments in the SFNE curriculum (Benn 2014; Graziose et al. 2017; Rutland and Seabrook 2023). Practical lessons often require teachers to adapt homemade recipes or request alternative ingredients, demanding substantial preparation time (Hahn 2018; Hussein 2012). Effective execution of these assessments typically requires about two hours, but students are usually given less than 60 minutes, severely hindering the process (Harmer 2019; Metos et al. 2018). This limited timeframe affects the quality of preparation and execution, impacting students' performance and learning experience. Additionally, constant revisions to the SFNE curriculum due to food allergy issues complicate the teaching process. Teachers must tailor every assessment element to meet individual students' needs, which involves extensive preparation. The need to meet individual students' needs can be overwhelming, especially for novice teachers, leading to avoidance of these demanding tasks. Similar observations were also made by Abu Farha et al. (2021), who noted that the level of preparedness required in such a complicated framework is also hectic for educators.

A significant factor affecting teachers' preparedness in supporting the SFNE curriculum is the availability and quality of professional development opportunities (Day and Gu 2014). Continuous professional development (CPD) is crucial for teachers to stay updated with the latest advancements in food science, nutrition, and pedagogical strategies. Research indicates that effective CPD programmes enhance teachers' content knowledge, instructional skills, and confidence, thereby positively impacting student outcomes (Admiraal et al. 2021). However, many teachers report a lack of access to high-quality CPD tailored to their specific needs in SFNE. A study by Buckner et al. (2016) highlights that professional development initiatives often have limited relevance to teachers' everyday classroom challenges. Additionally, these initiatives rarely offer practical strategies for integrating new knowledge into teaching practices. Furthermore, the inconsistency in the quality of CPD programmes can lead to disparities in teacher preparedness. As a result, some educators may feel inadequately supported in their efforts to deliver the SFNE curriculum effectively (Nanayakkara et al. 2018; Rathi et al. 2017; Rutland 2020). Addressing these gaps requires a concerted effort to design and implement CPD programmes that are relevant, practical, and aligned with the specific needs of SFNE teachers.

Another critical factor is the integration of technology in the classroom, which plays a pivotal role in SFNE. The use of digital tools and resources can significantly enhance teaching and learning experiences by providing interactive and engaging content (Murimi et al. 2018; Perikkou et al. 2015). For instance, multimedia resources, online simulations, and virtual labs can make complex food science concepts more accessible and understandable for students (Swindle et al. 2019). However, the successful integration of technology depends on teachers' digital literacy and their ability to effectively incorporate these tools into their teaching practices, especially when delivering NEAs. Many teachers face challenges related to inadequate training, limited access to technological resources, and a lack of confidence in using digital tools (Admiraal et al. 2021; Jones et al. 2019). Moreover, the digital divide refers to the gap between those with access to modern information and communication

technology and those without. This divide can exacerbate challenges, particularly in under-resourced schools (Seabrook and Grafham 2020). Ensuring that all teachers have equitable access to technology and the necessary training to use it effectively is essential for enhancing their preparedness to support the SFNE curriculum. This entails providing ongoing technical support, fostering a culture of continuous learning, and encouraging collaboration among teachers to share best practices and resources. Parental involvement, school-student-teacher collaboration and engagement, physical and virtual cooking labs, and teacher literacy in food and numeracy literacy are core conditions that underpin effective food and nutrition pedagogy (Fiteni 2021; Fiteni and Mimirinis 2025; Fredericks et al. 2020; Stanley and Gilzene 2022).

2.3.5 Barriers Students Face with UK Examination Themes: A Bourdieusian Perspective

Bourdieu's work in social sciences has garnered significant attention over the years, particularly his concepts of capital and habitus. Thus, Bourdieu's concepts of cultural capital and habitus are instrumental in understanding the socio-cultural influences on both academic assessment and home economics (Smith et al. 2004). Bourdieu defines capital as the outcome of accumulated labour, which can be visible or embodied, enabling individuals to preserve and enhance their societal position (Bourdieu 1984). He distinguishes between three types of capital: cultural, social, and economic (Bourdieu 1984). Cultural capital is a person's acquired skills, linguistic abilities, morals, and social norms gained through education (Bourdieu 1998). It exists in three forms: embodied, objectified, and institutionalised (Bourdieu 2005). Embodied cultural capital comprises dispositions and competencies gained through socialisation. Objectified cultural capital consists of material objects like books and musical instruments, while institutionalised cultural capital centres on educational qualifications (Grenfell and James 1998).

These elements of cultural capital integrate into an individual's habitus, an internalised system of dispositions shaped by their social environment (Bourdieu 1984; Power 1999). The habitus influences lifestyle choices, reflecting social class and shaped by life chances. Bourdieu argues that these choices are guided by habitus, leading individuals towards behaviours that align with their social background (Bourdieu 2018). Dietary choices and eating behaviours are also influenced by cultural capital. Individuals from different social backgrounds possess varying levels of cultural capital related to food, affecting their dietary practices (Bourdieu 1984; Bourdieu 2018). Certain foods and eating practices are valued differently across social groups, contributing to the reproduction of class culture (Levinson 2015; Nash 1990). Food literacy and consumption patterns are shaped by social class, with wealthier individuals viewing food as an expression of taste and creativity, while lower socio-economic groups see it as a necessity.

The concept of habitus explains how internal and external structures of an individual's social world influence their routines and how these practices contribute to preserving social structures (Bourdieu 2018). According to Bourdieu, people's dietary choices and eating behaviours are heavily influenced by their cultural backgrounds, social class, and upbringing (Bourdieu 1984; Bourdieu 2018). Different social groups may valorise certain foods and eating practices while stigmatising others (Kamphuis et al. 2015). This theoretical framework is evident in subjects like GCSE FPN, taught in the UK in grades 7–11. Examination boards in the UK, such as Oxford Cambridge and RSA (OCR), Assessment and Qualifications Alliance (AQA School Leadership Team (SLT), Eduqas, Council for the Curriculum, Examinations and Assessment (CCEA), and Cambridge International Examinations (CIE), oversee and assess these disciplines, highlighting the intersection of cultural capital and education (Eduqas 2016). These boards indirectly highlight the intersection of cultural capital and education by emphasising certain food practices, knowledge, and skills that may align more closely with the cultural backgrounds of students from higher socio-economic statuses, potentially marginalising those from different or less privileged backgrounds (Eduqas 2016).

Standardised assessments like CAT4 and Progress Tests aim to provide equal measurement of students' abilities across different socio-economic backgrounds, yet Bourdieu's work suggests that these assessments may not account for cultural capital disparities. Home Economics curricula are increasingly designed to address these imbalances by teaching practical food preparation and nutrition skills. Critiques suggest that these programmes often overlook socio-economic factors that influence dietary choices, such as limited access to affordable fresh produce, the prevalence of fast food in low-income areas, and the time constraints faced by working families (Pendergast 2012). The GCSE in FPN has, in recent history in the UK, reflected changes in educational priorities and societal attitudes towards food and nutrition (Rutland and Seabrook 2023; Turner 2020). Before the introduction of GCSE FPN, food-related subjects were often taught under different guises, such as Domestic Science, Home Economics, Hospitality and Catering, or Food Technology (Ridgwell 2021; Turner 2020). These subjects varied widely in content and focus across different schools. In the early 2000s, there was a growing recognition of the importance of food education due to rising concerns about public health issues like obesity and diet-related diseases (Khublall 2022; Rutland 2018). This led to calls for a more standardised and comprehensive approach to teaching FPN in schools (Seabrook and Grafham 2020). The concept of a dedicated GCSE qualification in FPN began to take shape in the early 2010s. It aimed to provide students with a deeper understanding of nutrition, food safety, cooking techniques, food provenance, and food science and an approach to more savoury recipes than sweet ones (Aujla 2017; Ballam 2019; Benn 2014; Seabrook and Grafham 2020). The development of the GCSE FPN involved extensive consultation with educators, industry professionals, nutritionists, and other stakeholders. The curriculum was designed to be relevant, engaging, and aligned with the UK's economic, social, and cultural structures and national dietary guidelines and educational standards (Ballam 2019; Rutland 2020).

However, despite these intentions, some critiques have emerged regarding the GCSE FPN. Critics argue that models used in the curriculum, such as the Eatwell Plate, may be

outdated. Berg et al. (2024) believe that these models do not fully reflect current nutritional science or the challenges of modern dietary patterns. The researchers argue that while the plate model, also known as the Eatwell Guide, can be useful in food education, it has been overused and has its limitations. The model may narrow the scope of healthy eating and could lead to misjudgements of individuals who do not follow the prescribed dishes. Due to cultural sensitivity, there has been a need to develop similar food guidelines for Arabic countries. Arab Centre for Nutrition developed the Food Dome model, a dietary guideline for Arab countries (Musaiger et al. 2012). The model takes into consideration current nutritional problems in the region, food consumption patterns, food groups used in the region and nutritional profiles of each group, among other factors. Despite its specificity to the culture of Arab countries, The Food Dome is underused in the UAE due to its absence in public utilities such as schools and hospitals (Musaiger et al. 2012). This differs from the Eatwell Guide, which was launched in March 2016 as a pictorial representation. The Eatwell Guide has been widely disseminated through posters and banners in schools, hospitals, and public spaces, among other forms of media. Studies have called for the implementation of culturally specific food-based guidelines. Community health practitioners and nutrition professionals can benefit significantly from culturally sensitive dietary guidelines. Such arguments generate the need to initiate and invigorate the application of the Food Dome guideline in the UAE. Additionally, while the FPN curriculum aims to be comprehensive, there are concerns that it may not fully address the diverse cultural food practices found within the UK. This could potentially limit its applicability to all students (Backett-Milburn et al. 2010). Moreover, the focus on practical skills, while valuable, sometimes overshadows critical discussions about the broader socio-economic factors influencing food choices and public health.

The GCSE FPN was introduced as a formal qualification by the Department for Education (DfE) in England, the Welsh Government (WG) in Wales, the Scottish Qualifications Authority (SQA) in Scotland, and the CCEA in Northern Ireland. It typically

became available as an option for students aged 14–16, alongside other GCSE subjects (Rutland 2018). Despite these critiques, the qualification represents an important step in formalising food education and promoting healthier dietary habits among young people.

FPN is evaluated based on performance in both a written and a practical component. To this day, the practical test counts fifty per cent of each student's total score (Eduqas, AQA, and OCR 2016). The practical test is divided into two parts: NEA 1 and NEA 2. Students are graded on their practical culinary abilities in NEA 1, which accounts for 15% of the total points, and on their practical food science knowledge in NEA 2, which accounts for 35% of the total points. The forums come up with a list of meals that they believe need high, medium, or low levels of competence, depending on acceptable topics.

GCSE FPN, as designed by various UK Examination Boards, is applied not only in the UK but also in various schools, especially international schools, in the UAE. This creates some disconnects, especially among Emirati students (Double et al. 2023). The UAE is a highly religious society, with strict Islamic and Sharia laws guiding various aspects of life. These laws influence what people eat and drink, as well as their interactions with specific societal constructs. Food is one such aspect that is governed by these regulations (Souryal 1987).

The concepts of “halal” and “haram” are central to understanding what is considered lawful and forbidden within Islam (Al-Teinaz et al. 2020). According to Sharia Law, all foods are considered halal except for certain items which are deemed haram. These forbidden items include swine/pork and its by-products, animals that are improperly slaughtered or dead before slaughtering, and animals killed in the name of anyone other than Allah. They also include alcohol and intoxicants, carnivorous animals, birds of prey, land animals without external ears, blood and blood by-products, and foods contaminated with any of these substances. These prohibitions are codified in the Qur'an (2:173; 5:3).

The Qur'an also specifies how food must be prepared to be halal. For example, Qur'an 6:118 decrees that Allah's name must be mentioned before slaughtering or consuming any animal, emphasising the importance of invoking Allah's name before consuming any food. Islamic law requires followers to choose wholesome, clean, and halal foods as part of their daily lives, reflecting their religiosity. Halal and haram in food consumption are not only religious mandates but are widely practised by Muslim communities, connecting deeply to their faith and daily practices. A study by Ambali and Bakar (2014) found that issues of hygiene, quality, and safety in food production, distribution, and consumption are intensifying. As a result, awareness of halal foods with halal logos in the lives of Muslims has gained momentum (Hassan and Hanif 2017). Despite the comprehensive nature of Sharia laws on food consumption, the SFNE curricula in the UAE are often developed based on secular or non-Islamic frameworks. This approach may lead to potential misalignments with cultural and religious dietary practices. Most of these curricula are designed based on Westernised laws, which are largely guided by Christianity and have no strict dietary restrictions. In developing his theory, Bourdieu generated a compelling argument that all pedagogic actions are symbolic violence insofar as it imposes a cultural arbitrary by an arbitrary power (Stahl and Mu 2024). Using this line of reasoning, Bourdieu concluded that pedagogy is the medium through which individuals are inculcated with social features, leading to the formation of habits and individual practice. Bourdieu's ideas are highlighted by the concepts of habitus and social capital. He argued that people's behaviours and capabilities are shaped by the cultural practices, values, and dispositions they are part of. Additionally, these are influenced by the experiences gained through socialisation and education (Threadgold "*Towards a theory*" 2020). The theory suggests that varying levels of social, cultural, and economic factors across different social and cultural groups affect student performance. As a result, students from diverse backgrounds may achieve different outcomes on the same tasks, even when given equal opportunities and freedom to demonstrate their knowledge and skills (Bourdieu 2005).

“For families with more resources, food becomes an arena for self-expression”, which might help model creativity while modifying classic recipes or coming up with fresh concepts for the test (DeVault 1991, p.201). Bourdieu (1984) investigated how various social classes had different perspectives on eating. His analysis of eating patterns revealed that the rich and the poor perceive food and eating habits differently. The rich perceive food as a taste of liberty, focusing on its preparation, presentation, and consumption. In contrast, the less privileged view food as a taste of necessity, prioritising the most filling and economical options (Bourdieu 1984). Bourdieu’s argument has been adopted by multiple researchers to explain why nutrition-based diseases are more common among the working or middle class than the upper class (Beagan et al. 2015; Bonnefond and Clément 2014; Deeming 2014; Fielding-Singh and Oleschuk 2023). For example, Beagan et al. (2015) found that dietary patterns and food choices are closely tied to social status and economic resources, influencing the prevalence of nutrition-related diseases. With this in mind, suggestions have been made to ensure that SFNE programmes consider social and cultural relativism to enhance access to resources and limit contextual biases (Hayes et al. 2018; Murimi et al. 2018; Osowski and Sydnerand 2019; Vettori et al. 2019). Hayes et al. (2018) argue that incorporating culturally relevant food practices into nutrition education can improve its effectiveness, particularly in diverse societies.

The family environment and meal structures are highly relevant to the impact of nutrition education. For instance, studies have shown that family meals contribute positively to children’s nutritional intake and eating behaviours (Muzaffar et al. 2018; Fulkerson et al. 2014). However, the influence of family meals can vary significantly depending on the socio-cultural context. In some settings, socio-economic disparities and cultural norms may affect how and when family meals occur, which in turn can impact their nutritional benefits (Phull et al. 2015). Regular family meals have been associated with healthier dietary patterns, such as higher consumption of fruits, vegetables, and wholegrains (Fulkerson et al. 2014). In the context of the UAE, family meal practices play a significant role in dietary habits. Traditional

Emirati (similar to Lebanese) cuisine, which emphasises communal eating and the consumption of fresh, home-cooked meals, reflects the cultural importance of family meals (Batal and Hunter 2007). However, the rapid modernisation and lifestyle changes in the UAE have led to a shift towards more Westernised eating habits, including increased consumption of fast food and processed foods (Malik et al. 2016). This transition poses challenges for nutrition education programmes, which must balance traditional dietary practices with modern influences. Al-Nakeeb et al. (2012) highlight the importance of culturally tailored nutrition education in MENA, suggesting that programmes incorporating traditional dietary elements alongside modern nutritional guidelines can be more effective in promoting healthy eating habits among Emirati families. Additionally, studies have shown that involving family members in SFNE can enhance the programme's impact, as family support plays a crucial role in shaping dietary behaviours (Magallanes et al. 2021).

The examiner's expectations and the student's views and justifications for their decision on a Family Meal question could be at odds. Bourdieu's contention that food choices are obviously reflected across social class is not shared by everyone. (Beagan et al. 2015; Chen 2016; Fitzpatrick 2011). This has drawn criticism for being both excessively static and overly limiting (Pietrykowski 2004). Smith (2016) and Beagan et al. (2015) reviewed research results to demonstrate that concepts of healthy and ethical eating appear to be broadly held across class differences and to highlight the effectiveness of education in spreading these concepts across social classes.

The reasons that the supporters of the Bourdieusian approach have put out apply to the practises that are followed regarding SFNE. For instance, based on Bourdieu's reasoning, it is possible to juxtapose the fact that students' choices of meals to prepare, cook, and present would drastically change depending on their social class and position (Bourdieu 1998). Families with more resources may perceive food as a medium through which they can express themselves. In comparison, families with fewer resources may consider food a

limited fuel source and nutrition (Bourdieu 2005). Therefore, those in higher socio-economic brackets are in the most significant position to choose tastier, healthier, and more nutritious meals. Those in lower socio-economic brackets tend to choose less expensive options.

2.4 Research Gap Addressed by the Study

Regarding resolving the questions and debates addressed in the preceding section, the importance of social and cultural factors cannot be overstated (Koch 2020; Fieldhouse 2013). In contrast to the author's themes, the questions of what should be taught and how it should be taught regarding SFNE significantly differ from culture to culture. According to Da Silva et al. (2015), food represents a society's material culture. It contributes to both the infrastructure and the superstructure of the social system. The culture and history of food, as well as the significance of food in shaping a people's social and cultural identity, need to be preserved. One way to do this is by educating students about SFNE, which should be based on traditional eating patterns and emerging trends (Monterrosa et al. 2020). To support the growth of the discipline in the UAE, it is essential to research its potential determinants. Additionally, promoting factors that align with the nation's cultural and social identity as a Muslim country is crucial. There needs to be research that tends to guide how the nation should build SFNE.

2.5 Conceptual Framework

Figure 1 presents the conceptual framework of the study, based on Bourdieu's theory of practice. This theory provides a comprehensive approach to understanding the socio-economic factors influencing students' dietary behaviours and nutritional outcomes. It is applied within the context of comprehensive SFNE programmes (Beagan et al. 2015; Burke 2015). This conceptual framework elucidates the interplay between cultural capital, habitus, and sociocultural structures to provide insights into the effective implementation of comprehensive teaching and learning of SFNE. Cultural capital encompasses the tangible and intangible resources, knowledge, and skills individuals acquire through socialisation and

educational experiences (Huang 2019). In the context of SFNE, cultural resources for teachers and students may take the form of nutritional knowledge, cooking skills, and exposure to diverse food options. It also involves the extent to which students from various socio-economic backgrounds have access to cultural capital related to healthy eating. Additionally, it examines how students use this cultural capital to make dietary choices and navigate food environments both within and outside of school (Kamphuis et al. 2015).

Individuals' social backgrounds, experiences, and cultural environments (*habitus*) shape their internalised dispositions, tastes, and preferences. These, in turn, influence their dietary behaviours, food choices, and attitudes towards nutrition (Woodhall-Melnik and Matheson 2017). From this point of view, it can be postulated that students' socialisation, family backgrounds, cultural traditions, and social environments would shape their perspectives on NEA themes towards FPN. Lived experiences and interactions with social institutions, such as family, school, and media, play a key role in shaping food preferences and consumption patterns. These influences also affect individuals' receptiveness to nutrition education interventions (Chen and Antonelli 2020).

Sociocultural structures encompass the broader social and institutional contexts that shape individuals' life chances, opportunities, and experiences (Bourdieu 2005). Within the field of food and nutrition education, sociocultural structures include factors such as socio School Leadership Team-economic status, institutional practices within schools, and broader societal norms and values related to food (Chen and Antonelli 2020; Monterrosa et al. 2020; Roudsari et al. 2017). Institutional practices encapsulate practices within schools, such as curriculum integration, CPD, extracurricular activities, and policies that contribute to the comprehensive teaching and learning of SFNE (Admiraal et al. 2021). The conceptual framework in Figure 1 is further modified in the discussion chapter based on the research findings.

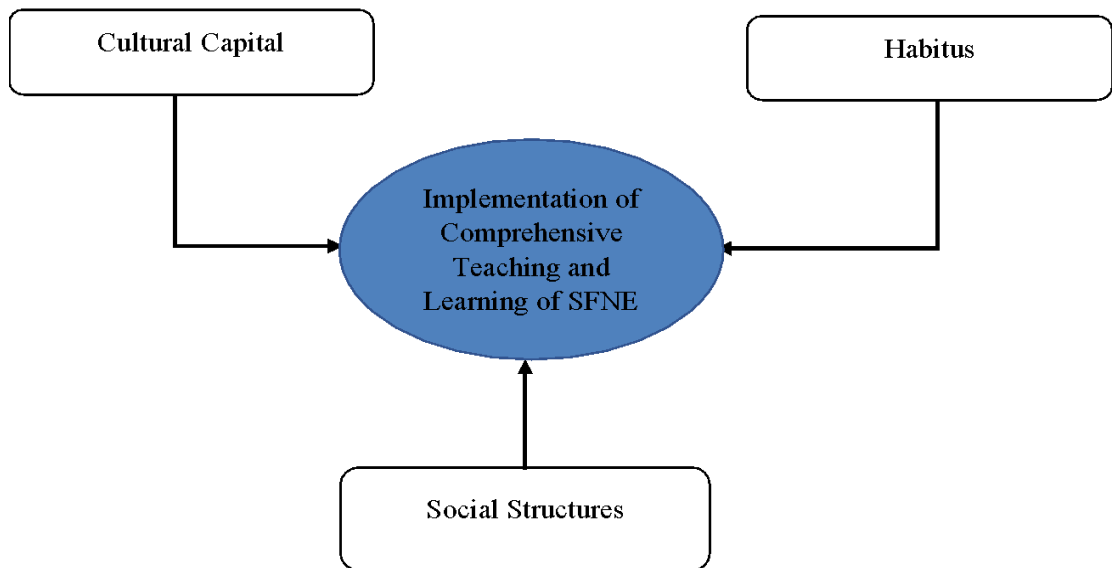


Figure 1. The Conceptual Framework

2.6 Chapter Summary

In this chapter review, I have explored the contextual background to factors shaping the implementation of comprehensive SFNE programmes in UAE public schools. Using Bourdieu’s Theory of Practice, I have emphasised how cultural capital, habitus, and sociocultural structures influence access to healthy eating resources across diverse backgrounds. Empirical findings underscore SFNE’s significance in fostering healthy habits and addressing nutritional gaps among students. However, educators face challenges such as resource constraints, time limitations, and insufficient nutrition education training. To enhance teacher readiness, robust training, administrative support, and accessible resources are essential. Factors impacting teacher preparedness include professional development opportunities, administrative backing, and educators’ attitudes towards SFNE. Interventions should prioritise comprehensive training and nurturing supportive school climates.

The literature review informs my study by highlighting the necessity of culturally consistent and socially relevant SFNE programmes in the UAE. Challenges arise when SFNE aligns with UK standards, such as cultural disparities, language barriers, and dietary diversity. Tailoring curriculum content and teaching methods to local cultural norms and

preferences is crucial for the efficacy of SFNE programmes in the UAE (Myatt and Tomsett 2022). Despite extensive literature, gaps remain in understanding factors affecting teachers' preparedness to teach SFNE and the specific challenges they face in the UAE context. Addressing these gaps is vital for developing a socially and culturally sensitive SFNE programme. My study aims to address the unique challenges and needs of UAE teachers in implementing SFNE. It seeks to ensure the programme is both effective and tailored to the local context.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This study explores the key factors that influence the effective and comprehensive development of the SFNE curriculum from a pedagogical perspective with main focus on teachers' experiences, instructional challenges, and curriculum integration within UAE secondary schools. Particularly, it sought to find answers to the challenges that SFNE teachers face in teaching and supporting students and factors that affect their preparedness to deliver SFNE content, especially themed practical lessons in NEAs. This chapter provides an in-depth discussion of the ethnographic approach and procedures that I used for the study. Bourdieusian lens as an approach played a core role in designing research instruments. The research methodology explains the procedures used to collect, evaluate, and analyse data throughout the thesis.

3.2 Philosophical Stance

This study is grounded in an interpretivist epistemology, which explicitly acknowledges that knowledge is constructed through social interactions and the subjective experiences of individuals. This epistemological stance is critical in understanding the implementation of SFNE, as it recognises that teachers' knowledge and perspectives on the curriculum are not objective or uniform but shaped by their personal experiences, professional backgrounds, and the unique contexts in which they work (Broudy et al. 2016; Swain 2017). An interpretive approach was essential, as it allowed the study to explore these individual perceptions and uncover various ways in which teachers understand and engage with SFNE. This perspective rejects the notion of objective, universal truths and instead seeks to explore the varied, contextualised realities of the participants.

In addition, the study adopts a constructivist ontology, which holds that reality is not an independent, fixed entity but rather something that is continuously shaped and reshaped by human interactions and interpretations. This was particularly relevant in exploring the

preparedness of teachers to deliver SFNE, as their preparedness is not solely a function of measurable skills or competencies but is also influenced by institutional frameworks, social expectations, and cultural norms (Crotty 1998; Edson et al. 2016). Through this constructivist lens, the study recognises that the understanding of food and nutrition education is socially constructed and varies across individuals based on their experiences and contexts.

The use of interpretivism and constructivism provided a subtle framework to explore teachers' perspectives, giving space to the subjective meanings they attach to their roles, challenges, and the broader context of SFNE in Abu Dhabi (Vandenberg 2009). Embracing these philosophical positions provides ground for the study to acknowledge the fluid and constructed nature of knowledge, emphasising the importance of engaging directly with teachers to understand the diverse realities they experience in implementing SFNE.

3.3 Approaches to Theory and Development

Research approaches constitute the type of reasoning adopted to draw conclusions, make predictions, and construct explanations. Such reasoning can be deductive, inductive, or abductive. This study adopted an inductive reasoning approach, which is a type of logical inference that involves deriving general principles or theories from specific observations or instances (Walker 2013). This study began with interviews and observations that were specific and limited in scope and gradually developed into broader conceptual frameworks and the development of theories based on empirical evidence (Cohen et al. 2019). Although an inductive study is highly explorative and provides an opportunity to ask questions that cannot simply be put in numbers to understand human experience, its results must be interpreted with caution. David Hume questioned the inherent uncertainty in generalising from specific instances and from limited observations (Lange 2011). This study drew its conclusions with all these perspectives taken into consideration.

3.4 Methodological Choice

I adopted an ethnographic approach for this study where I involved the SFNE teachers in their specific schools through face-to-face interviews, thereby engendering in-depth exploration of the interview questions (Costley and Fulton 2018; Robson 2024). During the interview, I not only probed the respondents for deeper understanding but also observed non-verbal cues to further inform their responses to interview questions. Ethnography focuses on providing a detailed, holistic description of a given group within a given cultural setting with the aim of understanding and interpreting the culture and behaviour of the group under study within their natural context (Jones and Smith 2017). It casts a cultural lens on people's lives within their natural, real-life environments to develop an explanation or a theory around behaviour and culture (Jerolmack and Khan 2018).

This ethnographic study aimed to obtain an emic perspective of how the dominating culture characterises the teaching of SFNE in Abu Dhabi international secondary schools. Since such perspectives emanated from the teachers, no theoretical or empirical frameworks were imposed. Emic ethnography emphasises the need to undertake data collection processes using the native language to enhance the effectiveness of observing and analysing how people interact with each other and their environment (Beach et al. 2018). According to Hammersley and Atkinson (2019), ethnography is a suitable approach to getting “under the skin” of a research problem through profound interaction with and observation of the teachers in their curriculum dispensation process. Teachers were informed that they could participate in the study using either English Language or Arabic to provide an excellent opportunity to bolster and streamline the data collection process. Therefore, I used an ethnographic approach to observe how SFNE-related disciplines were taught in Abu Dhabi international secondary schools (Atkinson et al. 2021).

My selection of the ethnographic approach for this study was based on the foundation that the development of SFNE education was still at an early stage in Abu Dhabi public

schools and the UAE at large. Hence, there were limited resources to inform the study, specifically in the context of the UAE. Schnegg and Lowe (2020) propound the use of this design at the beginning of a project or at the discovery of a complex issue to develop an early understanding of the problem and support future research and decisions. Ethnographers shy away from injecting conceptual and theoretical frameworks into empirical data, especially at the onset of a study, enabling the researcher to be close to the field and collect data from first-hand experience without any research restrictions or constraints.

3.5 Data Collection

For the purpose of my research, I used the ethnographic approach to collect data and gather essential information. Through the data sampling, collection, and analysis, I managed to establish factors that hinder the effective SFNE development in the UAE.

3.5.1 Sampling

I sought to recruit international secondary school teachers who teach SFNE-related subjects and topics, such as GCSE Food Preparation and Nutrition, IGCSE Food and Nutrition, CCEA Nutrition and Food Science, and IB Diploma Food Science and Technology, in Abu Dhabi, the capital city of the UAE. I used purposive sampling to recruit the respective participants because the research targeted a particular subset of people who fit a particular profile (Stamatopoulos 2019). The selection of purposive sampling also made sense since teachers teaching SFNE are all trained or recruited on international contracts. That means they teach a curriculum supported by other countries or regions, such as the UK, US, New Zealand, Australia, or Europe, without the embodiment of the UAE context or culture. More specifically, I undertook purposive sampling through a homogeneous sampling technique aimed at achieving a homogeneous sample whose units share very similar characteristics. That is because all the targeted participants were not just random teachers but those teaching a programme related to SFNE. Thus, data was needed from relevant sources

such as teachers with subject knowledge and experience to effectively sieve a homogeneous sample of teachers teaching SFNE or other related programmes.

For the study, I aimed to recruit 30 secondary school SFNE teachers from international secondary schools in Abu Dhabi. I deem the sample size of 30 appropriate because it allows for sufficient diversity in perspectives while ensuring manageable data collection and analysis. A sample of this size provides a robust representation of teachers across different schools, capturing a range of experiences, teaching contexts, and challenges related to SFNE implementation (Coe et al. 2021). Moreover, it strikes a balance between depth and breadth, enabling the researcher to conduct in-depth interviews and classroom observations while also achieving saturation, the point at which no new themes or insights are likely to emerge from additional data collection. This sample size is consistent with qualitative research standards, where the aim is to gather rich, contextualised data rather than achieve statistical generalisation. However, I managed to get 29 teachers teaching specific SFNE subjects to participate. I targeted teachers in international secondary schools since SFNE was yet to be developed in UAE public schools at the time of the research. All the recruited participants were SFNE secondary school teachers teaching in different international secondary schools in Abu Dhabi, handling year groups 7–13. Table 1 and Appendix 8 presents the demographic characteristics of the sampled teachers who participated in the study.

Table 1. Participant Characteristics

Characteristic	Category	Frequency (n)
Age	36–40	10
	41–45	6
	46–50	5
	Above 50	8

Characteristic	Category	Frequency (n)
	Total	29
Gender	Female	26
	Male	3
	Total	29
Ethnicity	White	20
	Asian	5
	Black/British Black	4
	Total	29
SFNE Subject Taught	iGCSE Food and Nutrition	8
	GCSE Food Preparation and Nutrition	14
	CCEA Nutrition and Food Science	3
	IB Diploma Food Science and Technology	4
	Total	29
Years Teaching SFNE	Less than 5	3
	5–10	8
	11–15	7
	16–20	3
	21–25	4
	More than 25	4
	Total	29
	Bachelor's Degree	11

Characteristic	Category	Frequency (n)
Highest Academic Qualification Achieved	Master's Degree	6
	Qualified Teacher Status (QTS)	5
	Postgraduate Certificate in Education (PGCE)	4
	Doctorate Degree	1
	Not Specified	2
	Total	29
Employment Status	Full-time	27
	Part-time	2
	Total	29

3.5.2 Data Collection

As part of the ethnographic approach, I collected data through a multi-method qualitative methodological choice where I implicitly employed interviews, participant observation, and document review and analysis with teachers. Multi-method qualitative methodological choice encompasses the use of multiple qualitative methods and data sources in undertaking the study of the same phenomenon to enhance the rigour of the study. It also assists in overcoming potential biases, especially researcher bias, that may be the result of a single method or data source (Flick 2022). In this study, the adoption of a multi-method qualitative approach was characterised by the use of multiple data collection methods, all of which were ethnographic in nature. The interviews lasted for 30–50 minutes, while the lesson observations lasted from 40 to 55 minutes. The subsequent sections provide a detailed analysis of each of the techniques.

Phase 1 - Interviews

I gathered teachers' perceptions of SFNE through contextual and individualised interviews. They were contextualised since they focused on how teachers' experiences were shaped by their school environment and broader sociocultural factors. The interviews were also individualised as they explored teachers' personal challenges and perspectives. This approach provided a comprehensive understanding of both external influences and personal experiences. Contextual interviews were particularly beneficial since they enabled me to gather data and information at the moment and context of use, optimising the overall value of the findings (Cohen et al. 2019; Clark et al. 2021). The interviews aimed to collect in-depth information that would aid in developing patterns and themes on the teachers' opinions, thoughts, experiences, and feelings about the discipline and develop an understanding of the preparedness of the teachers to teach a curriculum and their perceived requirements for the development of the curriculum in Abu Dhabi (Lambert 2019). The interviews were conducted within the teachers' own school environments to create a relaxed and familiar setting. This approach aimed to enhance the teachers' comfort and openness during the interview process.

I commenced the interview process by establishing a comprehensive list of international schools in Abu Dhabi where the SFNE curriculum was being implemented and I sought permission from the Education Director (*Refer to Appendix 1*). I then reached out to these schools' principals via email, introducing the study and requesting permission to approach their SFNE teachers to collect the necessary data. I attached a request letter detailing the study's purpose, methods, and ethical considerations. Once the principals granted me permission, I sent the information sheets and consent forms to prospective teacher participants, allowing them ample time to review the study details (*Refer to Appendix 3*). I then made follow-up communications to address any questions and confirm their participation with a debrief note (*Refer to Appendix 4*). The next step involved the creation

of an interview schedule, a document containing a list of 14 interview questions, to guide the interview process (*Refer to Appendix 5*). The research instrument, assessed and approved by the Institutional Review Board (IRB) and the thesis committee Ethics panel (*Refer to Appendix 2*), concentrated on seeking the teachers' perceptions of challenges they face in teaching SFNE-related subjects and when supporting students in developing NEAs. The interview schedule also sought an understanding of the factors that affect the teachers' preparedness to teach and assess SFNE subjects and topics in the UAE.

I scheduled the interviews to take place within the schools in liaison with the administration and on the interview dates. The interviews were held in the workplace environment to ensure participants were in a familiar setting during the interview process. I interacted with each of the participating 29 teachers within their respective Food Departments and gathered enough data to facilitate the completion of the research. Appendix 9 presents raw data of the interviewed secondary school teachers encompassing gender, teaching subject, years of teaching practice, and length of interview.

Phase 2 - Participant Observation

Participant observation formed the second phase of the multi-method qualitative methodological choice. Each of the 29 teachers was observed in classrooms or in food rooms, teaching and undertaking practical sessions on diverse topics of SFNE. This phase was particularly crucial for discussing the concept of habitus, as teachers' innate cultural and social ideas about food, which influence their teaching practices, could not be fully revealed through interviews alone. Passive observation was used to shadow the teachers' everyday life within the school while conducting SFNE lessons, especially during the NEA implementation. NEA, as used in this study, refers to project-based work that accounts for a student's final grade and entails coursework and practical science endorsements (OFQUAL 2018). NEA contributes more significantly to practical knowledge acquisition than exams since it expedites information recall and allows the ability to draw together various

information from different specification areas and apply such information and knowledge in understanding practical and theoretical contexts (The Assessment and Qualifications Alliance 2021).

I liaised with each of the 29 participating teachers and attended their FPN classes and practical sessions. The purpose of attending such classes was to observe teachers as they teach and interact with their students on the course, subject, or topic under study when conducting the NEA task. Three pedagogical aspects were observed and recorded in the observation process: the content of what was being taught, the way in which teaching was done, and the approaches that the teachers were using to socialise with students in the teaching and learning repertoire (Berliner and Eyre 2017; Randall 2020; Ross et al. 2014). A Teacher Observations and Feedback Schedule was developed and used to collect and record the observed data (*Refer to Appendix 6*). Drawing sketches and field notes also formed a central part of the observation process. To reduce the Hawthorne effect, an objectivist approach to observation was adopted where the researcher does not influence or interfere with people and activities being observed and adheres to strict rules of rigour to ensure that researchers' bias does not surface (Chowdhary 2023; Nguyen et al. 2018).

Phase 3 - Document Review and Analysis

The third phase of the study involved a comprehensive review and analysis of documents related to the teaching and learning of SFNE subjects. Document review was particularly appropriate for this research because it allows for the systematic collection and analysis of pre-existing materials, offering insights into the history, structure, and implementation of the curriculum (Bretschneider et al. 2017). This method provided a rich, detailed, and often unbiased source of information that could complement other data collection methods by offering concrete evidence of how SFNE is organised and delivered in schools (Bowen 2009). Performing a review of documents such as timetable schedules, syllabuses, curriculum designs, schemes of work (SoW), and lesson plans, enabled me to

gain a deeper understanding of the instructional framework and practices. Liaising with teachers and departmental administrators ensured that I had access to these materials, facilitating a thorough and context-specific analysis of the content, structure, and teaching strategies embedded within the SFNE curriculum.

3.6 Data Analysis

In the analysis of interview data, I began by transcribing all the data using Sonix software from the recording of the interviews and imported them into NVivo software. I followed the coding process characterised by identifying primary themes and creating nodes to represent those themes (Saldaña 2021). I undertook coding in different phases, beginning with open coding which constituted segments of texts without preconceived contexts (raw data) to generate the initial impressions and to engender the emergence of new codes and themes. I coloured the codes to enable me look at various patterns visually. The open coding was then followed by axial coding, which assists in making connections between codes and grouping similar codes to create relationships that form broader categories (Auerbach and Silverstein 2003). Further, selective coding helped refine the analysis, leading to a list of final themes organised into a list in terms of the level of significance, with the most significant themes appearing at the top of the list, leading to a coherent framework. This helped with the identification of overarching themes encapsulating the main findings. This was followed by memoing and creating a codebook to engender thoughtful and intended interpretations. A codebook is a detailed document that records the main codes, their definitions, examples of text where each code was applied, and the frequency of each code across the data (Mortelmans 2019). The codebook served as an essential tool for maintaining consistency during the coding process and ensuring that each theme was applied systematically across the data set. It also played a vital role in interpreting and structuring the data, making the findings more reliable and transparent.

Observational data was primarily recorded through field notes. Silverman (2017) points out that in completing such notes, it is vital to take a keen note of what the observed participants are doing, how they are doing it, how they characterise and understand what is going on, assumptions they make, and analytic questions. Teacher Observations and Feedback Schedule (*Refer to Appendix 7*) guided this process. Once recorded, the data was analysed inductively by coding the observational notes followed by thematic analysis (Boyatzis 1998; Braun and Clarke 2021). The qualitative data collected through structured interviews was coded and summarised into data manuals and analysed thematically using NVivo (Woolf and Silver 2018). Codes were developed to guide a thematic analysis process to answer the research questions (Saldaña 2021).

Expert analysis was of central importance in reviewing and analysing the selected documents. I analysed a collection of retrieved internal documents, including SoW, teacher timetables, syllabuses, curriculum development plans, and lesson plans and external documents, including national policy books, to gain a broader perspective on the depth and breadth of SFNE curricula and approaches adopted in its implementation. I used the query tools in NVivo to explore patterns and relationships in the data by exploring multiple layers of logic within the coding of the interviews, observations and documents. This analysis helped generate more themes (*Refer to Appendix 10 and Appendix 11*) and affirm some themes uncovered in other phases of the research.

3.7 Criteria with which the Rigour of the Study was Judged

To ensure the rigour of this multi-method study, I adhered to established qualitative research standards and incorporated key philosophical criteria for evaluating validity. The study employed multiple methods, including interviews, participant overt observation, and document review, ensuring multi-method qualitative methodological choice to strengthen the trustworthiness of the findings. Data analysis was integrative, with data sets linked through shared themes and patterns identified across different sources (Sutopo 2023; Willig 2017).

Additionally, credibility was enhanced by cross-checking data with participants and maintaining a detailed audit trail throughout the research process. The study aimed to inform the development of an SFNE curriculum framework for Abu Dhabi public schools and to contribute to national and international curriculum development in related subjects such as Home Economics, Hospitality and Catering, Food Preparation and Nutrition, Food Science and Nutrition, and Food Science and Technology in schools.

3.8 Trustworthiness of the Study

I ensured the trustworthiness of this study by focusing on four key criteria: credibility, transferability, dependability, and confirmability (Ahmed 2024). I rigorously addressed each of these elements to enhance the quality and reliability of my findings. To strengthen credibility, I employed several strategies. I used a multi-method qualitative approach, which included interviews, participant observation, and document review, to triangulate data and validate the findings from different sources (Samoilenko and Osei-Bryson 2021). I also used member checking, allowing participants to review and confirm the accuracy of interview transcripts and observational notes. Prolonged engagement in the field helped me build rapport with participants and gain deeper insights into their perspectives (Gul 2014; Harland 2014; Wiles 2013 p.128). Additionally, I conducted a pilot study to test the interview schedule and ensure that the questions were clear and relevant. I included data from the pilot interviews in the final data set, which enhanced credibility by adding richness to the findings.

For transferability, I provided thick descriptions and detailed contextual information. By offering in-depth descriptions of the research setting, processes, and participants' experiences, I enabled readers to evaluate whether my findings could be applied in other similar contexts. This thorough documentation ensures that the insights from SFNE teachers in Abu Dhabi could be adapted to other educational settings with appropriate modifications. I ensured dependability by maintaining an audit trail throughout the research process. This audit trail documented my data collection methods, analysis procedures, and any changes

made during the study, allowing others to follow the process and replicate it if necessary (Saldaña 2021). I also implemented a code-recode procedure to verify that my data interpretations were consistent over time, reinforcing the reliability of my findings. To achieve confirmability, I practised reflexivity, constantly reflecting on my own biases and taking steps to minimise their influence on the results. I also sought external validation by consulting with experts and conducting peer reviews to ensure that my findings were grounded in the participants' perspectives rather than my own assumptions. A data audit further confirmed that the findings accurately represented the collected data and were free from distortion.

3.9 Ethical Considerations

The recruitment process for this study involved several steps to ensure a representative, relevant, and appropriate sample of international secondary school teachers teaching SFNE-related subjects in Abu Dhabi. Purposive sampling was employed (Patton 2002; Mimirinis 2022), focusing on teachers from international schools due to the limited development of SFNE in UAE public schools (Panchal 2024). Initially, a comprehensive list of international secondary schools in Abu Dhabi was compiled. I then reached out to the 84 schools' principals via email, introducing the study and requesting permission to approach their SFNE teachers. Only 30 principals replied to the email offering an SFNE related subject. A request letter detailing the study's purpose, methods, and ethical considerations was attached.

Despite careful planning, several challenges emerged during the recruitment phase. One significant challenge was the initial hesitancy among some teachers to participate, largely due to concerns about the additional time commitment and potential impact on their workload. To address this, I provided reassurances about the minimal time required for interviews and observations, indicating that participation would not interfere with their teaching responsibilities (Gower 2017; Harris 2024).

Gaining parental consent for students' passive involvement posed another challenge. Although the research primarily focused on teachers, students were present during classroom observations. To address ethical concerns, I ensured that no direct interaction with students occurred and that their presence was solely observational. School principals facilitated communication with parents to inform them about the study and the indirect involvement of their children, alleviating concerns and gaining passive consent (Harcourt and Sargeant 2012). Maintaining the anonymity and confidentiality of participants was another critical aspect. Although complete anonymisation was not possible due to in-person interactions, I collected no identifying data whilst also assuring participants of data security through encryption and secure storage (Kumar 2024). The Data Management and Storage Form further guaranteed the safety and confidentiality of the collected data. Lastly, the ability to speak English did affect recruitment, as the study was conducted in English, which may have excluded non-English-speaking teachers from participating. This introduces a potential bias, as the perspectives of teachers who are less proficient in English may not be represented in the findings.

3.10 Positionality Statement

As an external researcher, my role in this study involved direct engagement with international secondary school teachers in Abu Dhabi, requiring clear and prompt communication regarding the study's objectives and intentions. Letters seeking permission, detailing the aims of the research, the rationale for selecting the teachers, the required level of engagement, the study duration, and the use of collected data were sent to the heads of schools. These steps ensured informed consent from the schools and participants. Upon receiving approval, I conducted reconnaissance visits to establish rapport with the teachers and to discuss the goals and processes of data collection in detail. My social identity is multifaceted, encompassing experiences of growing up in Malta and travelling across Europe, exposing me to diverse cultures and global issues. My background as a Home

Economist and extensive career in education leadership across Malta, the UK, Italy, and the UAE has significantly influenced my professional identity. This diverse exposure shaped my perspective on the crucial role education plays in driving social change, especially within SFNE.

These experiences have deeply impacted my teaching philosophy, research, and scholarship. I view education as a driver of societal change and a social equaliser, focusing on the holistic development of students. My teaching philosophy integrates progressivism and essentialism, believing in active learning, shared decision-making, and the importance of academic rigour. This ideology has informed my approach to curriculum development and my enthusiasm for SFNE. In my research, I am acutely aware of the potential for researcher bias and the need for reflexivity. I strive to maintain a balance between trustworthiness, validity, and mindfulness in my work. My professional experiences and personal convictions guide the study's direction, but I remain vigilant about not letting my perspectives influence the participants' views. This study aims to explore and address the factors influencing teacher readiness to teach SFNE in Abu Dhabi, contributing to the UAE MoE's goals of promoting wellness and healthier communities.

Generally, my position as a researcher is shaped by a blend of personal, academic, and professional experiences. These elements influence my approach to teaching, course design, and research. Since childhood, I have aspired to become one of the globally renowned scholars in the field of education. This was influenced by the positive impact I saw the educationists bring to our society in my younger years. This positive influence has remained with me, resulting in a yearning to be among the influential scholars in society, not merely as a teacher but also in the research sector. The exposure I had, living in different regions (the Middle East and several parts of Europe) and seeing the wonderful impact education has in society has also been a driving factor as it provides me with diverse sources of information in the educational sector. From the academic and professional angle, I hold a Master of Science

in Food, Nutrition, and Health from University College Dublin and am a registered public health nutritionist in the UK. I also hold a Master of Education in Home Economics from the University of Ireland, a Master of Arts in Design and Technology Education from Sheffield Hallam University, a Master of Business Administration in Educational Management from Leicester University, and a Master of Arts in Interior Design from De Montfort University. I am also an Advanced Skills Teacher (AST) and throughout my teaching career I have also completed the National Professional Qualification for Middle Leadership (NPQML), National Qualification for Senior Leadership (NPQSL), and my National Qualification for Headship (NPQH). My current pursuit of a Professional Doctor of Education at the University of West London reflects my commitment to contributing to healthier and more sustainable societies through education. These all show the dedication I have towards education and my belief that through better education, we can uplift society. Additionally, it relies on the in-depth understanding I have of what teachers and the entire education fraternity face in ensuring a better curriculum. I recognise the importance of acknowledging and reflecting on these influences to ensure that the study remains objective and that the voices of the teachers are accurately represented and respected.

3.11 Chapter Summary

This chapter outlines the methodology employed to explore the development of a national curriculum for SFNE in the UAE public schools, focusing on the challenges faced by international secondary school teachers and their preparedness. I utilised qualitative methods, including interviews, participant observation, and document reviews, to gather comprehensive data. An inductive reasoning approach helped develop theories from specific observations. The study's multi-method approach strengthens the depth of understanding by drawing on a variety of data sources.

NVivo software aids in coding and thematic analysis, identifying key themes and relationships. Ethical considerations are rigorously addressed, with measures to ensure data

confidentiality and mitigate biases. The chapter concludes with a reflection on the researcher's positionality, highlighting the influence of personal and professional experiences on the research.

CHAPTER FOUR: RESULTS

4.1 Introduction

The current study focused on advancing towards comprehensive teaching and learning of SFNE as a sustainable approach to cultivating healthy food and nutrition habits and behaviours in the UAE and beyond. To comprehensively address the aim, the study took an ethnographic approach and collected data in three phases, including interviews, observation, and document review and analysis. The analysis and identification of themes were guided by the literature review, research questions, and *in vivo* themes generated through inductive coding. Data that were identified as duplicates, irrelevant, or not directly related to the aim of the study were omitted from the analysis. The analysis was completed through a step-by-step process beginning with Phase 1: Interviews, followed by Phase 2: Observation and Phase 3: Document review. The final themes presented in this study were attained through a two-step analysis, beginning with a question-by-question analysis followed by grouping findings to form themes. The subsequent section delves further into the three phases. The data collection process took about eight months.

4.2 Phase 1: Interview Data Themes

This section is a presentation of the main themes from the interviews considered to be most closely connected to the research questions. Themes presented emerged through *in vivo* and *a priori* themes. Although only the main themes are presented in this section, a full list of the themes appears in Appendix 10 and Appendix 11. The codebook is also presented in Appendix 12 to provide clear descriptions of every generated theme. The research questions helped determine *a priori* categories through which themes were developed. Therefore, the findings are reported under categories themed from research questions, with each main theme accompanied by sampled verbatims from the secondary school teachers (SSTs).

4.2.1 Challenges that Teachers Face

Five main themes were identified as challenges that teachers face when teaching SFNE, especially during NEAs, as presented in this section. The main themes are presented in a sequential order from the most dominant main theme to the least dominant.

Time Allocation to Lessons and Assessments

The largely open interview uncovered that 18 out of the 29 participating SSTs were of the perspective that time allocated to SFNE lessons and assessments, especially NEAs, was limited. None of the participants presented a contravening opinion on this point. The eighteen participants who identified short lessons as a major challenge affecting their ability to deliver on NEA presented multiple reasons for their position. A common reason among the participants was that the time limitation adversely affected their ability to prepare and undertake practical lessons. SST8 painted a clear abstract picture of this:

One of the challenges I have been facing as a teacher is the limited time allocated for iGCSE Food and Nutrition Education. There are some practical sessions that I always have to hurry through so as to fit within the allocated time of 40 minutes for the KS3 lesson. There is a need to increase the time allocated to food and nutrition classes (SST8).

Another participant, while addressing the same, lamented that SFNE has been less recognised and, as a consequence, it is allocated little time and resources, which limits its comprehensive implementation.

We also tend to have lesson time on the timetable to complete lessons. For example, this year, we had to accept that our Year 11 students have to have 3 lessons at 50 minutes each. This is not appropriate as Year 11 need at least 1 double lesson in preparation for their GCSE and their NEA coursework. We tend to always be the last on their agenda, and logistically, this is a sacrifice on our subject. This leads to a reduced emphasis on Food and Nutrition as a subject. Consequentially, the subject is

allocated little time and resources... I find them [NEAs] hard to complete with such short lessons as they are very demanding. We need not forget that our coursework counts to 50% of the final grade in their GCSE. These NEAs are very important for the subject as they have a great bearing on the final grade. They help students engage with real tasks specifically for the purposes of learning and gaining skills rather than exams (SST26).

To cope with the limited time, some teachers must choose simpler recipes or complete just a few practical culinary lessons. SST1 expressed, “The lesson length is too short. I have to choose recipes that can be made in a shorter space of time.” The eighteen participants made it clear that practical culinary lessons require adequate time to prepare and execute. The following perspective came from SST25:

Lack of sufficient time is generally a major factor. Unlike other subjects, Food Science and Nutrition is a more practical subject and requires students to spend more time in culinary laboratories. However, the curriculum is already packed with various subjects, making it difficult to cover all topics successfully (SST25).

The practical nature of the subject necessitates longer periods for effective instruction and hands-on learning, which are often constrained by tight schedules and competing priorities within the curriculum. This limitation impacts the depth and quality of education that students receive, underscoring the need for a re-evaluation of time allocation to better support comprehensive learning in SFNE.

Limited Access to Resources

Limited access to resources was the second greatest challenge that the participants mentioned. Fifteen of the participants identified limited access to resources as one of the challenges bedevilling their practice as SFNE teachers, especially with respect to NEAs. Specific examples of “resources” mentioned most frequently were culinary laboratories, kitchen facilities, tools and equipment, space, technological integration, and food ingredients.

Here is an example of one of the thoughtful perspectives from the participants on access to resources:

Resources and materials such as books, teaching materials, and well-equipped culinary laboratories also limit the successful teaching of the subject. Addressing some of these issues can be difficult at the teacher level. Managing my available time and resources effectively has helped me cover most topics, though not all of them (SST7).

In addition to the general call for more resource allocations, a few participants isolated specific approaches to address the challenge. One of the participants called for technological integration, specifically information and communication technologies (ICT). The teacher mentioned:

The resources of time and space are limited. Having sufficient ICT resources for the students to complete their NEA 1 and NEA 2 write-ups and space could save time and money for the practical activities (SST10).

Limited resources have an impact on the ability of SFNE teachers to effectively deliver their curriculum. Adequate access to equipped culinary laboratories, food rooms, and technological tools is crucial for hands-on learning and comprehensive education. The insights of the fifteen participants emphasise the need for improved resource allocation and innovative solutions, such as integrating ICT, to enhance the teaching and learning experience in SFNE.

Students' Diverse Learning Needs

Students' diverse learning needs emerged as the third leading challenge tormenting teachers in their desire to teach and support students during NEAs. Twelve participants labelled it as a challenge. The teachers are coming to terms with the fact that classes are becoming highly culturally diverse but are unable to effectively address the uniqueness of learning needs and styles that come with it.

A challenge I have encountered in teaching food science and technology is the diverse dietary restrictions of most students. Students come from different cultural backgrounds and have different dietary choices. A problem might arise when conducting a cooking practical with food that is considered unethical by some students' cultures. It becomes a challenge for a teacher to find accommodation for such a problem (SST21).

Students' diverse knowledge levels also emerged strongly. Classes, especially those that are culturally diverse, are usually composed of gifted learners, fast learners, average learners, slow learners, and learners with learning disabilities. The teachers admitted that designing and undertaking lessons that account for the interests of each of these learners is problematic. The following are a few verbatims on this issue:

Another difficulty is dealing with different student knowledge levels. It can be challenging to ensure that all students are successfully challenged and supported because students may enter the classroom with various degrees of prior knowledge and comprehension (SST15).

Eleven teachers expressed difficulty in corresponding with some Emirati parents, particularly when it comes to communicating essential information related to practical lessons. For example, parental letters informing them of cooking activities often need to be translated into Arabic to ensure that parents fully understand the requirements and can support their children effectively. Teachers noted challenges in translating vernacular recipes into Arabic, as some parents struggle to understand the specific ingredients required for these practical lessons. This language barrier not only complicates the communication process but also hinders the overall effectiveness of the educational experience for Emirati students. As a result, there is a clear necessity for liaising with the Arabic department to facilitate the translation of these materials, ensuring that the learning process is inclusive and accessible to all students, particularly those from Emirati backgrounds. As SST2 mentioned:

It's challenging to ensure that Emirati parents fully understand what is needed for practical lessons. Translating parental letters and recipes into Arabic has become essential, and working closely with the Arabic department has been crucial in making the learning process smoother for all students.

Teachers face the difficult task of creating an inclusive learning environment that accommodates various cultural backgrounds and learning abilities. This challenge requires significant adaptation and resourcefulness to ensure that all students are engaged and supported effectively. The need for differentiated instruction and culturally sensitive teaching practices is crucial in addressing these diverse learning needs, underscoring the importance of professional development and institutional support for educators.

Strict Cultural Norms and Morals

Related to the concept of cultural diversity were strict cultural norms and morals in SFNE classes, which the teachers believed challenged their ability to teach and support students during NEAs. Ten respondents expressed their concern about this problem. A factor that surfaced clearly was strict cultural food preferences, which completely eliminated some ingredients and recipes from any culinary laboratory in the UAE. At times, teachers have little knowledge of the strict cultural food preferences and end up in conflicts with stakeholders and divergence from cultural expectations.

Over the years, I have developed the necessary experience to cater to the needs of my students, but when I came to the UAE, I realised that certain topics had to be adjusted, as we cannot mention pork, bacon, poppy seeds, gelatine if not plant based, alcohol of any sort in recipes. Therefore, I found it hard as no one told me, and I had to find out when I received a complaint from a parent. I felt very embarrassed, but now I know. On the other hand, I also had to change the recipes that I used to cater to such changes when I taught in UK (SST28).

A similar perspective was shared by SST8, who mentioned that when she came to the UAE from Ireland, she realised that “lipase was Haram if not slaughtered according to Islamic requirements”. When probed, she explained that:

Lipase derived from pigs or cattle is Haram. Lipase from cattle slaughtered according to Islamic requirements or lipase produced by micro-organisms is Halal. Rennet is derived from the stomach of calves. If the calf was slaughtered according to Islamic requirements, the rennet is Halal. Keeping such norms might be difficult for non-Muslim teachers.

Another cultural factor raised was the nanny culture, which is dominant in the UAE. The majority of children in the UAE grow up under the care of nannies and are rarely engaged in home-based activities, including food preparation and other kitchen activities. Children also grow up with personal dietary habits largely influenced by nannies. A few respondents raise this issue. SST2, SST9, SST21, and SST24 are specifically concerned that such cultures make students come to class with negative attitudes about SFNE.

My students’ understanding has been majorly influenced by their care givers, nannies, personal dietary habits, cultural backgrounds, and prior knowledge. Some students also form positive attitudes if they find the subject relevant to their daily lives. There is a culture here where nannies complete all the chores in the house and prepare food for all the family members. Majority of Emirati students struggle with cleaning dishes as they perceive it as a nanny’s role (SST 9).

The need to navigate and respect strict cultural food preferences requires teachers to be highly adaptable and culturally aware. Additionally, the influence of nanny culture on students’ attitudes towards food preparation presents another layer of complication. These challenges highlight the importance of cultural sensitivity and the need for teachers to receive adequate support and training to manage and respect the diverse cultural backgrounds of their students effectively.

Students' Socio-economic Challenges

SSTs 4, 5, 8, 21, 27, and 29 also highlighted students' socio-economic backgrounds as one of the leading challenges they faced. SST27 opined that due to culture and socio-economic backgrounds, students attend classes with already-formed perspectives on food choices, meal planning, and eating patterns. Unfortunately, schools have been unable to support such an assortment of culinary preferences:

Due to cultural and socio-economic factors, students come to class with already-shaped perspectives on food choices, meal planning, and eating patterns. Yet the syllabus identifies only a few universalised foods and culinary concepts, especially since its main focus is mainly on British Cuisine. This makes it difficult to align teaching contents with the varying cultures, especially since the British FPN books incorporate culturally sensitive data that is prohibited in the UAE. At the same time, students might be less receptive to new ideas.

SST4 also commented on this issue, holding that

Multiple factors affect the ability of students to understand skills and concepts taught in the subject. One of these factors is socio-economic status. Students from different backgrounds usually have varying access to nutritious foods and cooking facilities. Students' understanding of meal planning and cooking facilities and their perception of what constitutes nutritious foods greatly depend on their social, cultural, and economic backgrounds and eventually affect their ability to grasp new concepts.

These insights underscore the importance of considering socio-economic factors when teaching SFNE. Students' varying access to resources and preconceived notions about food can significantly impact their learning experience. Thus, it is crucial to adapt teaching strategies to address these disparities and ensure that all students can benefit from the curriculum, regardless of their socio-economic status.

4.2.2 Factors Affecting Teachers' Preparedness to Support SFNE Curriculum

Programme Development

Through *in vivo* thematic analysis of data from 29 completed interviews, I identified a wide range of factors influencing teachers' preparedness to support SFNE programme development, particularly in the context of themed practical NEAs. Each factor was documented in a codebook that included a description of the factor, the number of interview sources where it was mentioned, and the number of references indicating how frequently the factor was discussed. From this extensive list, I prioritised the five factors that had the highest reference rates across interviews. The presentation of these themes follows a sequential order, starting with the most significant factor.

Curriculum Development

From the participants' responses, curriculum development emerged as the number one factor determining teachers' preparedness to teach and contribute to the development of an SFNE curriculum programme. Of the 29 participants, 24 identified various aspects of curriculum development that they felt affected their ability to support the programme's development. One of the tenets of curriculum development that came out predominantly was cultural integration (17 respondents raised this issue). The teachers who raised this issue complained that they struggled with addressing students' diverse learning needs primarily because the curricula were based on universalised foods, ingredients, and nutrition concepts despite the culturally diverse classrooms. Most of them recommended that to enhance teachers' preparedness, there is a need to ensure that the curriculum recognises and integrates dishes, ingredients, and nutrition concepts from various cultures. The following response relates to including a culturally diverse curriculum:

The curriculum/syllabus for FPN could benefit from upgrades in incorporating more diverse and culturally applicable recipes, extra hand-outs on sensible work, recipes

translated into Arabic for UAE students, and extra sustainability and environmental focus in meal alternatives and practices (SST19).

From the verbatim, it is evident that teachers are calling for a paradigm shift towards a more culturally responsive curriculum and teaching where students' cultures, perspectives, and choices are taken into account in developing curricula and designing lessons. The second tenet of curriculum development that emerged was an interdisciplinary approach to SFNE. Ten SSTs felt that instead of teaching the SFNE in isolation, the programme should integrate knowledge, methods, and insights from multiple disciplines to engender a comprehensive and holistic understanding of topics and complex problems. The respondents mentioned the need to integrate concepts from STEM subjects as a way to ensure that what they teach is more impactful and contributes to their students' holistic development.

Additionally, incorporating interdisciplinary connections between iGCSE Food and Nutrition/Sustainability and other subjects, such as biology, chemistry, physics, languages, and PE, could provide a more holistic understanding of nutrition (SST12).

GCSE Food Preparation and Nutrition could benefit from the integration of interdisciplinary connections with STEAM (Science, Technology, Engineering, Arts, and Maths) subjects (SST6).

Another curriculum-based aspect raised by participants is increasing the number of practical activities that students engage in. Some nine SSTs felt that the curriculum required more time for practical SFNE lessons. SST16 painted a clear picture of this:

Based on my examination of the curriculum and syllabus, I think there is an opportunity for advancement in the area of practical training in food preparation. Although the academic components are adequately addressed, adding additional practical cooking lessons would improve the students' culinary abilities and ability to

apply their nutrition knowledge. Practical culinary exercises can encourage creativity, enhance dexterity, and provide self-assurance in choosing healthier foods.

The perspectives of the twenty-four participants underline the critical role of curriculum development in preparing teachers to effectively deliver SFNE programmes. The call for cultural integration, interdisciplinary approaches, and increased practical activities underscores the need for a dynamic and inclusive curriculum that reflects the diverse needs and backgrounds of students. Addressing these aspects can enable educators to foster a more engaging and comprehensive learning environment that equips students with the skills and knowledge necessary for making informed decisions about food and nutrition.

Relevance of Teachers' Academic Achievements

Twenty participants suggested that their academic training and achievements affected their ability to realise the desired outcomes within their classrooms. Those with bachelor's degrees in programmes related to SFNE were more likely to mention that they felt highly equipped to teach and support the programmes they teach.

I have a bachelor's degree in food nutrition and dietetics... Well! Professionally, I feel adequately equipped. I think my university training was diverse enough to equip me with viable knowledge of how to handle students (SST11).

Those with postgraduate degrees signified even greater confidence and gave more insightful responses that exemplified their competence.

I feel that I am well-equipped to teach any SFNE subject, be it in my school or anywhere else. MSc in Food Science and Biotechnology has helped me develop professional knowledge and skills in areas such as food quality and safety, health, and food production. Through my education and practice, I have gained a better understanding of sustainable food practices, from growing/production to cooking and consuming. Knowledge in these areas is vital in ensuring that students gain the right knowledge and gain the right skills (SST23).

These reflections illustrate the significant impact of academic qualifications on teaching efficacy and confidence. Participants with higher academic achievements reported feeling more competent and prepared to deliver SFNE content effectively, emphasising the importance of specialised and advanced training in fostering educational success. The confidence and professional knowledge derived from their degrees enabled them to handle diverse classroom challenges and ensure that students received a comprehensive education in SFNE. This underscores the need for ongoing professional development and advanced training to enhance teachers' capabilities in SFNE.

Access to Resources

Access to resources surfaced as the third most significant factor shaping teachers' preparedness to support the SFNE curriculum development programme. Nineteen of the interviewed SSTs indicated that their ability to demonstrate a high level of competence and confidence in what they teach is defined by access to resources. The teachers suggested that they felt more prepared to deliver when they could access up-to-date textbooks, lab facilities, modern food equipment and tools, ingredients, interactive technologies, food and nutrition software or online platforms, and sufficient scheduled time for SFNE lessons and experiments. SST17 provided a comprehensive list of the resources that teachers need to ascertain their preparedness.

My school provides teachers with up-to-date textbooks, lab facilities, and access to online resources that support teaching, but I notice that I also have to adapt them to the students' cultural needs. Having well-equipped laboratories, food rooms, as well as time for students to complete practical tasks, is critical. Access to updated textbooks, multimedia resources, and online databases with reputable nutrition information is essential. Adequate food room facilities, equipped with modern appliances and tools, would enhance practical learning experiences.

Seventeen of the respondents also highlighted similar resources, emphasising the need for schools to warrant sufficient resource allotment for food and nutrition departments to ensure that teachers are well motivated and supported to deliver.

Schools should provide resources such as state-of-the-art food room facilities. The food room should be regularly updated with modern cooking appliances and utensils to make students familiar with what they expect to interact with after school in their workplaces. In addition, the school should offer a variety of fresh and culturally diverse food ingredients to help students get hands-on experience in preparing various diets. They should also provide an area where students can grow their own produce or have hydroponic towers to sustain sustainability integration. Digital resources have been part and parcel of learning food and nutrition, especially in the current world. The school should provide interactive software that would help students contact virtual cooking demonstrations. This would help students gain knowledge and acquire practical skills in preparing various meals, including those that are not captured in the syllabus (SST13).

This respondent's perspective encapsulates the critical need for robust and comprehensive resources such as food room facilities and up-to-date cooking appliances in the food and nutrition departments of schools. Such resource allocation would significantly enhance the quality of SFNE, making it more engaging and effective for students.

Teachers' Continual Professional Development

Sixteen SSTs expressed that their preparedness to teach and support the programme is dependent on the availability of CPD opportunities, with some highlighting that commitment to CPD underscores students' learning outcomes. From the presented arguments, teachers pursue CPD in multiple ways. Workshops and seminars were mentioned predominantly. Other strategies cited included reading widely to keep abreast of contemporary food and

nutrition trends, reading research journals, pursuing more SFNE-related courses, and networking.

I continuously update myself on modern-day research and traits in food and nutrition education by attending workshops, studying educational journals, and networking with educators (SST14).

When possible, I attend nutrition seminars and culinary workshops to help me stay up-to-date with the current industry trends and educational strategies, but I find it very hard in UAE as there are not a lot of opportunities. For example, the workshop on innovative teaching methodologies in culinary education has been one of the most important experiences I have achieved most recently in UAE (SST22).

Some participants only mentioned CPD as an essential and inevitable tool in advancing teachers' preparedness. SST18 gave a comprehensive response to this, expressing that commitment to CPD is inexorable in ascertaining high-quality education for students.

I've also taken professional development courses in curriculum design and innovative teaching methods to enhance my skills in effective lesson delivery... The evolving landscape of nutrition as a science requires me – the teacher – to continuously update my knowledge to provide accurate and relevant information to students... I'd like to emphasise the importance of continuous professional development for teachers in the UAE. Staying updated with the latest advancements in nutrition science and teaching methodologies allows teachers to provide high-quality education to students.

Nonetheless, the teachers expressed their dissatisfaction with the accessibility of CPD opportunities in the UAE despite its highly recognised significance. Some thirteen teachers articulated that CPD opportunities in Food and Nutrition in the UAE are either extremely rare or completely missing. To exemplify, SST20 held the following opinion:

I have been a teacher for the past 15 years, teaching SFNE in different international schools in the UAE. However, I have never been fortunate enough to find a

professional development opportunity in my area of practice in UAE despite my unceasing search. I am now convinced that in UAE, there is NO opportunity for CPD in SFNE. It is the truth. As an alternative, I always seek online CPD sessions for the NEAs offered by the UK Teacher's Centre.

These perspectives highlight a significant gap between the need for CPD and its availability in the UAE. Teachers recognise the critical importance of staying updated with current trends and methodologies to provide high-quality education. However, the lack of accessible CPD opportunities within the region poses a substantial challenge, forcing educators to seek alternatives outside the UAE. This underscores the need for enhanced support and resources to facilitate continuous professional growth for teachers in the UAE.

Students' Self-Beliefs on Capabilities to Execute Instructions

Some 15 SSTs identified students' self-beliefs in their capabilities to execute instructions as a key factor affecting their preparedness to support SFNE curriculum programme development. These teachers expressed that they felt more prepared to teach and support the curriculum when students were self-motivated to learn, had positive attitudes towards what they were learning, and connected well to teaching strategies, methods, and approaches. The following are a few verbatims on this theme.

I think the level of self-belief among my students is always a good motivating factor towards undertaking such kind of assessment. When my students believe that they are capable of executing the instructions obtained from class, I support them so as to ascertain how well the lesson has benefited them (SST5).

My students have always responded well to my teaching techniques, and they have always benefited so much from my services. This always made me feel motivated to teach them even more... The level of self-belief among my students has always been a good motivating factor towards undertaking such kind of assessment [NEAs]. When my students believe that they are capable of executing the instructions obtained from

class on their own, I allow them to ascertain how well the lesson has benefited them (SST9).

So far, my students have always been comfortable with my teaching strategies, which have been reflected in their performance. I find this to be a great motivating factor to me as a teacher (SST7).

These quotes underscore the importance of self-belief in students' learning processes and their ability to follow through with instructions. Teachers feel more effective and motivated when their students are confident and demonstrate a positive response to the instructional strategies employed. This dynamic not only enhances the teaching experience but also contributes to the overall success of the SFNE curriculum programme.

4.3 Phase 2: Observations

A total of 29 secondary school teachers teaching SFNE-related subjects and topics were successfully observed during lessons throughout the data collection period. The purpose of attending such classes was to observe teachers as they taught and interacted with their students on the subject or topic under study, especially when conducting the NEA 1 and 2 tasks. Three pedagogical aspects were observed and recorded in the observation process: the content of what was being taught, the way in which teaching was done, and the approaches that the teachers were using to socialise with students in the teaching and learning repertoire. Instruments used in the observation phase included teacher observation and feedback schedules, evaluation forms, and field notes. A sample of teacher observation and feedback schedule is attached in Appendix 14. The following themes emerged from the observation.

4.3.1 The Content of What Was Being Taught

Observation was done either in classrooms or cooking labs. Eleven teachers were observed in classrooms teaching contents in three main areas, including nutritional concepts, food safety, and food choice, while eighteen teachers were observed in cooking labs undertaking hands-on activities in two main areas: NEA 1 Food Science Investigation and

NEA 2 Food Preparation. Figure 2 summarises the contents of instruction observed during the ethnographic study. Appendix 13 presents specific lesson topics covered by each observed teacher.

Nutrition was covered by five teachers who concentrated on concepts such as macronutrients and micronutrients, their roles in human health, healthy eating practices and habits, and the function and chemical properties of food ingredients. Three teachers were delivering instructions on food safety, concentrating on concepts such as health and safety within the different kitchen units and food, food handling, food storage, the 4Cs of bacteria, hygiene and Hazard Analysis Critical Control Points (HACCP). Another three teachers focused on food choice, edifying how food choice varies across culture and religion, diet analysis, food labelling, and diet and vegetarian lifestyles.

In cooking labs, ten observations were on teachers supporting students in preparing and cooking various savoury and nutritious dishes, informed by theory, food science, and culture. As part of their lesson planning, these teachers exhibited their understanding of Islamic cultures in terms of food choice and preparation. During observation, no teacher presented a recipe that was not halal. Ingredients such as poppy seeds, gelatine derived from animals, and pork or bacon, which are not deemed halal, were never used throughout observations. Various recipes that the students prepared included wholesome home-made shortcrust pastry with wholemeal flour, decorated Halal gelatine cheesecake, fruit scones, Thai green curry (chicken) with rice, roasted vegetable soup, samosas, mini-quiche with a variety of fillings, Dutch apple cake, chicken and mushroom pie, and crème caramel. In all observations on culinary skills, each of the cooking lab recipes was accompanied by the nutritional value of each prepared dish, stating the number of calories as well as levels of fat, cholesterol, sodium, carbohydrates, and protein using a nutritional analysis program together with a time-plan and a sensory test analysis chart.

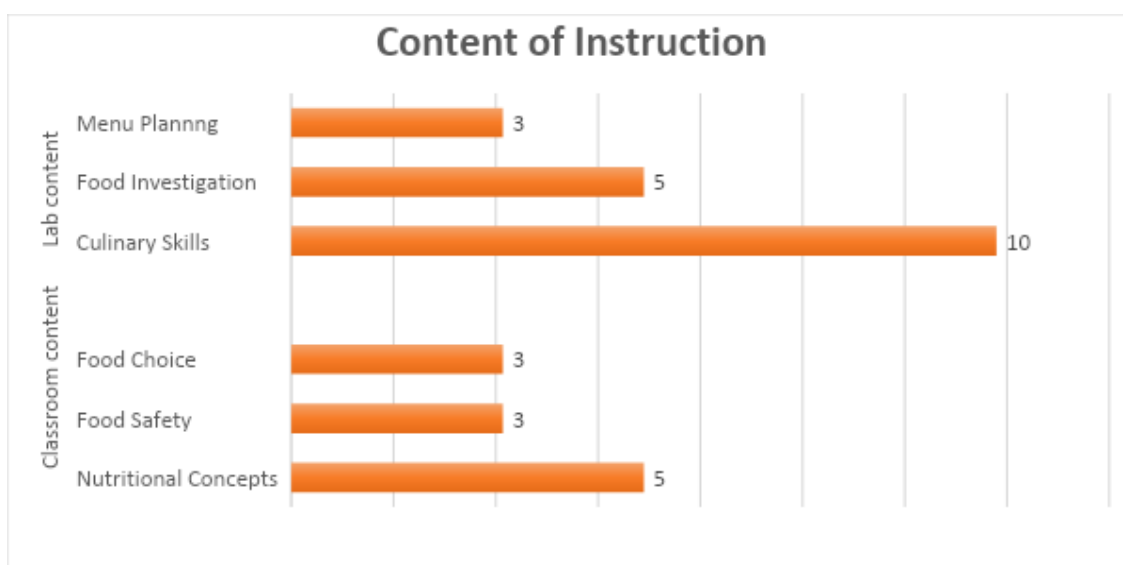


Figure 2. Content of Instruction During Observation

Five teachers observed in cooking labs prepared experimental lessons on food investigation aimed at analysing and understanding different food ingredients integral to lab sessions. Specific ingredients investigated during the five lesson observations encompassed the investigation of functional and chemical properties when using different types of flours, eggs, sugars, oils, butter, flavours, spices, herbs, sauces, methods of preparing and cooking root vegetables, the properties of different raising agents used to make bread, and the use of different ingredients and methods when making biscuits. Table 2 summarises some key elements of what was being taught in each of the five lessons as expressed by the teachers in their lesson plans.

Table 2. Food Investigation Observations

Task Title Investigation During Observation – NEA 1	Ingredient Aspects Investigated
Investigate different methods of preparing and cooking root vegetables. How do the methods	Types of root vegetables (e.g. carrots, potatoes, beets); Preparation methods (e.g. peeling, chopping, grating); Cooking methods (e.g. boiling, roasting, steaming); Sensory qualities (e.g. taste, texture, colour, aroma);

affect the sensory qualities and nutritional value?	Nutritional value changes (e.g. vitamin and mineral retention, fibre content)
Investigate the functional and chemical properties of different raising agents used to make bread.	Types of raising agents (e.g. yeast, baking powder, baking soda); Reaction mechanisms (e.g. fermentation, chemical leavening); Impact on dough development (e.g. gas production, dough elasticity); Final bread properties (e.g. texture, crumb structure, volume, flavour)
Investigate the functional and chemical properties of ingredients and methods when making biscuits.	Types of ingredients (e.g. flour, sugar, fats, eggs); Ingredient interactions (e.g. Halal gluten formation, creaming method); Methods of mixing and baking (e.g. creaming, rubbing in, baking temperatures); Final biscuit characteristics (e.g. texture, spread, colour, flavour)

Three teachers prepared lessons on menu planning as part of lab content while emphasising balanced and nutritious meal creation. Table 3 presents specific lesson contents.

Table 3. Menu Planning Observations

Content of Lesson	Lesson Description
Observed – NEA 2	
Plan, prepare, cook, and present a range of dishes that celebrate an event, occasion, or festival from around the world. Present three dishes.	<ul style="list-style-type: none"> • Students learn about the cultural significance of celebrations, events, and festivals across the globe, serving as a powerful expression of cultural identity, heritage, and values. • From the elaborate feasts of Chinese New Year to the colourful sweets of Diwali, each dish tells a story deeply rooted in tradition and history. Food not only nourishes the

Content of Lesson Observed – NEA 2	Lesson Description
	<p>body but also nourishes the soul, connecting individuals to their cultural roots and forging bonds within communities.</p> <ul style="list-style-type: none"> ● Through the preparation and sharing of traditional recipes passed down through generations, people honour their ancestors and preserve cultural heritage. ● Students also learned about how food acts as a universal language, transcending barriers of language and geography to unite people in shared experiences of joy, gratitude, and togetherness. Whether it's the communal breaking of bread during Ramadan or the feasting and merriment of Thanksgiving, food plays a central role in fostering a sense of belonging and fostering cultural exchange.
<p>Plan, prepare, cook, and present a range of dishes that include a range of healthy dishes that is suitable for a family with a low budget. Present three dishes.</p>	<ul style="list-style-type: none"> ● Creating menus that accommodate various dietary restrictions, such as gluten-free, dairy-free, or vegetarian preferences. ● Modifying recipes to meet the needs of individuals with specific dietary requirements or health conditions. ● Students were learning about the produce in farms, identifying the period in which harvest occurs in the UAE from November to February, when the dry heat of the UAE is mostly gone. ● Students learned about the many fruits and vegetables available at a particular time of the year, such as citrus fruits

Content of Lesson Observed – NEA 2	Lesson Description
	<p>like lemons and oranges, as well as leafy greens such as coriander, kale, and rocket, and dates.</p> <ul style="list-style-type: none"> ● UAE farms can also produce honey year-round and raise chickens and other animals such as camel meat. There is also an abundance of animal products, such as cow's and camel milk. ● Students learned about the importance of visiting local supermarkets to find out information on the products that could be purchased for a healthy, budget-friendly meal.
<p>Plan, prepare, cook, and present a range of dishes to be sold in a café or restaurant that is promoting using fresh and seasonal ingredients.</p> <p>Present three dishes.</p>	<ul style="list-style-type: none"> ● Students learned that there are variations of cafés and restaurants to cater to customers' different lifestyles, diets, and cultures. This is reflected in the American and British-inspired cafés that reflect the expat community in the UAE. ● Students learned to make their own choices related to the chosen task with special emphasis on the best organic vegetables for their dishes. ● They learned how to conduct research and visited farms. Farms that enlighten students' perception on sustainability, treatment of livestock, and organic products. ● Students also learned about developing an interview schedule, questionnaire, case studies, and reflections on visits.

4.3.2 Instructional Methods Employed

Lesson-Driven Approach

The observed teachers predominantly used a lesson-driven approach, otherwise known as transmissive learning, to teach, especially in teaching classroom (theoretical) content. All the eleven teachers observed in classrooms, teaching theoretical content, preferred transmissive learning as their primary pedagogical approach. The teachers primarily depended on the curricular contents to transmit knowledge to students. From observations, references to students' experiences and contexts were limited. In most parts of the observation sessions (more than half of the observation session), the observed teachers were giving lectures on concepts that were being taught.

Transmissive learning approaches were also observed in cooking labs, but only partially. Teachers used the transmissive approach to describe the culinary, food investigation, or meal planning skills to be learned and the techniques to be utilised. A few teachers preferred a mix of transmissive learning and other active techniques, such as interactive discussions, to present and describe lesson objectives and activities.

Interactive Discussions

Interactive discussions were common in classroom lessons, especially towards the end of the class. Eight out of eleven teachers observed teaching classroom content used this approach towards the end of their lessons to engage students in discussions and debates on nutritional concepts, food choice, and food safety. Two classroom teachers incorporated interactive discussions in various parts of their lessons (beginning, middle, and end), ensuring active participation of the students throughout the lessons. One teacher did not incorporate active discussion at all and purely depended on a lecture-driven approach. Interactive discussions were also moderately used in practical cooking classes.

Visual Aids

A good number of teachers, 21 out of 29, used an assortment of visual aids, including charts, diagrams, and multimedia presentations, to demonstrate lesson content, both in classrooms and in cooking labs. Each of the classroom lessons observed had at least one visual aid to bolster understanding and memory. Visual aids in the classrooms were observed in the form of infographics that simplify complex information, creative presentations that ensure students are engaged throughout the lessons, quick diagrams and illustrations on whiteboards, and colourful posters and charts to display key concepts or important lesson-related information. On a few occasions, smartboards (interactive whiteboards), interactive simulations, and videos were used to convey classroom lesson content. Whiteboards, posters, and creative presentations were also very common in cooking labs and were used to present recipes, food investigation procedures, and menu planning activities. Multimedia (simulations or videos) was not observed being used in cooking labs.

Demonstrations

Demonstration was common in all cooking lab observations. Teachers observed in cooking labs used demonstrations to illustrate specific processes and techniques during food preparation and cooking. In various instances, teachers in cooking labs were observed assisting students and leading spot demonstrations on how to handle and use kitchen equipment and utensils, how to ration and balance ingredients for the desired recipe outcomes, how to create specific meal plans, and how to complete specific food investigation procedures. Such demonstrations were mainly at class or group levels. Individual-level demonstrations were sporadic.

Hands-on Activities

Cooking lab lessons were primarily characterised by hands-on activities where students practised culinary skills in recipes, investigated food and scientific ingredient components, and planned customised balanced and nutritious meals and menus. In 13 of 18 lab

observations, teachers organised students into groups of 2–5 before assigning hands-on activities. The teachers cited limited time or short lessons and limited access to resources as the main reasons for such groupings. It was also evident that the majority of teachers observed in labs struggled with effectively completing lessons, mainly due to time constraints.

4.3.3 Approaches Teachers Used to Build Relationships with Students in SFNE

Classrooms

Group Work

Groupwork was typical in cooking labs but atypical in classrooms. It formed part of over 70% of lab observations and about 10% of classroom observations. In many instances, teachers left students to their own devices to sort themselves and work into groups. In a few instances, teachers deliberately selected students to create groupings, matching students by their strengths and weaknesses. According to these teachers, this was a deliberate approach to mix abilities, diversity, and social capabilities. In all cases observed, groups were sizes 2–5 students with a mode and mean of 4. Where possible, with the help of the food technician, groups delineated roles among members with respect to specific goals and expectations of the task.

Open Communication

Aspects of open communication were evident in all observations, albeit manifested more in some classes than others. In two cases, aspects of open communication were only observed a few minutes before the end of lessons. This was an attempt to recap the lesson in the small amount of time left'. In such cases, teachers simply asked students to raise any questions they could have had or seek clarifications on the lessons taught. Student engagement was negligible in such lessons. In some cases, teachers enthusiastically encouraged dialogue and motivated students actively to express their needs, make inquiries, and collaborate with peers and the teacher in creating a supportive classroom environment.

Such classrooms were characterised by lively interactions and engagement throughout the lessons, with students comfortably sharing their thoughts, seeking assistance when needed, and asking questions. In thirteen of the eighteen cases, active engagement and socialisation were observed in a major part of the second half of the lessons. Fifteen of the teachers spent the first half of their lessons delivering curricular content through a lecture-driven approach (for classroom content) and hands-on activities (for lab content) and then engaging students in discussions in the second half of the lessons. Teachers observed in cooking labs struggled with creating time for discussions due to time constraints.

Individual Attention

Ten of the teachers, more than half, especially those observed in cooking labs, recognised the magnitude of offering individual attention to student's queries and concerns. These teachers walked around the class, observing and monitoring students as they undertook specific activities and gave immediate, individualised constructive feedback, support, direction, or demonstration needed, engendering active involvement of students.

4.4 Phase 3: Document Review and Analysis

The documentary analysis was concerned with factors that affected the extent to which teachers felt prepared to teach and support students in developing SFNE knowledge and skills. The internal documents were selected based on how current they were and the extent to which they could generate insights into the objectives and questions raised in the study. The selection criteria of external documentation were guided by the extent to which the document addressed the specific theme but from a national perspective. The documents reviewed, including both internal and external documents, were analysed based on themes most noticeable and relevant to the research questions as a way to further support or critique the findings generated from other phases of the study. Themes identified in the interviews were of central significance in mapping themes related to the documentary analysis. Table 4

provides a list of the main themes generated. The full list is available in Appendix 15.

Internal documentation accessed and analysed included SoW for SFNE related subjects for the year 2023, the GCSE FPN Curriculum Development (CD) Plan published in 2016, lesson timetable schedules used in 2023, FPN Curriculum Mapping (2022/2023), and a collection of assessments created by FPN teachers within the last two instructional seasons. External documents consisted of the National Nutrition Strategy 2030, and UAE Science, Technology & Innovation Policy (2015), as well as national research and informative documents, including Teacher Professional Development (TPD) in UAE (Buckner et al. 2016), and the Halal Food Handbook (Al-Teinaz et al. 2020).

Table 4. Document Analysis Themes

Topic	Internal Documentation	External Documentation
Curriculum Integration	<p>GCSE FPN syllabus plan (2016)</p> <p>FPN Curriculum Mapping (2022/2023)</p> <p>Past Written Exam FPN and other related Food and Nutrition Papers</p> <p>GCSE Home Economics (H&E) syllabus plan (2017)</p> <p>H&E Curriculum Mapping (2022/2023)</p> <p>Past Written Exam H&E and other related Food and Nutrition Papers</p>	<p>GCSE Food Preparation and Nutrition (AQA 2016)</p> <p>GCSE Food Preparation and Nutrition (WJEC 2016)</p> <p>GCSE Food Preparation and Nutrition (OCR 2016)</p> <p>GCSE Home Economics: Food and Nutrition (HE: F&N) (CCEA 2017)</p>

	iGCSE F&N (Food and Nutrition) syllabus plan (2018) F&N Curriculum Mapping (2022/2023) Past Written Exam F&N and other related Food and Nutrition Papers	Cambridge iGCSE Food and Nutrition (Cambridge 2018)
Time Allocation	SFNE syllabus plan for GCSE FPN, iGCSE F&N, GCSE HE:F&N Timetable Schedules (2023)	Food education – fit for the future? (Davies and Ballam 2023)
Teacher Professional Development	UAE Teaching Professional Standards UK Teaching Professional Standards	Teacher Professional Development in UAE (Buckner et al. 2016)
Culture Relevance	Schemes of Work (2023) GCSE FPN syllabus plan (2016)	The Halal Food Handbook (Al-Teinaz et al. 2020)

4.4.1 Documentary Analysis Themes

Curriculum Integration

The GCSE FPN CD Plan was developed by the UK DfE in collaboration with independent bodies such as EDUQAS, AQA, OCR, and the Office of Qualifications and Examinations Regulation (OFQUAL) to support teachers in ensuring that students develop a thorough understanding of Food Preparation and Nutrition covering six topics: (1) Food

Preparation Skills, (2) Food, Nutrition and Health, (3) Food Science, (4) Food Safety, (5) Food Choice, and (6) Food Provenance, together with the fundamental understanding on how to prepare predominantly savoury meals using different culinary skills. The document set the structure which all UK examination boards had to follow for the new FPN curriculum since 2016. All examination boards filtered through the document to set a syllabus, exam papers, and teaching resources, and endorsed FPN books to share with teachers and students across the UK and beyond. The secondary schools adopted it to guide the FPN curriculum. The GCSE FPN CD Plan outlined specific aims and learning outcomes. The main aim was highlighted as follows:

GCSE specifications in food preparation and nutrition must equip students with the knowledge, understanding, and skills required to cook and apply the principles of food science, nutrition, and healthy eating. They should encourage students to cook and enable them to make informed decisions about a wide range of further learning opportunities and career pathways, as well as develop vital life skills that enable them to feed themselves and others affordably and nutritiously, now and later in life.

According to the syllabus, students are expected to demonstrate specific knowledge and skills as a result of studying FPN in six explicit areas. Students must be able to use a variety of food commodities, cooking equipment, and techniques to plan, prepare, and cook different foods and drinks while demonstrating effective and safe cooking skills. They must also demonstrate knowledge and understanding of various functional and chemical properties and processes, as well as the nutritional content of various foods and drinks. Further, FPN students are discerning of the symbiotic relationships that exist between diet, nutrition, and health while also being sensitive to the physiological and psychological effects of poor diet. Furthermore, students are expected to validate their understanding of the effect of sociocultural, economic, ecological, and ethical factors on food processes, food availability, and health and diet choices. Also, students are expected to demonstrate knowledge of food

safety considerations, sensory qualities, and functional and nutritional properties involved in the preparation, storage, cooking, and serving of food. Finally, the students are expected to develop an understanding of different culinary traditions with the ability to identify and explore an array of unique ingredients with the goal of inspiring new ideas and improving existing ones.

According to the UK Department for Education (2015), the subject content is split into: Food Nutrition and Health, Food Science, Food Safety, Food Choice, Food Provenance, and Food Skills. These are described in Table 5.

Table 5. SFNE Curriculum Core Concepts

Core Concept	Skills students will develop and demonstrate
Food Nutrition and Health	<ul style="list-style-type: none"> • Understand the principles of nutrition and how nutrients contribute to overall health. • Analyse the nutritional content of foods and make informed dietary choices. • Apply knowledge of dietary guidelines and recommendations to plan balanced meals that meet individual nutritional needs. • Evaluate the impact of nutrition on physical and mental well-being.
Food Science	<ul style="list-style-type: none"> • Demonstrate an understanding of basic food chemistry and biology. • Apply scientific principles to food preparation techniques and cooking processes. • Investigate how different cooking methods affect the nutritional value, flavour, texture, and safety of foods using sensory science. • Experiment with food additives, preservatives, and other food science concepts to understand their roles in food production and preservation.

Core Concept	Skills students will develop and demonstrate
Food Safety	<ul style="list-style-type: none"> • Follow proper procedures for safe food handling, storage, and preparation to prevent foodborne illnesses. • Identify potential food safety hazards and apply strategies to mitigate risks in the food lab. • Understand the principles of cross-contamination and implement measures to maintain food hygiene. • Interpret food labelling and packaging information to make informed decisions about food safety.
Food Choice	<ul style="list-style-type: none"> • Explore factors influencing food choices, including cultural, social, economic, and environmental factors. • Evaluate the nutritional value and sustainability of food options when making food choices. • Develop critical thinking skills to assess food marketing messages and media representations of food. • Apply strategies for making healthy food choices within budgetary constraints and dietary preferences.
Food Provenance	<ul style="list-style-type: none"> • Investigate the origins of food, including where and how it is produced, processed, and distributed. • Understand the environmental, economic, and social implications of food production systems. • Explore issues related to food sovereignty, food security, and food justice. • Advocate for sustainable food practices and ethical sourcing of food products.

Core Concept	Skills students will develop and demonstrate
Food Skills	<ul style="list-style-type: none"> • Acquire practical culinary skills related to food preparation, cooking techniques, and recipe modification and engineering. • Demonstrate proficiency in food lab equipment operation, knife skills, and food presentation. • Plan and execute menus for different dietary needs, occasions, and cultural preferences. • Collaborate with others in food preparation activities, demonstrating effective communication and teamwork.

FPN assessment is divided into three categories: Written exam (50%), NEA 1 Scientific Food Investigation (15%), and NEA 2 Food Preparation and Cooking (35%). Appendix 19 and Appendix 20 present the layout of the NEA 1 and NEA 2 respectively according to the national UK GCSE syllabus for FPN that were analysed. Appendix 22 is a sample of a written mock exams.

The plan also highlights 20 cookery technical skill requirements that students are expected to demonstrate when planning, preparing, cooking, and presenting selected recipes. These skills are classified into groups, including knife skills, tenderising and marinating, weighing and measuring, and use of equipment. The full list of the technical cookery skills and their descriptions is available in Appendix 16. Attached in Appendices 17 and 18 is a KS3 Cookery and Nutrition and KS4 3-year FPN Curriculum Mapping (2022/2023) used across the international schools to highlight topics, knowledge, and skills taught to students across years 7 to 11 and the assessments they are expected to complete.

The SoW were of great significance in analysing the extent to which teachers followed the guidelines provided in the GCSE FPN, iGCSE F&N and revised GCSE HE:F&N syllabuses and the Curriculum Mapping provided by the UK examination boards. Samples of the SoW used are provided in Appendix 17 and 18. From the analysis, it was apparent that

SFNE was well integrated into the school curriculum, with students learning what they were expected to learn. The SoW indicated an effective balance between theoretical knowledge taught in class and the practical application, especially in cooking labs. The SoW further revealed that teachers put effort into helping students recall lesson prerequisites before teaching new content. For instance, as part of year 9, students are expected to concentrate on *Section A (Food, Nutrition, and Health)*, developing a deeper knowledge of the proteins, lipids, carbohydrates, vitamins, minerals, dietary related conditions, nutritional needs throughout the life cycle, informed choice on balanced diets, energy needs, and nutritional analysis. The SoW highlighted that the section is to be taught, beginning with the definition of concepts such as macronutrients and micronutrients, why they are necessary for the body, the food they come from, and the effects of their deficiency on the body. Such an approach indicates comprehensive curricular integration in terms of curriculum development plans.

Reviewing past written exam papers in the context of the SFNE curriculum provided valuable insights into the themes and priorities emphasised in the assessments. Analysis revealed that the written exams placed much emphasis on students' understanding of nutritional concepts, including macronutrients, micronutrients, dietary guidelines, and their role in maintaining good health. The exam papers also reflected on the importance of healthy eating habits with a significant number of questions exploring students' knowledge of balanced diets, the impact of different food choices on health, and the ability to analyse and plan nutritious meals. They also touched on food safety and hygiene practices, including food storage, conservation, and handling. FPN paper 1 (Written Exam) was designed to assess students' theoretical knowledge and understanding of food-related concepts. The exam was meant to cover a range of topics related to nutrition, food choice and health, food safety and hygiene, menu planning and meal preparation, food provenance, and environmental and ethical considerations. From the document review and analysis, it was evident that the written exam assessments covered these topics considerably but not comprehensively.

Lesson Time Allocation

Analysing the time allocated to teaching and learning FPN was paramount in determining the extent to which the subject was integrated into the holistic school curriculum. The GCSE FPN, iGCSE F&N, and revised GCSE HE:F&N syllabus plan and the Timetable Schedules (2023) were vital in completing this analysis. Curricular structures provided by UK Examination Boards and GCSE provide that any FPN lesson should be about 60 minutes, with practical lessons likely to require more time for quality teaching outcomes. The GCSE FPN, iGCSE F&N, and revised GCSE HE:F&N syllabus plan (2016) was also created with such protocols in mind. Nonetheless, analysis of timetables retrieved from five of the secondary teachers indicated that each lesson is structured to take 50–55 minutes, with some teachers having 23 students and others having 28 students in one food room that is only equipped with 11 hobs, which implied that SFNE lessons, especially practical lessons, are not only shorter than expected but also overcrowded with the allocated space. As part of the analysis, SFNE lessons per week were counted for each year group from the tables. It was noted that each year, the group got 2–3 SFNE lessons per week. A comparison was also made with other subjects on the timetable, and it was noted that STEM subjects, including Mathematics, Physics, Chemistry, and Biology, had at least 4 lessons per week. Language and Arts subjects such as English, History, and Geography had 2–4 lessons weekly.

Teacher Professional Development

The GCSE FPN, iGCSE F&N, and revised GCSE HE: F&N and CD Plan (2016) places emphasis on the need for FPN teacher training and professional development. In addition to being a certified teacher, the CD plan stresses the need to commit to CPD as a way to keep skills up-to-date. Besides subject-specific training, specific bodies such as AQA, EDUQAS, OCR, OFQUAL, and the DfE, which design and monitor the standards on which FPN CD is based, highlight a range of UK based courses to help boost teachers' competence.

Interviews with teachers, however, revealed that relevant CPD opportunities are seldom available in the UAE. Teachers sought such opportunities from other countries, especially the UK, through online platforms. This is unlike other subjects in the UAE, which have CPD opportunities available to teachers. A policy brief on professional development among public school teachers in the UAE, an external resource named TPD in UAE (Buckner et al. 2016), determined that teachers teaching various subjects in the UAE have high rates of participation in CPD, including week-long professional development workshops, conferences, and in-school teacher networks. The brief states that the CPDs are numerous such that they have become repetitive and, sometimes, irrelevant. From the teachers' perspectives, such opportunities are rarely available for SFNE teachers since it is not one of the recognised subjects by the MoE of the UAE.

Culture Relevance

Analysis of the SoW and GCSE FPN, iGCSE F&N, and revised GCSE HE:F&N syllabus plan revealed that the curriculum is designed with specific foods and ingredients that students need to explore, investigate, prepare, and cook. Every culinary lesson also has specific recipes that teachers have to guide students in preparing and cooking. Further analysis of SoW exposed that some teachers had made attempts to modify foods and recipes. The teachers who did so held a major opinion that such modifications helped them guarantee cultural integration in their classrooms by ensuring that foods taught to students were known to them and were relevant to their interests. Teachers also highlighted that they had to deliberate before considering any food or recipe as they must ensure compliance with cultural standards and good food practices in the UAE. During interviews, teachers noted the UAE's strict cultural norms and morals as one of the challenges affecting their practice. To further understand this issue, I analysed the Halal Food Handbook, which compares the concept of "Halal Foods" across different religious and cultural contexts, focusing on Sharia Law, UK National Laws, and EU legal frameworks but with a specific focus on food choice

and standards. A review of the book revealed that Sharia laws, on which the UAE's religiosity and culture are based, are much stricter on food choice. For instance, pork or bacon and its by-products, gelatine derived from an animal, lard, poppy seeds, and blood, and its by-products are considered haram. There is a long list of foods and ingredients that might be considered haram. Appendix 21 lists a few. Given the Sharia laws, teachers have tough decisions to make in ensuring that they adhere to FPN CD standards, addressing students' learning interests while at the same time upholding the UAE's religious and cultural norms.

4.5 Chapter Summary

This chapter presented the findings from the three phases of the study: Phase 1 interviews, Phase 2 observations, and Phase 3 document review and analysis. Phase 1 explored the challenges that SFNE teachers face and the factors affecting their preparedness in supporting the teaching and learning of SFNE, with 29 teachers participating in the interviews. The primary challenges identified included limited access to resources, diverse student learning needs, strict cultural norms, socio-economic challenges, limited parental and technical support, large class sizes, and difficulties in attaining fairness and objectivity in NEAs. Additionally, factors affecting teachers' preparedness encompass SFNE curriculum development, relevance of academic achievements, access to resources, CPD, students' self-beliefs, administrative support, expert collaboration, access to technology, teaching experience, and regulatory factors.

Phase 2 sought to observe the same 29 teachers as they delivered SFNE lessons, focusing on the content taught, instructional methods employed, and approaches used to engage with students. The observed content primarily included menu planning, food investigation, culinary skills, food choice, food safety, and nutritional concepts. Instructional methods varied from lesson-driven approaches to interactive discussions, visual aids, demonstrations, and hands-on activities. Teachers fostered socialisation with students through group work, open communication, and individual attention, promoting a

collaborative and supportive learning environment. Phase 3 involved a document review to verify and contextualise the findings from the first two phases. Key themes from the document analysis included curriculum integration, lesson time allocation, TDP, and cultural relevance.

The interplay between these phases reveals a comprehensive picture of SFNE teaching in UAE international secondary schools that can inform the development of SFNE in public schools. The interview data highlighted significant challenges and factors influencing teacher preparedness, which were echoed in the observational data showing practical teaching methods and socialisation strategies (Berting 2021; Kelly 2015). Document analysis provided an additional layer of understanding, supporting the need for curriculum integration and professional development highlighted in the interviews and observations. This thematic convergence across the three data sources underscores the interconnected nature of the challenges and solutions in SFNE education. The alignment between teachers' reported challenges and observed practices highlights areas where CPD and resource allocation could be improved. The document review reinforced the necessity of a culturally relevant curriculum and adequate lesson time allocation, aligning with the teachers' experiences and observations. Table 6 summarises the results of each data collection phase

Table 6. Summary of the Results

Phase	Key Findings	Details
Phase 1: Interviews	Challenges Faced by Teachers	<ul style="list-style-type: none"> - Time Allocation: Limited lesson time, especially for practical sessions. - Limited Resources: Insufficient culinary labs, equipment, and ICT resources. - Diverse Learning Needs: Cultural and dietary differences make lesson planning difficult. - Strict Cultural Norms: Restrictions on ingredients (e.g., pork, alcohol, poppy seeds, gelatine). - Socio-economic Challenges: Students' backgrounds affect their engagement and food choices.

Phase	Key Findings	Details
		<ul style="list-style-type: none"> - Nanny/Janitor culture: Students refer to cleaning dishes as 'Janitor's role'.
	Factors Affecting Teacher Preparedness	<ul style="list-style-type: none"> - Curriculum Development: Needs more cultural integration and interdisciplinary connections. - Academic Qualifications: Higher degrees correlate with better preparedness. - Access to Resources: Availability of modern food labs, equipment, and ingredients is crucial. - Continued Professional Development (CPD): Limited CPD opportunities in UAE for SFNE teachers. - Student Self-Belief: Student motivation and engagement impact teacher preparedness.
Phase 2: Observations	Content Taught	<ul style="list-style-type: none"> - Classroom Lessons: Nutrition, food safety, and food choice. - Cooking Labs: Practical food preparation and food science investigations for NEA 1 and 2.
	Instructional Methods	<ul style="list-style-type: none"> - Lecture-Based Teaching: Common for theoretical lessons. - Interactive Discussions: Used towards the end of lessons. - Visual Aids: Charts, diagrams, and multimedia presentations. - Demonstrations: Used in cooking labs to teach practical skills. - Hands-on Activities: Group-based cooking and food science investigations.
	Student Engagement & Socialisation	<ul style="list-style-type: none"> - Group Work: Common in cooking labs, less frequent in classrooms. - Open Communication: Encouraged but varied across teachers. - Individual Attention: Provided mainly in practical sessions.

Phase	Key Findings	Details
Phase 3: Document Review & Analysis	Key Themes	<ul style="list-style-type: none"> - Curriculum Integration: UK-based FPN curriculum lacks cultural adaptability. - Time Allocation: SFNE lessons are shorter than required, limiting practical work. - Professional Development: Limited CPD opportunities for SFNE teachers in UAE. - Cultural Relevance: Teachers adjust recipes and lesson plans to align with UAE's cultural and religious norms.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

The promotion of comprehensive SFNE plays a vital role in shaping students' understanding of healthy eating habits and fostering informed decision-making regarding their dietary choices. This discussion chapter digs further into the findings of an ethnographic study aimed at investigating the challenges faced by teachers in delivering effective SFNE education and exploring factors influencing their preparedness to support curriculum development, particularly in conducting practical NEAs in international schools in the UAE. The study sought to address two key research questions:

- What challenges do teachers face in supporting students during their NEAs?
- What factors affect teachers' preparedness to support SFNE curriculum programme development in Abu Dhabi?

The study adopted a multi-method qualitative methodological choice encompassing interviews, observations, and document review. The subsequent sections of this discussion chapter explore the challenges encountered by teachers and the factors shaping their preparedness. Drawing upon the empirical evidence gathered through interviews, observations, and document analysis, this chapter aims to provide a profound understanding of the issues inherent in delivering effective SFNE. Furthermore, it explores the implications of these findings for programme development initiatives aimed at enhancing the quality and relevance of SFNE in public secondary schools in Abu Dhabi and the UAE in general. This discussion chapter seeks to contribute meaningfully to the ongoing discourse surrounding educational practices in SFNE. Through critical analysis, challenges and insights into the determinants of teachers' preparedness are identified.

5.2 Challenges Faced by Teachers in Teaching and Supporting Students

In the context of SFNE within Abu Dhabi's international secondary schools, teachers confront a diverse array of challenges that impact their capacity to effectively guide and support students. Through in-depth interviews with 29 teachers, participant observation, and document review, the following themes emerged, illuminating the multifaceted nature of these challenges.

5.2.1 Limited-Time Allocation

One of the foremost challenges that teachers encounter is the constraint on instructional time. Within the structured framework of the school curriculum, teachers face the daunting task of covering a wide spectrum of topics related to SFNE within a finite timeframe. This constraint often leaves teachers grappling with the dilemma of prioritisation as they strive to strike a balance between delivering core content and facilitating meaningful learning experiences (Harmer 2019). The pressure to adhere to predefined schedules and meet curriculum requirements can engender a sense of time scarcity, impeding teachers' ability to delve deeply into complex subject matter or engage students in extended hands-on activities.

5.2.2 Limited Access to Resources

Another significant challenge faced by teachers, which emerged from the study, is the scarcity of resources essential for delivering high-quality SFNE. From educational materials and laboratory equipment to specialised facilities for culinary demonstrations, the availability of resources plays a pivotal role in enriching the learning experience for students. Nonetheless, teachers reported that they often find themselves navigating resource constraints, which hinder their ability to conduct practical activities and demonstrations effectively. Inadequate access to resources not only compromises the comprehensiveness of the educational experience but also limits students' exposure to real-world applications of theoretical concepts (Reitmeier and Vrchota 2009), thereby impeding their holistic understanding of SFNE principles.

5.2.3 Addressing Diverse Learning Needs

Abu Dhabi's public secondary schools encompass a diverse student population with varying learning styles, abilities, and cultural backgrounds. For teachers, this diversity presents a multi-faceted challenge as they endeavour to create inclusive learning environments that cater to the unique needs of every student. Adapting instructional strategies to accommodate diverse learners requires a deep understanding of individual strengths, preferences, and challenges. Teachers must employ a repertoire of teaching techniques, ranging from differentiated instruction to personalised learning approaches, to ensure equitable access to SFNE for all students (Kamphuis et al. 2015; Kupolati et al. 2018). Navigating this challenge demands considerable effort and expertise on the part of teachers as they strive to foster an inclusive classroom culture that celebrates diversity while promoting academic excellence.

The findings highlighted that the teachers encountered significant difficulties in communicating with Emirati parents due to language barriers, particularly when it came to parental letters and vernacular recipes used in practical lessons. This limited the ability to tailor instructions and communicate students' specific learning needs to their parents. This emergent issue underscores the importance of establishing a strong partnership with the Department of Arabic to ensure that all educational materials, including recipes, are accurately translated and accessible to Emirati families (Elkjer 2023; Gokalp and Akbasli 2021). By doing so, teachers can better support students' learning experiences and ensure that parents are fully informed and able to engage with the educational process (Alharbi and Renwick 2017). This collaboration not only facilitates smoother communication but also enhances the inclusivity and effectiveness of the SFNE programme, particularly for Emirati students who may otherwise face challenges in understanding the course requirements due to language barriers.

5.2.4 Cultural Norms and Morals

The sociocultural context of Abu Dhabi exerts a significant influence on food-related behaviours and practices, presenting teachers with a delicate balancing act between cultural sensitivity and educational objectives. Cultural norms and moral codes surrounding food consumption can vary widely, shaping individuals' attitudes, beliefs, and dietary preferences. For instance, the UAE is guided by strict Sharia Laws on Halal/Haram foods, which guide what people should eat and how to prepare them (Al-Teinaz et al. 2020; Ambali and Bakar 2014; Hassan and Hanif 2017). Conversely, most Western countries do not have such strict laws. For expatriate teachers, navigating these cultural sensitivities requires a comprehensive approach that respects diverse perspectives while fostering critical thinking and open dialogue (Chen and Antonelli 2020). Reconciling cultural traditions with evidence-based nutritional guidelines can pose a challenge, particularly when cultural norms diverge from established principles of healthy eating. Food and Nutrition and Home Economics teachers must tread carefully, employing culturally responsive pedagogical strategies that honour students' cultural identities while promoting health literacy and informed decision-making.

5.2.5 Socio-economic Challenges

Students' socio-economic backgrounds can profoundly influence their access to nutritious food options and their understanding of healthy eating habits. Teachers operating within the context of Abu Dhabi's public secondary schools should navigate socio-economic disparities within the student body recognising the potential barriers to implementing nutrition education initiatives effectively (Best and Papies 2019; Cheon and Hong 2017). Economic constraints, food insecurity, and limited access to nutritional resources can exacerbate disparities in health outcomes, perpetuating cycles of disadvantage and inequity (Djojosoeparto et al. 2022). In response, in concurrence with Mahmood et al. (2021),

teachers are required to adopt a holistic approach to SFNE, addressing not only dietary knowledge but also socio-economic factors that shape individuals' dietary behaviours.

5.2.6 Limited Technical Support

Adequate technical support is essential for the successful implementation of SFNE initiatives, particularly those involving technology-driven instructional methods or the use of specialised equipment. From the interviews, teachers reported facing challenges in accessing timely technical assistance and troubleshooting solutions, hindering their ability to leverage technology effectively in the classroom. Technical constraints, such as outdated infrastructure or limited Information Technology (IT) support, can impede teachers' efforts to integrate innovative teaching tools and digital resources into their instructional practices (Peralta et al. 2018). As a result, teachers may find themselves grappling with technological barriers that undermine the effectiveness and efficiency of their teaching methods. To address these challenges, schools need to give priority to investments in technical infrastructure and CPD to equip teachers with the requisite skills and support systems for harnessing the potential of technology in SFNE.

5.2.7 Balancing Theoretical Knowledge and Practical Skills

The integration of theoretical knowledge with practical skills proved to pose a pedagogical challenge for teachers tasked with delivering SFNE. While theoretical concepts provide the foundation for understanding key principles of nutrition and food science, Pang et al. (2019) insist that hands-on experiential learning is essential for reinforcing theoretical understanding and fostering practical competencies. Striking a balance between imparting conceptual knowledge and facilitating hands-on learning experiences requires careful planning and instructional design. Nonetheless, resource constraints, time limitations, and logistical challenges tend to complicate teachers' efforts to incorporate practical activities into their teaching repertoire (Al Shebli and Al Hosani 2021). As such, teachers need to employ creative instructional strategies that seamlessly integrate theoretical concepts with

practical applications, leveraging available resources and opportunities for experiential learning.

5.2.8 Large Class Pedagogies

The interviews with SSTs revealed a consensus that the time allocated to SFNE lessons and assessments, particularly NEAs, is insufficient, adversely impacting their delivery and effectiveness. The participants cited multiple reasons for this perspective, with a common theme being the detrimental effect on practical lessons. For instance, SST8 highlighted the challenge of rushing through practical sessions due to the 40-minute lesson limit at KS4, calling for increased time allocation. Another participant, SST26, noted the lack of recognition and resources for SFNE, leading to inadequate preparation time for important NEAs, which constitute a significant portion of the final GCSE grade. The overarching sentiment among the eighteen participants was that the practical nature of SFNE requires more time than is currently allotted to ensure comprehensive learning and skill development. The constrained schedules and competing priorities within the curriculum necessitate a re-evaluation of time allocation better to support the depth and quality of instruction in this subject.

In classrooms with a high student-to-teacher ratio, individualised attention and personalised instruction may be compromised, hindering teachers' ability to meet the diverse needs of every student (Blatchford et al. 2011; Davies and Ballam 2023). In agreement with Blatchford et al. (2011), managing a large cohort of students requires careful planning and organisational strategies to ensure that instructional objectives are met while fostering an inclusive learning environment. Large class sizes can amplify behavioural management issues and disruptions, further complicating the teaching and learning process. To mitigate the impact of large class sizes, teachers must explore innovative instructional approaches, such as cooperative learning strategies and peer-to-peer collaboration, to leverage the collective expertise and resources within the classroom (Denny and Oppedisano 2013).

Additionally, schools may consider implementing class size reduction initiatives or providing additional support staff, such as having a full-time food technician to assist teachers in managing larger groups of students effectively.

5.2.9 Limited Parental Support

The study determined the need to address the issue of limited parental involvement in students' SFNE and decision-making processes. Parental support plays a pivotal role in reinforcing classroom learning and promoting healthy eating habits among students. Teachers reported encountering barriers to parental engagement, ranging from language barriers, buying ingredients to participate in practical lessons, and cultural differences to competing priorities and socio-economic constraints. Overcoming these barriers requires proactive efforts to establish meaningful partnerships between schools and families, fostering open communication channels and collaborative relationships (Mahmood et al. 2021; Rathi et al. 2019). Schools and teachers can employ various strategies to involve parents in SFNE initiatives, such as organising family workshops, distributing informational materials, and utilising digital communication platforms as argued by Zuarub et al. (2022). Empowering parents as partners in the educational process is essential in enabling teachers to extend the reach of their efforts beyond the classroom, reinforcing healthy behaviours and promoting holistic wellness within the broader community.

5.3 Factors Affecting Teachers' Preparedness

In the context of developing an SFNE curriculum in Abu Dhabi's secondary schools, teachers' preparedness is shaped by several key factors. This study, conducted through interviews with 29 secondary school teachers, classroom observations, and document review, identified dominant themes that emerged as the most significant influences on teachers' ability to support the SFNE programme. These factors were chosen based on their recurrence and prominence across the data sources, revealing a complex interplay of individual competencies, institutional support, and sociocultural influences.

5.3.1 Curriculum Development

The interviews revealed the need to develop a culturally responsive curriculum that integrates diverse dishes and nutrition concepts, reflecting students' cultural diversity. Respondents emphasised the importance of an interdisciplinary approach, integrating SFNE with STEM subjects for a holistic understanding. Increasing practical activities was deemed essential for developing students' culinary skills and confidence. The review of the GCSE FPN CDP supports a balanced approach between theory and practice, emphasising comprehensive topics like nutrition and food safety. To address these gaps, it is recommended that the UAE adopt a similar inclusive curriculum, integrate interdisciplinary connections, and enhance practical learning opportunities with adequate resources and teacher training.

Teachers' preparedness is intrinsically linked to the alignment between instructional objectives and curriculum frameworks. The comprehensiveness and relevance of the SFNE curriculum directly impact teachers' ability to effectively deliver instruction that meets the evolving needs and interests of students (Merrill and Lawver 2019). Teachers require access to well-designed curricular resources and guidelines that provide clear learning outcomes, instructional strategies, and assessment tools (Nanayakkara et al. 2018; Rutland 2018; Schmitt et al. 2018). Moreover, opportunities for teacher input and collaboration in curriculum development processes are essential for ensuring that instructional materials and pedagogical approaches resonate with the unique context of Abu Dhabi's secondary schools (Rutland 2020; Smith et al. 2022; Talavera and De Juras 2020; Chowdhary 2023).

5.3.2 Relevance of Teachers' Academic Achievements

The academic qualifications and professional expertise of teachers play a crucial role in determining their preparedness to deliver SFNE. Teachers with specialised training in food science, nutrition, or related fields are better equipped to navigate complex subject matter and facilitate meaningful learning experiences for students. Additionally, ongoing

professional development opportunities, such as advanced coursework, workshops, and certifications, can enhance teachers' subject matter expertise and pedagogical competencies (Murimi et al. 2018). Through an investment in the continuous enhancement of teachers' academic achievements, schools can cultivate a cadre of teachers who are well-prepared to deliver rigorous and engaging instruction in SFNE.

5.3.3 Access to Resources

Adequate access to instructional resources emerged as essential for supporting teachers' preparedness to deliver effective SFNE. From textbooks and laboratory equipment to digital learning platforms and multimedia resources, teachers rely on a diverse array of materials to enrich the learning experience for students (Koch et al. 2020; Osowski and Sydner 2019). Nevertheless, resource disparities across schools and classrooms can hinder teachers' ability to access essential teaching aids and tools (Costa and Murphy 2015). Schools should value resource allocation and infrastructure development to ensure equitable access to educational resources for all teachers. Additionally, ongoing support mechanisms, such as resource-sharing networks and professional learning communities, can foster collaboration and knowledge exchange among teachers, maximising the impact of available resources on teaching and learning outcomes (Murimi et al. 2018).

5.3.4 Continual Professional Development

Teachers' preparedness is enhanced through ongoing opportunities for professional growth and development. CPD programmes, workshops, and seminars provide teachers with the up-to-date knowledge, skills, and strategies needed to navigate emerging trends and best practices in SFNE (Koch et al. 2020). Mentorship programmes and peer observation initiatives offer valuable opportunities for collaborative learning and reflective practice, enabling teachers to refine their instructional approaches and enhance student engagement (Admiraal et al. 2021; Chowdhary 2023; Baker et al. 2020). Schools and educational authorities need to consider investing in professional development initiatives that are tailored

to the unique needs and challenges faced by teachers in delivering SFNE. Nonetheless, teachers in the UAE reported limited professional development opportunities, specifically in the context of SFNE, which makes it hard for them to upskill their knowledge. By fostering a culture of lifelong learning and professional growth, schools can empower teachers to stay abreast of evolving pedagogical trends and effectively meet the needs of diverse learners.

5.3.5 Students' Self-Beliefs on Capabilities

Teachers' preparedness was also influenced by students' self-beliefs and attitudes towards learning. From this finding, students who possess confidence in their abilities and a growth mindset are more likely to actively engage in SFNE and demonstrate higher levels of academic achievement. However, negative self-perceptions, such as low self-efficacy or a fixed mindset, can impede students' receptivity to instruction and hinder their academic progress. Such self-beliefs in capabilities tend to have a ripple effect on SFNE teachers' preparedness, especially in terms of motivation, self-efficacy, and self-morale (Engin 2020; Han and Yin 2016). This demands that teachers adopt strategies that foster a positive learning environment and promote students' self-beliefs in their capabilities. Cultivating a growth mindset through praise, encouragement, and targeted feedback can empower students to overcome challenges, embrace learning opportunities, and develop resilience in the face of setbacks (Han and Yin 2016). Incorporating culturally relevant and contextually meaningful instructional materials can enhance students' sense of ownership and agency in their learning journey, fostering a deeper connection to the subject matter and promoting intrinsic motivation.

5.3.6 Access and Ability to Use Relevant Technologies

The integration of technology into SFNE is increasingly recognised as a potent tool for enhancing teaching and learning outcomes. Teachers' preparedness to leverage relevant technologies, such as digital learning platforms, multimedia resources, and educational apps, is crucial for delivering engaging and interactive instruction (Buabeng-Andoh 2012).

However, disparities in access to technology and variations in teachers' digital literacy skills can hinder the effective implementation of technology-enhanced instructional strategies (Merrill and Lawver 2019). This ignites the need for schools to consider investments in technology infrastructure and provide ongoing training and support to teachers to ensure proficiency in using digital tools (Rutland and Turner 2020). Collaborative partnerships with technology providers and educational experts can facilitate the development of customised solutions that align with the unique needs and priorities of SFNE in Abu Dhabi's public secondary schools.

5.3.7 Expert Collaboration

The participants placed much emphasis on expert collaboration as a necessity that engenders their preparedness. Collaboration with subject matter experts and external stakeholders enriches teachers' preparedness by providing access to specialised knowledge, resources, and best practices (Murimi et al. 2018). Engaging with nutritionists, dieticians, culinary professionals, and community organisations can offer valuable insights into emerging trends, research findings, and practical applications in SFNE (Antwi et al. 2020; Doustmohammadian et al. 2020). Such collaborative partnerships would enable teachers to access a wealth of expertise and resources that enhance the quality and relevance of instructional content (Moschonis et al. 2021). Additionally, expert collaboration promotes interdisciplinary learning experiences that bridge the gap between theory and practice, fostering a holistic understanding of SFNE concepts among students.

5.3.8 Diversity of the Classroom

Secondary schools in Abu Dhabi and the UAE at large encompass a diverse student population representing a wide range of cultural, linguistic, and socio-economic backgrounds. Teachers' preparedness is shaped by their ability to create inclusive learning environments that celebrate diversity and foster equitable access to educational opportunities (Tamiru et al. 2016). Understanding and valuing students' diverse perspectives, experiences,

and identities is essential for tailoring instructional approaches that resonate with individual learners (Kamphuis et al. 2015). There is a need for teachers to employ culturally responsive pedagogical strategies that acknowledge and honour students' cultural backgrounds while promoting cross-cultural understanding and respect. Moreover, creating opportunities for collaborative learning and peer interaction enables students to learn from one another's diverse perspectives and experiences, enriching the educational experience for all.

5.3.9 Mastery of Content

Teachers' mastery of content knowledge proved to be the cornerstone of their preparedness to deliver effective instruction in SFNE. Proficiency in core subject areas, including food science, nutrition principles, culinary techniques, and dietary guidelines, enables teachers to convey complex concepts in a clear and accessible manner (Auld et al. 1999; Hall et al. 2016). Teachers' mastery of content knowledge instils confidence and credibility among students, fostering trust and engagement in the learning process (Nanayakkara et al. 2018; Perikkou et al. 2015). CPD and ongoing learning opportunities are essential for deepening teachers' content knowledge and staying abreast of emerging research findings and best practices (Ronto et al. 2017). Investing in teachers' mastery of content is paramount in cultivating a cadre of teachers who are well-equipped to deliver rigorous, evidence-based instruction that prepares students for success in their academic and professional pursuits.

5.3.10 Student Engagement

Teachers indicated that their preparedness was enhanced by their ability to foster active engagement and participation among students in SFNE. Engaging instructional strategies, such as inquiry-based learning, project-based learning, and hands-on activities, promote students' curiosity, critical thinking, and problem-solving skills (Perikkou et al. 2015). Additionally, creating opportunities for student choice and autonomy in the learning process fosters ownership and investment in their educational journey. Employing a variety of

instructional approaches that cater to diverse learning styles and preferences proves vital in guaranteeing that all students feel valued and included (Story et al. 2002; Swindle et al. 2019). A supportive classroom climate that encourages risk-taking and experimentation enables students to develop confidence and resilience in their learning endeavours (Vettori et al. 2019).

5.4 Teaching Approaches and Content Observed

The observation of teaching practices revealed an array of instructional content and pedagogical approaches employed by teachers. This section focuses on the observed content of instruction, the diverse teaching approaches utilised, and the socialisation strategies employed in the teaching and learning repertoire.

5.4.1 Content of Instruction

The observed lessons encompassed a comprehensive array of topics related to food science and nutrition, catering to the multifaceted dimensions of dietary education. Teachers covered a spectrum of essential content areas, including culinary skills, food investigation techniques, nutritional concepts, food choice considerations, food safety protocols, scientific experiments, and menu planning strategies. This holistic approach to instructional content reflects teachers' efforts to provide students with a well-rounded understanding of the principles and practices underpinning healthy eating habits and dietary decision-making.

5.4.2 Teaching Approaches Used

The observed teaching practices exhibited a diversity of instructional methodologies aimed at engaging students and fostering active learning experiences. Teachers employed a range of pedagogical approaches, including traditional lecture-based instruction, interactive discussions, hands-on activities, demonstrations, and the use of visual aids and multimedia resources. This varied instructional repertoire catered to different learning styles and preferences, promoting student engagement and comprehension (Doustmohammadian et al. 2020; Fredericks et al. 2020; Wang et al. 2015). The incorporation of interactive elements

into teaching enabled teachers to create opportunities for students to participate actively in the learning process, reinforcing theoretical concepts through experiential learning. The use of demonstrations and hands-on activities facilitated kinesthetic learning, allowing students to apply theoretical knowledge in practical contexts and develop essential culinary skills.

5.4.3 Socialisation Approaches Used in Teaching and Learning Repertoire

In addition to delivering instructional content, teachers utilised socialisation approaches to cultivate a supportive learning environment characterised by open communication, collaboration, and individual attention. Group work activities promoted peer interaction and cooperative learning, enabling students to exchange ideas, share perspectives, and collaborate on NEAs. Open communication channels fostered dialogue between teachers and students, facilitating the exchange of feedback and ideas. Additionally, teachers provided individualised attention to students, offering personalised support and guidance to address their unique learning needs. These socialisation approaches fostered a sense of belonging and community within the classroom, enhancing students' motivation and engagement in the learning process (Glorioso et al. 2020; Hayes et al. 2018). Nurturing positive social interactions and relationships proved to be essential for teachers in creating a conducive learning environment that promoted academic success and holistic development.

The observation of teaching practices revealed a dynamic interplay between instructional content, teaching approaches, and socialisation strategies. The incorporation of diverse content domains, employing interactive teaching methods, and fostering positive social interactions enabled teachers to create enriching learning experiences that empowered students to develop essential knowledge, skills, and attitudes that they need to achieve lifelong health and well-being, specifically with regard to food and nutrition.

5.5 Themes Emerging from Document Review and Analysis

The document review and analysis uncovered several foundational themes that offer meaningful insights into the landscape of SFNE within Abu Dhabi's international secondary schools. These themes not only reflect the current state of educational practices but also illuminate the underlying principles and priorities shaping curriculum development, instructional approaches, and pedagogical frameworks. Through a comprehensive examination of educational documents and policy materials, the following themes emerged as central to understanding the dynamics of SFNE.

5.5.1 Curriculum Integration

One of the outstanding themes that emerged from the document review was the emphasis on curriculum integration. Within Abu Dhabi's and the UAE's educational frameworks, there is a concerted effort to align food and nutrition education with broader curricular goals and objectives. This integration extends beyond standalone nutrition courses to encompass interdisciplinary connections with subjects such as Health Science, Biology, Chemistry, Physics, Ecology, STEAM, and Home Economics. Embedding food and nutrition concepts across multiple disciplines proved necessary for teachers to cultivate a holistic understanding of dietary principles and their practical applications in everyday life. Curriculum integration and introduction of standalone SFNE are integral in fostering cross-curricular relevance and coherence, enabling students to make connections between diverse subject areas and deepen their understanding of complex real-world issues related to food, health, and sustainability (Antwi et al. 2020; Prelip et al. 2012; Rector et al. 2021; Story et al. 2002).

5.5.2 Lesson Time Allocation

Another significant theme highlighted in the document analysis is the allocation of lesson time dedicated to SFNE. Documents underscored the importance of optimising instructional time to cover the breadth and depth of curriculum content effectively. This

includes striking a balance between theoretical instruction and hands-on practical activities to reinforce conceptual understanding and develop essential skills. Nonetheless, challenges may arise in allocating sufficient time for practical demonstrations, laboratory experiments, and experiential learning opportunities within the constraints of a fixed academic schedule (Antwi et al. 2020; Hunter et al. 2017). Consequently, teachers need to evaluate carefully the instructional objectives and make strategic decisions regarding lesson planning to ensure that essential content is adequately covered while maximising student engagement and learning outcomes.

5.5.3 Teacher Professional Development

TPD emerged as a critical theme in the document review, reflecting a commitment to equipping teachers with the necessary knowledge, skills, and competencies to deliver high-quality food and nutrition education. Documents outlined various initiatives aimed at enhancing TPD, including workshops, seminars, conferences, and online courses. These professional development programmes address a wide range of topics, from pedagogical strategies and instructional methodologies to subject-specific content knowledge and curriculum design (Wang and Stewart 2012). Through investment in ongoing training and support for teachers, educational authorities can empower teachers as effective facilitators of learning and agents of positive change in the field of SFNE (Koch et al. 2020). TPD initiatives also foster a culture of continuous improvement and innovation, enabling teachers to adapt to evolving educational trends and meet the diverse needs of students in an ever-changing educational landscape. Nonetheless, this remains a challenge as this study revealed that there are very limited TPD opportunities for SFNE teachers in the UAE, compelling the teachers to seek similar opportunities elsewhere, especially in the UK.

5.5.4 Cultural Relevance

Cultural relevance emerged as a foundational theme underscoring the importance of contextualising SFNE within the sociocultural context of the UAE and, specifically, Abu Dhabi. Documents accented the need to incorporate local traditions, dietary practices, and cultural perspectives into instructional materials and curricular resources. Acknowledging and honouring students' cultural identities and heritage can enable teachers to create a more inclusive and culturally responsive learning environment (MacIntyre et al. 2018). For instance, in a Food and Nutrition classroom in the UAE, where Emirati students, who are largely Muslim, care deeply about halal/haram foods and food preparation methods, a teacher can create a more inclusive environment by incorporating lessons that respect these dietary laws. This could involve teaching all students about halal food practices and preparing dishes that adhere to these guidelines. Meanwhile, expatriate students, who are often Christian and might not be as familiar with Islamic dietary customs, can also share their traditional recipes and food practices. Such culturally relevant pedagogy promotes meaningful engagement and learning outcomes by establishing connections between students' lived experiences and educational content (Fredericks et al. 2020; Rutland 2018). Integrating culturally relevant examples, case studies, and teaching materials enables teachers to enhance the relevance and authenticity of SFNE, thereby empowering students to apply their learning in real-world contexts and make food and nutrition choices that resonate with their cultural values and beliefs.

5.5.5 Interdisciplinary Connections

A theme that also emerged from the document review and analysis was the interdisciplinary connections between food and nutrition education. From the review, this theme underscored the integral relationship between SFNE and various other disciplines within the academic landscape. Across subjects such as art and design, geography, history, ICT, science, numeracy, literacy, and home science, teachers have recognised opportunities

to integrate food and nutrition concepts seamlessly into existing curricular frameworks. For instance, students may explore the cultural significance of food in historical contexts, analyse the geographical factors influencing food production and distribution, or utilise ICT tools to track nutritional information and analyse dietary patterns (Ballam 2019; Glorioso et al. 2020; Koch et al. 2020).

Furthermore, incorporating SFNE into subjects like science enhances students' understanding of biological processes, chemical compositions, and health-related concepts (Kupolati et al. 2018; Merrill and Lawver 2019). Fostering interdisciplinary connections empowers teachers to not only enrich the educational experience but also promote holistic learning outcomes that transcend traditional disciplinary boundaries. These interdisciplinary connections empower students to appreciate the multidimensional aspects of SFNE, fostering a deeper understanding of their impact on health, society, and the environment.

5.6 Synthesis and Interpretation of Findings

The findings of this study provide significant insights into the drivers as well as barriers for SFNE in Abu Dhabi's secondary schools, especially public secondary schools. These findings compare and contrast with the theoretical perspectives explored in the first two chapters of this thesis. Particularly, the findings show relationships with Bourdieu's Theory of Practice (Figure 3); which emphasises the interlink between concepts of social structures, cultural capital, and habitus. These elements collectively influence a student's dietary behaviours, teacher's preparedness for nutrition education, and the implementation of SFNE.

The findings resonate with the existing literature on SFNE. Similar studies conducted in other regions have also identified challenges related to limited time allocation, resource constraints, diverse student populations, and the need for TPD (Ballam 2019; Cason et al. 2017; FAO 2021; Glorioso et al. 2020; Koch et al. 2020; Rathi et al. 2017; Rector et al. 2021; Chowdhary 2023). The available evidence from the existing literature indicates that these

challenges are not unique to Abu Dhabi but are prevalent across educational settings globally. Furthermore, the emphasis on curriculum integration, hands-on learning experiences, and culturally relevant pedagogy aligns with the best practices recommended in the literature (Antwi et al. 2020; Contento et al. 2002; Graziose et al. 2017; Murimi et al. 2018; Teo et al. 2019; Teo et al. 2021). Such links indicate that although these findings were missing in the context of Abu Dhabi and the UAE at large, they have been research-proven in other contexts.

As such, from a policy standpoint, the findings of this study underscore the existence of structural challenges towards the implementation of SFNE in Abu Dhabi's secondary schools. The limited availability of appropriate teacher training, teaching and learning resources, and curriculum integration point to the existence of institutional constraints that must be addressed to achieve better teacher preparedness for SFNE. This observation is in tandem with past studies on education policy and SFNE implementation (Ronto et al. 2019). Such studies stress the need for systemic support as a necessary requirement for nutrition education initiatives to attain any meaningful impact on learners and society.

However, the findings of this study have significant implications for teaching and learning practices in Abu Dhabi's public secondary schools. Teachers need to recognise the diverse needs of students and adapt their instructional approaches accordingly, leveraging innovative strategies to overcome challenges related to time constraints, resource limitations, and cultural sensitivities. Emphasising hands-on learning experiences, interdisciplinary connections, and culturally relevant pedagogy can enhance student engagement and promote deeper learning outcomes. Moreover, investing in TPD and providing ongoing support and resources are critical for equipping teachers with the knowledge, skills, and competencies needed to deliver effective food and nutrition education. Through effective alignment of teaching practices with the findings of this study, schools can create a more inclusive,

engaging, and enriching learning environment that empowers students to make informed dietary choices and lead healthy lifestyles.

Based on the findings of this study, several suggestions can be made for programme development and improvement in SFNE within Abu Dhabi's public secondary schools. Firstly, there is a need to enhance curriculum integration and coherence by aligning SFNE with broader educational goals and objectives. This may involve revising curriculum frameworks, developing interdisciplinary learning units, and incorporating real-world applications of dietary concepts. To achieve this, it is crucial to make SFNE a compulsory subject across the UAE, following the UK education framework, thereby ensuring all students receive consistent and comprehensive instruction in this vital area.

Secondly, efforts should be made to address resource constraints and enhance access to educational materials, laboratory equipment, and technology infrastructure. The UAE government should invest in Home Economics Labs across both public and charter schools. Schools can also explore partnerships with external stakeholders, such as industry organisations and community groups, to access additional resources and support. Additionally, investing in TPD programmes and mentorship opportunities can strengthen teachers' pedagogical practices and subject matter expertise, ultimately enhancing the quality of instruction and student learning outcomes. Developing CPD programmes tailored to food science can help teachers improve their skills and knowledge. Furthermore, the UAE should invest in university courses to train future Home Economics and Food Technology teachers specifically for food and nutrition education in UAE schools.

Promoting parental involvement and community engagement in SFNE initiatives can foster collaborative partnerships and reinforce healthy behaviours both at school and at home. To address the challenges identified in this study and enhance teachers' preparedness, educational authorities must allocate sufficient resources and support mechanisms to schools, ensuring that teachers have access to necessary materials, equipment, and CPD opportunities.

Schools should prioritise the recruitment and retention of qualified teachers with expertise in food science, nutrition, and related fields and foster a culture of collaboration and knowledge sharing among teachers to promote peer learning and mentorship. To ensure that lessons run smoothly and efficiently, it is important to highlight the need to recruit food technicians who can provide essential support in the preparation and execution of practical lessons, thereby alleviating some of the challenges faced by teachers. Addressing systemic challenges, such as large class sizes and limited parental support, requires coordinated efforts from multiple stakeholders, including teachers, policymakers, parents, and community leaders. Integrating an SFNE programme across all UAE schools, including public schools, is essential for fostering a holistic approach to health and nutrition education.

Under the literature review, an abstract conceptual framework was drawn. The creation of the conceptual framework was guided by Bourdieu's triadic components: habitus, social structures (field), and cultural capital (Bourdieu 1998; Bourdieu 2018; Burke 2015; Djojosoeparto et al. 2022; Kamphuis et al. 2015). Based on the findings, an updated conceptual framework, guided by Bourdieu's theory of practice, can be provided, as shown in Figure 3.

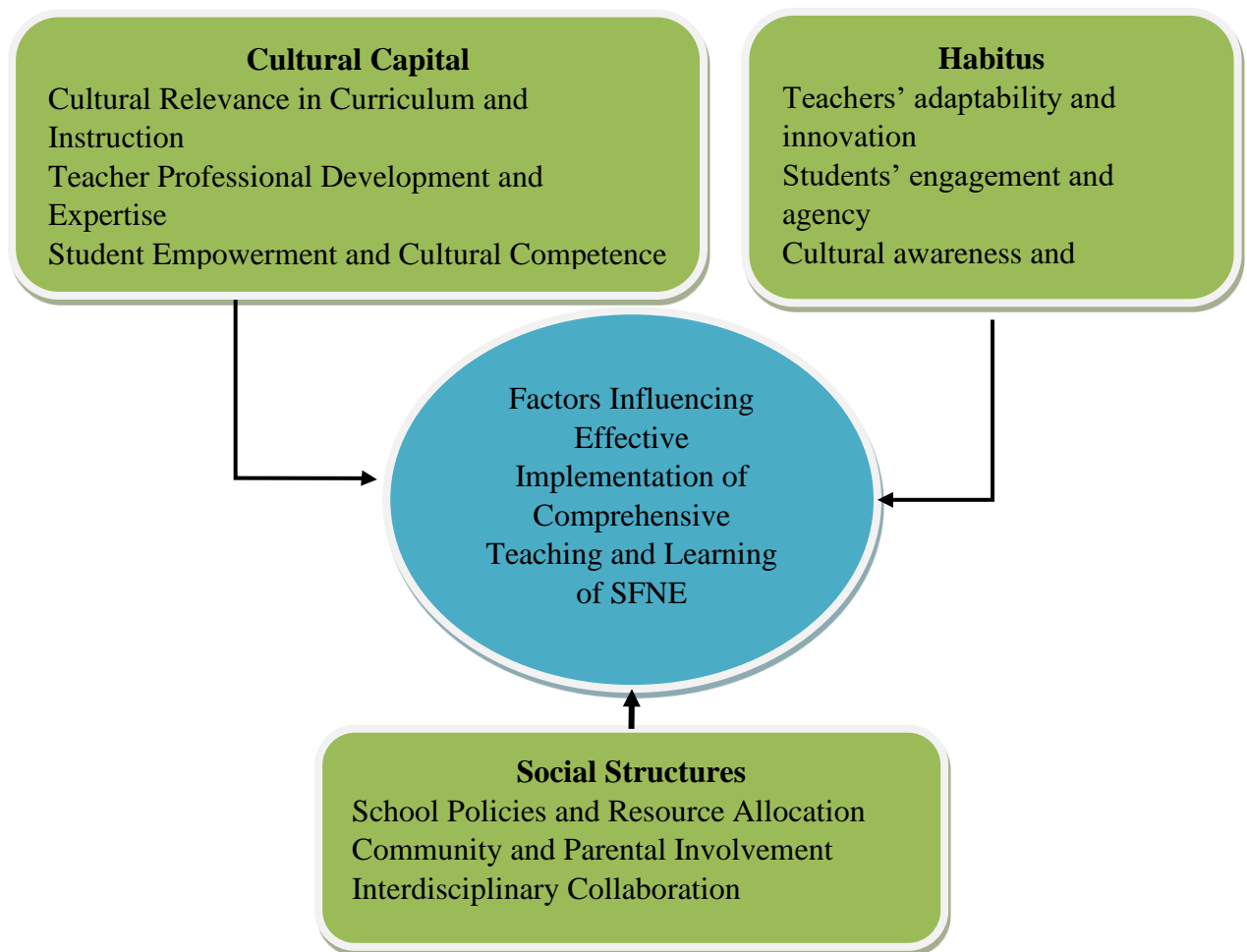


Figure 3. Updated Conceptual Framework

Within the concept of habitus, the framework stresses the pivotal role of teachers in creating a conducive learning environment that fosters student engagement, agency, and cultural awareness. Bourdieu defines habitus as the set of internalised preferences and dispositions of individuals; which ultimately shape behaviours and attitudes of students regarding dietary and nutritional choices and lifestyles. The teachers in this study maintained that pre-existing nutritional habits and cultural norms greatly determined learners' willingness to engage with SFNE lessons. This observation was especially reported in instances where traditional Emirati dietary patterns clashed with contemporary dietary recommendations. These findings further reinforce the role of culturally responsive SFNE pedagogy as earlier emphasised by Glorioso et al. (2020). Teachers' adaptability and innovation are crucial factors in overcoming challenges such as time constraints and resource

limitations, allowing them to tailor instructional approaches to meet the diverse needs of students effectively. Furthermore, students' engagement and agency are fostered through the cultivation of a learning environment that encourages active participation and empowers students to make informed dietary choices.

The social structures component of the framework highlights the broader institutional context within which SFNE operates, including school policies, resource allocation, and community involvement. School policies and resource allocation play a significant role in shaping the availability of instructional materials, professional development opportunities for teachers, and support systems for implementing SFNE effectively. Community and parental involvement contribute to a broader social context that values nutrition education, reinforcing healthy behaviours learned in school and fostering collaborative partnerships between schools and the community. Interdisciplinary collaboration further enhances the integration of SFNE across various subject areas and co-curricular activities, promoting interdisciplinary connections and reinforcing learning outcomes.

Cultural capital represents the accumulation of cultural resources and competencies that influence educational practices and outcomes. Within the framework, cultural relevance in curriculum and instruction is paramount, as it ensures that educational content resonates with students' diverse cultural backgrounds and identities, promoting a sense of belonging and relevance to the learning process. To address the variety of backgrounds within one class, teachers can adopt a flexible, inclusive approach by incorporating diverse perspectives, examples, and learning materials that reflect the cultural diversity of their students. This allows all students to see their identities represented while learning about and appreciating the experiences of others. TPD and expertise are critical for enhancing teachers' capacity to navigate cultural sensitivities effectively and integrate culturally relevant pedagogical practices into their teaching. Additionally, student empowerment and cultural competence are fostered through SFNE, enabling students to develop critical thinking skills, cultural

awareness, and the ability to navigate diverse cultural contexts and dietary practices effectively.

In the context of the current study, students from families with strong nutritional knowledge as well as home-based culinary practices demonstrated higher engagement with SFNE content, most likely due to development of competencies and knowledge inherent in SFNE from socialisations within their home setups. These findings, therefore, support past studies like Kamphuis et al. (2015) and Murimi et al. (2018) that suggest learners with higher cultural capital are more likely to develop healthier dietary behaviours. Similarly, the study unearths that learners from lower socioeconomic backgrounds - more likely to have limited exposure to positive home-based dietary knowledge and awareness on healthy eating habits – found it challenging to apply SFNE concepts to their daily lives. These reaffirm the essence of cultural capital as a positive modulator (or inhibitor) of healthy nutritional behaviors in students.

5.7 The Link Between Obesity and Education

Obesity has emerged as a major public health concern, especially the surge in childhood and adolescent obesity particularly in the UAE. Education and awareness have been proposed as potent tools for obesity prevention. As shown earlier, the UAE has one of the highest prevalence of adolescent obesity in the GCC region. More than 37.8% of students aged 13 to 19 in UAE are classified as overweight or obese (Baniissa et al. 2020). There is thus an urgent need for structured, school-based nutrition education (in this case, SFNE) - since poor nutritional behaviours coupled with lifestyles like sedentarism are the major cause of obesity in all ages.

Empirical studies have consistently suggested education as an important tool in shaping individual and collective health behaviours, including nutrition and dietary practices. As Wang and Fawzi (2020) and Cohen et al. (2021) show, students engaged in structured nutrition education are better positioned to develop healthy dietary habits, be physically

active, and ultimately have lower risk of lifestyle complications like obesity. As such, proper implementation of SFNE as an educational intervention for obesity prevention and management has great potential to address UAE's adolescent obesity menace. Nonetheless, this study reveals that SFNE implementation in Abu Dhabi public secondary schools is fragmented due to multiple factors including; limited curriculum integration whereby SFNE is not a compulsory subject; inadequate teacher training on nutrition education; and sociocultural barriers like conflicts between some food-related health recommendations and traditional dietary practices.

Given the abovementioned barriers, this study underscores the essence of integrating SFNE as a core component of the UAE's national curriculum by making SFNE a compulsory subject across all public (and private) schools. This aligns with global best practices towards leveraging education for prevention of obesity and other lifestyle complications related directly to nutritional behaviours. In countries like Finland, Japan, and the UK, nutrition education has been successfully integrated as mandatory subjects in the curriculums; serving as case studies for the UAE to follow. Such integration has led to measurable improvements in student dietary behaviours and declines in obesity rates in these countries based on FAO (2021) data. The UAE should consider adopting a similar model (with necessary contextual modifications to suit the sociocultural landscapes of the country) by incorporating nutrition education alongside physical and health education programs. This would ensure all students in Abu Dhabi and the UAE acquire critical skills, knowledge, and competencies to adopt healthier dietary behaviours.

For better success, based on the findings of this study, SFNE for obesity prevention should be implemented in a hybrid fashion that integrates theoretical classroom learning with hands-on exercises like cooking demonstrations, school gardening, and school-community engagement programs. These elements lead to more sustainable and inclusive nutrition

education for lifelong impacts that further mold the learners as ambassadors of healthy nutritional behaviours within their communities.

5.8 Chapter Summary

In this chapter, an in-depth examination of SFNE within Abu Dhabi's international secondary schools has been conducted, synthesising insights gleaned from a multifaceted research endeavour. Through multi-method qualitative research methods encompassing interviews, observations, and document analysis, a comprehensive understanding of the challenges faced by teachers, the factors influencing their preparedness, the diverse teaching approaches employed, and the emergent themes shaping educational practices have been elucidated. The study revealed a myriad of challenges confronting teachers, ranging from time constraints and resource limitations to cultural norms and the diverse needs of students. Despite these hurdles, teachers demonstrated adaptability and innovation, utilising a repertoire of teaching approaches such as interactive discussions and hands-on activities to engage students effectively. The implications of the findings for teaching and learning in Abu Dhabi's secondary schools are profound, highlighting the importance of curriculum integration, ongoing TPD, and cultural relevance in fostering a supportive learning environment conducive to student empowerment and informed decision-making.

CHAPTER SIX: CONCLUSION

6.1 Introduction

SFNE plays a pivotal role in promoting lifelong health and well-being among students, and understanding the challenges and opportunities inherent in its implementation is essential for shaping effective educational practices. This study sought to excavate the landscape of SFNE in Abu Dhabi's international secondary schools, aiming to uncover the challenges faced by teachers, explore factors influencing their preparedness, and identify strategies for programme development and improvement with the goal of making recommendations to public secondary schools in Abu Dhabi and the UAE at large. It employed a triangulated research approach encompassing interviews, observations, and document analysis so as to provide a comprehensive understanding of the issues surrounding SFNE in the Abu Dhabi context. Through this exploration, the study aimed to contribute valuable insights to the existing body of knowledge, inform policy and practice, and ultimately enhance the quality and effectiveness of SFNE initiatives in Abu Dhabi's public secondary schools.

6.2 Original Contribution to Knowledge and Practice

This pragmatic study has elucidated a topical concern with widespread application. This research was potentially important to the ADEK and the UAE MoE in informing their efforts to develop a comprehensive SFNE programme in public secondary schools. The significance lies in the urgent need to address the growing challenges related to nutrition and health among adolescents in the UAE, as well as globally, as argued by Abduelkarem et al. (2020), and Moonesar and Hickman (2017). The identification of the specific challenges faced by teachers and the factors affecting their preparedness to deliver SFNE effectively enabled this study to offer actionable insights that can inform policy decisions and curriculum development initiatives aimed at promoting healthy eating habits and improving nutritional literacy among students. Furthermore, by employing Bourdieu's theory of practice as a guiding framework, this study provides a novel analytical lens through which to

understand the complex interplay of sociocultural factors shaping SFNE implementation in the UAE context.

In the field of academics and research, this study represents a pioneering effort as it is the first to explore the topic of SFNE, specifically in the context of the UAE. The findings of this study fill a crucial gap in the literature by offering empirical evidence and insights into the challenges and opportunities associated with SFNE implementation in a rapidly evolving educational landscape. Moreover, this study breaks new ground by being the first research in the UAE to draw its findings guided by Bourdieu's theory of practice. This study contributes to the theoretical development of the field and expands the methodological toolkit available for studying educational practices in diverse cultural contexts by integrating theoretical perspectives from educational sociology.

Internationally, this study contributes to the body of research on SFNE by focusing on the factors that underscore comprehensive SFNE curriculum development, thereby addressing a critical need for evidence-based practices in nutrition education, as emphasised by Talavera and De Juras (2020). This study offers valuable insights that can inform policy and practice initiatives aimed at promoting positive dietary behaviours and improving health outcomes among adolescents worldwide by highlighting the importance of teacher capacity-building, curriculum integration, and cultural responsiveness in SFNE implementation.

6.3 Summary of Discussion/Answers to Research Questions

In this section, I provide an in-depth exploration of the discussions and research questions addressed throughout the study, organised according to the key objectives of the research. It is worth noting that none of the participating sampled teachers was an Emirati or from the MENA region. For this reason, I find it alarming that the UAE is not training teachers to educate future generations on food preparation and nutrition skills that underscore healthy living. The overarching aim of the research was to explore the key factors that influence the effective and comprehensive development of the SFNE curriculum from a

pedagogical perspective. This objective was accomplished by examining the current state of SFNE in international secondary schools in Abu Dhabi, with a specific focus on understanding the challenges encountered by expat teachers and identifying factors that contribute to teachers' preparedness to teach SFNE and support SFNE curriculum programmes. The ultimate goal was to utilise the findings to inform and guide the comprehensive implementation of SFNE in Abu Dhabi public secondary schools, thereby enhancing the quality and effectiveness of SFNE initiatives in the UAE.

6.3.1 Research Question 1

What challenges do teachers face in supporting students during their NEAs?

Through interviews and observations, several challenges were identified, shedding light on the issues inherent in delivering effective SFNE programmes. One significant challenge highlighted by expat teachers was the limited time allocation for SFNE lessons and NEAs. With competing demands on teachers' schedules and curriculum constraints, finding adequate time to cover SFNE topics comprehensively posed a significant obstacle. Furthermore, resource constraints emerged as a recurring theme, with teachers expressing difficulties in accessing local educational materials, specific ingredients, equipment, and technological resources necessary for hands-on learning experiences. Additionally, teachers grappled with addressing the diverse learning needs of students, navigating the UAE's strict cultural norms and morals, and mitigating socio-economic challenges that impact students' dietary choices. The balancing act between theoretical knowledge and practical skills was another challenge highlighted, with teachers striving to strike a balance between imparting essential nutritional concepts and facilitating experiential learning opportunities. Moreover, large class sizes and limited parental support are further challenges to SFNE instruction, requiring innovative strategies to engage students effectively and foster a supportive learning environment.

These findings were further echoed in the document review and analysis phase. Through a comprehensive review of educational documents and policy guidelines, several themes emerged, providing valuable insights into the current state of SFNE in Abu Dhabi's public secondary schools. Curriculum integration emerged as a central theme, with teachers emphasising the importance of integrating SFNE concepts across various subject areas to reinforce learning outcomes and promote interdisciplinary connections. Lesson time allocation was identified as a critical factor influencing the depth and breadth of SFNE instruction, with teachers advocating for dedicated instructional time to cover essential topics effectively. TPD emerged as a recurring theme, with teachers expressing a need for ongoing training and support to enhance their pedagogical skills and subject matter expertise. Moreover, cultural relevance was highlighted as an essential consideration in SFNE curriculum development. Teachers accentuated the importance of incorporating culturally sensitive content and instructional practices that resonate with students' backgrounds and identities.

These results are not isolated since multiple studies and reports have accentuated such pedagogical barriers. The findings aligned with the notion of Zhou et al. (2016), who tested the effectiveness of school-based nutrition and food safety education in primary and junior high schools in a region in China. The researchers authenticated that SFNE programmes are feasible and effective approaches for improving nutrition and food safety knowledge among students. However, Zhou et al. (2016) highlight that the effectiveness of such programmes is tantamount to multiple factors such as TPDs, the level of curriculum development, availability and accessibility of sufficient resources, instructional time, and cultural/biodiversity elements amongst others, which they admit remain significant issues thwarting the effective implementation of such programmes. Another comparative study done within Australian primary schools established that although stakeholders considered child health a priority and recognised the role of schools as settings for obesity prevention, there is a lack of strategic policy alignment, lack of a comprehensive curriculum, poor

availability of resources, and limited leadership and coordination continue to thwart effective implementation of SFNE in the country (Love et al. 2020). These perspectives are held by multiple other researchers (Ballam 2019; Cason et al. 2017; Glorioso et al. 2020; Koch et al. 2020).

Emphasis on such challenges is not just limited to academic research as multiple organisations have initiated advocacies aimed at not only implementing SFNE programmes but also with such challenges in mind. A notable example is the United Nations System Standing Committee on Nutrition (UNSCN) (Hunter et al. 2017). In its statement for SFNE interventions, UNSCN noted SFNE as a sustainable tool for pursuing multiple SDGs such as Zero Hunger and Good Health and Well-being (Hunter et al. 2017). For this reason, UNSCN perceives SFNE as an essential programme for achieving human rights while viewing teachers as critical agents of change in promoting positive nutrition behaviour. Therefore, addressing challenges that teachers might face marks the first and the most foundational step in guaranteeing the comprehensiveness and success of SFNE.

6.3.2 Research Question 2

What factors affect teachers' preparedness to support SFNE curriculum programme development in Abu Dhabi?

Through interviews and document analysis, several factors were identified, shedding light on the multifaceted nature of teacher preparedness in the context of SFNE. Curriculum development emerged as a critical factor, with teachers emphasising the importance of aligning SFNE curricula with national educational standards and incorporating relevant, culturally sensitive content. Curriculum development is a core factor underscoring teacher preparedness, as proposed by Amahmid et al. (2020), who held that the SFNE curriculum should be guided by theory-based, behaviour-focused, and interdisciplinary approaches with seamless integration of innovative methods. As Amahmid et al. (2020) posit, effective implementation and development of the SFNE curriculum demands consideration of different

stakeholders, such as curriculum developers, teachers, family members, food professionals, dietitians, and media who act as sources of influence, and actively collaborate with them to further reinforce impactful SFNE curriculum. Such considerations ensure that the SFNE curriculum is aligned with overarching educational goals, learning objectives, and standards set by educational authorities, as Tilles-Tirkkonen et al. (2018) suggested, ensuring alignment with national or international standards, which helps maintain consistency and coherence across educational programmes. Collaboration with stakeholders also streamlines the process of conducting a thorough needs assessment essential in identifying the specific learning needs, interests, and priorities of students, teachers, and other stakeholders, as per Talavera and De Juras' (2020) research. Understanding the context and characteristics of the target population informs decision-making throughout the curriculum development process.

The relevance of teachers' academic achievements was also highlighted. Teachers stressed the importance of ongoing CPD to stay abreast of emerging trends and best practices in the field of nutrition education. CPD opportunities offer SFNE teachers the opportunities to deepen their understanding of nutrition science, culinary skills, food safety regulations, and other relevant content areas, consistent with the position taken by Smith et al. (2022). This ensures that the teachers are knowledgeable of the latest research findings and best practices in nutrition education, which enrich their curriculum delivery and ensure that their instruction is grounded in accurate and up-to-date information. CPD is also an opportunity for SFNE teachers to develop and refine their pedagogical skills, including instructional strategies, assessment techniques, and classroom management strategies tailored to the unique needs of SFNE classrooms, as emphasised by Chowdhary (2023), Merrill and Lawver (2019), Schmitt et al. (2018), and Smith et al. (2022).

Access to resources, including educational materials, laboratory equipment, and technological infrastructure, was identified as a key determinant of teachers' preparedness, with inadequate resources hindering the delivery of hands-on learning experiences, as also

highlighted in Graziose et al. (2017). CPD emerged as a recurring theme, with teachers expressing a need for targeted training and support to enhance their pedagogical skills and subject matter expertise. Moreover, students' self-beliefs, access to relevant technologies, expert collaboration, diversity in the classroom, mastery of content, and student engagement were identified as influential factors shaping teachers' preparedness to deliver effective SFNE instruction.

6.3.3 SFNE Teaching Approaches and Content Observed

Although outside the context of the two research questions, results on teaching approaches and contents observed generated invaluable insights that could engender comprehensive implementation of SFNE. Through classroom observations, a diverse range of instructional methods and content areas were explored, providing valuable insights into the pedagogical practices employed by teachers. Culinary skills emerged as a central focus of SFNE instruction, with teachers providing hands-on learning experiences to develop students' practical cooking abilities. Food investigation and nutritional concepts were also prominent themes, with teachers integrating scientific inquiry and critical thinking skills into SFNE lessons. Additionally, teachers covered topics such as food choice, food safety, and menu planning, equipping students with essential knowledge and culinary skills to make informed dietary decisions. These findings were consistent with the findings from the document review, which revealed that FPN, an SFNE subject, is structured into six sections, including Food Nutrition and Health, Food Science, Food Safety, Food Choice, Food Provenance, and Food Skills.

While the structuring of these components might vary, the implementation of SFNE in schools would only make sense if the teaching of its contents contributes significantly to improved knowledge, attitude and practice on nutrition, eating behaviours, health-related quality of life, and optimised BMI-for-age among school students as Teo et al. (2019) and Fiteni (2020) suggest. The implementation of such programmes should help young people

reshape their dietary choices, such as increasing fruit and vegetable intake, limiting consumption of sweetened drinks, increasing wholegrains intake, and controlling portion sizes in accordance with the positions taken by Doustmohammadian et al. (2020), Teo et al. (2019). Development of culinary and food investigation skills should be a top priority in ensuring that students understand the nutritional content and food provenance of ingredients and how different cooking methods affect them, empowering them to create balanced meals that meet their dietary needs.

6.4 Summary Reflection on the Study and Its Implications

In reflecting on the study's findings and their implications through the lens of Bourdieu's theory of practice, I delve into the intricate dynamics of SFNE in Abu Dhabi's public secondary schools (Costa and Murphy 2015). Bourdieu's theory posits that individuals' behaviours and practices are deeply rooted in their habitus, which encompasses their dispositions, cultural capital, and social structures within a particular field (Djojoseparto et al. 2022). Applying this theoretical framework to the study allows for the unravelling of the multifaceted interplay between teachers' practices, institutional contexts, and broader societal norms, shedding light on both the challenges encountered and the potential pathways for improvement in SFNE implementation. The challenges elucidated in teaching SFNE, such as time constraints, resource limitations, and cultural considerations, underscore the intricate relationship between teachers' habitus and the prevailing social structures within the educational field. Bourdieu argues that individuals' habitus, shaped by their upbringing and social environment, predisposes them to specific behaviours and attitudes (Costa and Murphy 2015). In the context of SFNE, teachers' habitus may influence their instructional approaches and priorities, reflecting their own cultural backgrounds and educational experiences. For instance, teachers from diverse cultural backgrounds may integrate culturally relevant dietary practices into their teaching, enriching the curriculum with diverse perspectives (Al-Kaabi et al. 2019).

Furthermore, the influence of social structures, such as institutional policies and resource distribution, further moulds teachers' practices and SFNE implementation. Bourdieu contends that social structures impose constraints and afford opportunities that shape individuals' actions within a given field. Institutional policies on curriculum development and resource allocation significantly impact teachers' capacity to deliver comprehensive SFNE programmes. For instance, inadequate funding for educational materials or limited access to professional development opportunities may hinder teachers' ability to innovate and adapt their practices to evolving educational needs.

The factors affecting teachers' preparedness to support SFNE also reflect Bourdieu's theory of practice, particularly the concept of cultural capital. Bourdieu defines cultural capital as the cultural resources and competencies individuals possess, including education, knowledge, and skills, which contribute to their social status and mobility within society. Teachers' cultural capital encompasses their pedagogical knowledge, subject matter expertise, and understanding of cultural norms surrounding SFNE. Teachers with higher levels of cultural capital may exhibit greater adaptability in navigating the challenges of teaching SFNE and engaging with students from diverse backgrounds. Moreover, Bourdieu underscores the role of CPD in shaping teachers' cultural capital and enhancing their capacity to deliver effective SFNE instruction (Huang 2019). CPD initiatives serve as crucial platforms for teachers to acquire new knowledge and skills, expand their cultural capital, and adapt their practices in response to evolving educational contexts (Contento 2016). Therefore, an investment on CPD opportunities tailored to SFNE by educational institutions can empower teachers to enrich their pedagogical repertoire, foster a culture of innovation, and promote positive student outcomes.

Pendergast and McGregor (2012) anticipated a future where societal changes will demand a rethinking into how to address emerging issues and that these issues will "stimulate creative, deeply intellectual and philosophical thinking about futures". We are at a

“convergent moment” where multiple key societal factors are happening at the same time: parents are spending much time working with little time to spend with children, obesity is becoming a major public health issue, dependence on unhealthy fast foods is intensifying, nanny culture where household and child-care responsibilities are transferred to house-helpers is becoming the new normal, and young generations are rarely being nurtured to cook and take care of themselves. Donna Pendergast, in her multiple authorships on Home Economics, insists that schools provide ample environments for pursuing a “convergence” to address these issues (Pendergast and McGregor 2012). She uses the word convergence to mean bringing together different research-proofed thoughts and perspectives to catalyse major reforms aimed at addressing emerging issues. Researchers such as Doustmohammadian et al. (2020), Glorioso et al. (2020), and Jung et al. (2019), also share similar perspectives. SFNE is an example of such a convergence aimed at creating new ways of thinking about food nutrition and everyday living by helping students discover and further develop knowledge, skills, and capabilities on food and dietary practices. Implementation of pedagogically transformative practices that leverage the comprehensive implementation of SFNE, such as culturally relevant curriculum development, TPD, student empowerment, community and parental involvement, interdisciplinary collaboration, sensible policies and resource allocation, and teacher adaptability and innovation, are very monumental.

6.5 Recommendations

The comprehensive investigation into SFNE has yielded valuable insights into the challenges, factors, and instructional approaches shaping SFNE implementation in Abu Dhabi. Building upon these findings, a set of recommendations has been developed to address the identified challenges and enhance the effectiveness of SFNE programmes. In alignment with the nine themes outlined in the updated conceptual framework, the recommendations encompass a diverse range of strategies aimed at strengthening professional development opportunities, promoting curriculum integration, expanding access

to resources and technology, fostering collaboration and community engagement, and promoting culturally relevant pedagogy. Each recommendation is tailored to address specific aspects of SFNE implementation and reflects a commitment to promoting holistic learning experiences and equitable educational opportunities for all students. Through the implementation of these recommendations, educational institutions can create a more supportive and inclusive learning environment that empowers students to make informed dietary choices and lead healthy lifestyles.

6.5.1 Enhancing Professional Development Opportunities

To address the challenges identified in SFNE implementation and support teachers' preparedness, it is imperative to prioritise ongoing CPD opportunities tailored to the specific needs of SFNE teachers. Research suggests that targeted CPD initiatives can significantly enhance teachers' pedagogical skills, subject matter expertise, and cultural competence, thereby improving the quality of SFNE instruction (Contento 2016). Curriculum developers should collaborate with relevant stakeholders, including government agencies, universities, and professional organisations, to develop comprehensive training programmes that address key areas such as curriculum development, instructional strategies, and cultural sensitivity. Higher education institutions in the UAE should develop degree and diploma programmes aimed at preparing SFNE teachers instead of relying on expat SFNE teachers. Abduelkarem et al. (2020) establish that SFNE teachers are practising not only as educators but also as role models, motivators, coaches, advocates, and school "wellness champs" with regard to food and nutrition. For this reason, they must be well-trained and exposed to multiple CPD opportunities aimed at sharpening their competence to impact the lives of their students and the people around them (Alharbi 2024).

6.5.2 Strengthening Curriculum Development, Integration and Interdisciplinary

Connections

It is essential to strengthen curriculum integration and interdisciplinary connections across subject areas to promote holistic learning experiences and reinforce SFNE concepts. Research indicates that integrating SFNE concepts into various disciplines, such as Science, PE, Art & Design, D&T, Humanities, English, Maths, Psychology, Arabic, Islamic, Media and Music, can enhance students' understanding of nutrition-related topics and facilitate cross-disciplinary learning. This generates the need to collaborate with curriculum developers, subject matter experts, and teachers to identify opportunities for developing and integrating SFNE concepts into existing curricula and developing interdisciplinary learning modules. Standalone SFNE is of paramount necessity as it ensures a dedicated and holistic focus on food and nutrition education, allowing for in-depth exploration of topics such as healthy eating practices, culinary skills, food provenance, food science, nutrition and dietetics sensory analysis, and understanding nutritional labels, thereby offering a comprehensive curriculum tailored specifically to SFNE, covering a wide range of topics in depth.

In addition, this study places emphasis on the need for the SFNE curriculum to be culturally sensitive and relevant, given the UAE's strict Sharia laws. Research by scholars such as Contento (2016) highlights the importance of respecting cultural norms and values when designing educational programmes. In the UAE, adherence to Sharia laws governs various aspects of daily life, including dietary practices. Recognising and incorporating these cultural norms into the SFNE curriculum demonstrates respect for the traditions and beliefs of the local population. Sharia laws dictate guidelines for permissible (halal) and prohibited (haram) foods for Muslims. Integrating information about halal food practices into the SFNE curriculum ensures that students understand the significance of halal food certification, sourcing halal ingredients, and preparing halal meals. Research by Gokalp and Akbasli

(2021) emphasises the importance of halal education in Muslim-majority countries like the UAE. Also worth noting is that the UAE is a multicultural society with a significant expatriate population. Denny and Oppedisano (2013) underscore the importance of acknowledging and celebrating cultural diversity in educational settings. Therefore, incorporating elements of diverse cuisines and dietary practices from various cultures represented in the UAE would enable the SFNE curriculum to promote inclusivity and cultural awareness among students.

6.5.3 Expanding Access to Resources and Technology

Addressing resource constraints and enhancing SFNE implementation requires expanding access to educational resources and technology infrastructure. Research suggests that adequate access to resources, including educational materials, modern and sizeable cooking laboratories, laboratory equipment, and technological tools, is essential for delivering hands-on learning experiences and promoting student engagement in SFNE (Richardson et al. 2017). This generates the need to prioritise resource allocation for SFNE programmes, ensuring that teachers have access to the materials and equipment needed to deliver high-quality instruction. Additionally, investments in technology infrastructure, such as digital learning platforms and interactive multimedia resources, can enhance the effectiveness of SFNE instruction and facilitate remote learning opportunities. To further address resource constraints and enhance SFNE implementation, it is also crucial that teachers liaise with the Arabic department within their school. This collaboration is essential for translating letters to parents and vernacular recipes, ensuring that all parents, particularly those who do not speak English, are fully informed and able to support their children's learning (Alharbi 2021; Alharbi and Renwick 2017). This step is vital for promoting inclusivity and ensuring that all students, including those from non-English-speaking households, have equal access to high-quality educational experiences in SFNE.

6.5.4 Fostering Collaboration and Community Engagement

To strengthen SFNE implementation and promote community involvement, it is essential to foster collaboration among stakeholders, including teachers, students, parents, and community organisations. Research suggests that collaborative approaches to nutrition education involving multiple stakeholders and community partners can enhance programme effectiveness and sustainability (Peralta et al. 2018). Educational institutions should be empowered to seek opportunities for collaboration and community engagement, such as parent workshops, student-led initiatives, and partnerships with local businesses and organisations. Through this, educational institutions can leverage the collective expertise and resources of stakeholders to address complex challenges, promote healthy behaviours, and create a supportive ecosystem for SFNE implementation.

6.5.5 Promoting Culturally Relevant and Responsive Pedagogy

Ensuring that SFNE instruction is culturally relevant and responsive to students' diverse backgrounds and experiences demands the promotion of culturally sensitive pedagogy and instructional practices. Research suggests that culturally relevant approaches to nutrition education, which acknowledge and incorporate students' cultural perspectives and dietary practices, can enhance engagement and learning outcomes (Al-Kaabi et al. 2019). Planning for professional development opportunities and resources is necessary for supporting teachers in developing culturally responsive teaching practices and adapting instructional materials to reflect the cultural diversity of their students (Alharbi 2024). The importance to have prompts in Arabic throughout the instructional materials is also essential for Emirati students to access and understand the SFNE curriculum. Additionally, educational institutions should collaborate with community organisations and cultural stakeholders to incorporate culturally relevant content and activities into SFNE curricula.

6.6 Reflection on Literature Choices and Methodology

I recognise the subjective nature of the research approach undertaken. This study was inherently subjective as it primarily focused on capturing the subjective experiences and perspectives of research participants, particularly expat teachers. Given the context-dependent nature of SFNE implementation, a subjective research approach was deemed more appropriate than an objective one, as it allowed for a deeper exploration of the lived experiences, beliefs, and challenges encountered by expat teachers within their specific educational contexts. One subjective assumption that guided my research was the belief that teachers' perspectives and experiences are valuable sources of insight for understanding the issues surrounding SFNE implementation, as postulated by Rathi et al. (2019). Through the prioritisation of the voices and narratives of teachers, I aimed to illuminate the lived realities and everyday challenges they face in teaching and supporting SFNE.

In alignment with an interpretivism epistemology and constructivism ontology, my literature choices were informed by a desire to understand the subjective meanings and interpretations that individuals ascribe to their experiences within the educational context, as suggested in Broudy et al. (2016). I drew upon a diverse range of scholarly sources that emphasised the significance of SFNE, highlighted the challenges teachers face in delivering nutrition education, and explored the factors influencing teachers' preparedness to support SFNE curriculum development. Through the adoption of a constructivist perspective, I aimed to acknowledge the socially constructed nature of knowledge and meaning within the educational field and recognise the role of teachers as active agents in shaping SFNE practices and outcomes. Methodologically, this study employed an ethnographic approach triangulating interviews, observations, and document reviews to gather rich and holistic data on SFNE implementation (Hammersley and Atkinson 2019; Cohen et al. 2019). Drawing upon insights from Bourdieu's theoretical framework, the study sought to explore SFNE practices and challenges through a sociocultural lens, acknowledging the influence of cultural

norms, institutional structures, and individual dispositions on teachers' practices and experiences. The integration of ethnographic approach allowed for an in-depth exploration of the social dynamics and contextual factors shaping SFNE implementation, providing a deep understanding of the challenges and opportunities inherent in teaching and supporting SFNE in Abu Dhabi's public secondary schools.

6.7 Implications of the Study to Practice and Policy

The findings underscore the necessity for a holistic and culturally relevant approach to SFNE. Teachers need to integrate culturally appropriate dietary practices and respect local traditions, such as halal food guidelines, into their curriculum. This integration ensures that the SFNE curriculum is relevant and respectful of the students' cultural context, fostering a more inclusive educational environment. Additionally, the emphasis on hands-on learning experiences, such as developing practical cooking skills and understanding food science, highlights the need for well-equipped educational facilities and continuous professional development so that teachers stay updated with the latest nutritional science and pedagogical strategies. The study's insights suggest that policymakers should prioritise resource allocation to support SFNE programmes effectively. This includes investing in educational materials, modern cooking laboratories, and technological infrastructure to facilitate interactive and engaging learning experiences. Additionally, it is crucial to ensure the translation of parental letters and vernacular recipes into Arabic, enabling Emirati families to access fully and engage with the curriculum. This step is essential for making the programme inclusive and accessible to all students. Furthermore, policies should support CPD opportunities for SFNE teachers, ensuring they have the necessary skills and knowledge to deliver high-quality SFNE education.

The research advocates for the integration of SFNE concepts across various disciplines, promoting interdisciplinary learning and a more comprehensive understanding of practical culinary skills related to SFNE. Curriculum developers should collaborate with teachers and

subject matter experts to create modules that connect SFNE with subjects such as science, physical education, humanities, arts, D&T, maths, languages especially Arabic, and health. This interdisciplinary approach can enhance students' engagement and reinforce the importance of SFNE in their overall academic experience. Engaging with stakeholders, including educational authorities, local universities, and public health organisations, is crucial for the successful implementation of SFNE programmes. Universities and colleges in the UAE should have diploma and degree programmes aimed at preparing SFNE teachers.

Disseminating the study's findings through academic journals, conferences, and educational workshops can foster a collaborative effort to promote evidence-based policies and practices. Advocacy efforts should focus on creating supportive environments that empower students to make informed dietary choices and lead healthier lifestyles. Future research should build on the study's findings by exploring students' perceptions and experiences with SFNE. Incorporating student voices can provide a more holistic understanding of the programme's impact and identify areas for improvement. Comparative studies across different regions and educational contexts can also offer valuable insights into best practices and common challenges, informing more effective SFNE implementations globally.

6.8 Limitations of the Study and Suggestions for Further Research

While this study provides valuable insights into SFNE, several limitations should be acknowledged. The study's focus on a specific geographic region (Abu Dhabi) may limit the generalisability of its findings to other contexts within the UAE or internationally. The unique sociocultural and educational landscape of Abu Dhabi may influence SFNE practices and challenges in ways that differ from other regions. Thus, caution should be exercised when extrapolating the findings to broader contexts (Lange 2011). The subjective nature of qualitative research methods, such as interviews and observations, introduces the potential for researcher bias and interpretation. Despite efforts to mitigate bias through reflexivity and

multi-method qualitative methodological choice of data sources, the researcher's perspectives and experiences may have influenced the interpretation of findings. Future studies could benefit from incorporating multiple researchers or employing member-checking techniques to enhance the credibility and trustworthiness of the findings.

The study's reliance on self-reported data from teachers may introduce response bias, whereby participants may provide socially desirable or inaccurate responses, as discussed in Flick (2022). While efforts were made to establish rapport and create a supportive environment for participants to share their experiences candidly, the possibility of response bias cannot be entirely eliminated. Future research could consider triangulating teacher-reported data with student perspectives or employing mixed-methods approaches to corroborate findings. Building upon the findings and limitations of this study, several avenues for further research are suggested to advance knowledge and practice in SFNE. Future studies could explore students' perceptions, attitudes, and experiences regarding SFNE in Abu Dhabi's public secondary schools. Incorporation of student voices into the research process could lead to the achievement of a more comprehensive understanding of SFNE implementation and its impact on student learning outcomes. Additionally, comparative studies could be conducted to examine SFNE practices and challenges across different educational contexts within the UAE or internationally. Comparing SFNE programmes in diverse settings can enable researchers to identify commonalities, differences, and best practices that inform policy and practice initiatives.

6.9 Dissemination

The dissemination of the findings from this thesis on the comprehensive development of SFNE in the UAE is crucial to ensuring that the insights and recommendations from the study are effectively communicated and implemented across the educational sector. This dissemination strategy aims to bridge the gap between research and practice, fostering a collaborative effort to enhance SFNE in the UAE. One of the first steps in this dissemination

process is sharing the study's findings with colleagues in the education sector, particularly those involved in curriculum development, teacher training, and educational policymaking. This involves organising targeted workshops, seminars, and discussion forums where the research can be presented in detail. Such engagements will provide a platform for educators and policymakers to analyse critically the study's recommendations and discuss how they can be incorporated into existing frameworks. The dissemination efforts will help build consensus on the best approaches to improving SFNE, ensuring that the curriculum is both culturally relevant and pedagogically sound.

In addition to engaging with colleagues, it is essential to involve educational authorities such as the ADEK, the UAE MoE, and local universities. These institutions play a pivotal role in shaping educational policy and practice in the UAE, and their involvement is crucial for the successful implementation of the study's recommendations. Through the presentation of the findings to these authorities, the study can influence policy decisions related to SFNE, promoting the adoption of evidence-based practices that address the challenges teachers face and enhance their preparedness. Collaborative discussions with these entities will also help identify opportunities for scaling up successful interventions and integrating them into the broader educational system.

Publishing the study's findings in peer-reviewed academic journals is another vital component of the dissemination strategy. Academic publication not only contributes to the global body of knowledge on food and nutrition education but also ensures that the research reaches a wide audience of scholars, educators, and policymakers. The publications shall position the study within the context of broader educational and nutritional research, which can help spark further studies, inspire new methodologies, and encourage the adoption of best practices in SFNE programmes both within the UAE and internationally.

Furthermore, presenting the study's findings at national and international conferences on education, nutrition, and public health will provide additional opportunities for

dissemination. Conferences are ideal platforms for engaging with a diverse audience of experts and practitioners, allowing for the exchange of ideas and the fostering of professional networks. Through such events, the study's insights can contribute to ongoing discussions about best practices in SFNE and related fields, potentially influencing educational strategies and policies beyond the UAE.

Lastly, the development of educational resources based on the study's findings is a practical and impactful way to disseminate the research. These resources, which may include curriculum guides, lesson plans, training modules, and other instructional materials, will directly support the implementation of SFNE in schools. Through this, the study's recommendations can be translated into actionable strategies that enhance classroom practice and improve student outcomes. The creation of such resources also ensures that the study's insights are accessible to educators at all levels, promoting a consistent and effective approach to SFNE across the UAE.

The dissemination of this thesis involves a multifaceted approach that includes sharing findings with colleagues, engaging with educational authorities, publishing in academic journals, presenting at conferences, and developing practical educational resources. Through these efforts, the study's insights will be effectively communicated to key stakeholders, ensuring that the research contributes to meaningful improvements in SFNE implementation and teacher preparedness in the UAE.

6.10 Chapter Summary

This study has shed light on the SFNE implementation in Abu Dhabi's public secondary schools, providing valuable insights into the challenges, factors, and instructional approaches shaping SFNE practices. Through a rigorous research process informed by Bourdieu's theory of practice and employing an ethnographic approach, the study has uncovered the multifaceted factors influencing SFNE instruction, including limited resources, cultural norms, teacher preparedness, and curriculum integration. The findings of

this study have significant implications for educational practice, policy, and research in the UAE and beyond.

The study contributes to the ongoing efforts to promote healthy eating habits and improve nutritional literacy among adolescents. Moreover, its emphasis on cultural relevance, teacher capacity-building, and interdisciplinary collaboration underscores the importance of holistic and student-centred approaches to SFNE implementation. Moving forward, it is essential to build upon the findings of this study through further research, dissemination, and advocacy efforts. It is also vital to seek avenues for engaging with stakeholders, sharing knowledge, and advocating for evidence-based policies and practices so that we can work towards creating supportive and inclusive learning environments that empower students to make informed dietary choices and lead healthy lifestyles.

In closing, this study represents a critical step towards advancing the field of SFNE and promoting the well-being of students in Abu Dhabi and beyond. Through collaborative efforts and a commitment to continuous improvement, we can realise the vision of comprehensive SFNE programmes that empower students to thrive academically, physically, and socially.

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<https://doi.org/10.3390/nu14235117>

APPENDICES

Appendix 1: Offsite Ethics Forms



Psychology Department

School of Human and Social Sciences
Paragon House
Boston Manor Road
Brentford
TW8 9GA

Student : Denise Buttigieg Fiteni

Supervisor: Dr Mike Mimirinis and Dr Tricia Tikasingh

Project title: **AN INVESTIGATION TOWARDS COMPREHENSIVE FOOD SCIENCE AND NUTRITION EDUCATION: AN ETHNOGRAPHIC STUDY TO INFORM PROGRAM AND POLICY DEVELOPMENT IN UAE SECONDARY SCHOOLS.**

Dear Sir/Madam,

Thank you for agreeing to allow the above named student to conduct their dissertation research in your organisation. The dissertation is an independent research project conducted by a student researcher under the supervision of the named member of staff above. Dissertations are the most substantial piece of work required for students to achieve their British Psychological Society accredited psychology degree. The cooperation of organisations such as yours can be vital in allowing students access to real world situations in which they can conduct research and we would like to thank you for your willingness to allow this research to proceed.

Please note that a second copy of this letter is attached. So we can ensure students only conduct research in organisations where approval has been given, we would appreciate it if you would complete the bottom section of this letter on both copies, and return one copy to us either by post or via the student concerned. Please keep the other signed copy for your own records.

Any queries about the project or the university's involvement and responsibilities can be directed to the supervisor named above who provides guidance to the student researcher; has responsibility for overseeing the project from an ethical perspective (following ethical standards set by the British Psychological Society and the University of West London); and is expected to oversee the research to ensure an appropriate standard of work is achieved.

Sincerely,

To be completed by the individual approving research within the external organisation

This is to confirm that the student named above has permission to conduct his/her dissertation research in association with this organisation on the condition that no names whether individual, school or corporate connected to Aldar Education are used.

ADD STAMP HERE

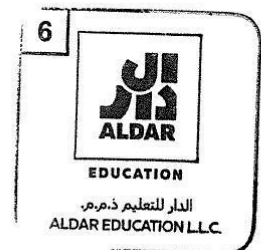
Name: Stephen Sharples

Position: Director of Education

Organisation: Aldar Education

Signature: 

Date: 26th January 2022



Student : Denise Buttigieg FiteniSupervisor: Dr Mike Mimirinis and Dr Tricia Tikasingh

Project title: **AN INVESTIGATION TOWARDS COMPREHENSIVE FOOD SCIENCE AND NUTRITION EDUCATION:
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Sincerely,

To be completed by the individual approving research within the external organisation

This is to confirm that the student named above has permission to conduct his/her dissertation research in association with this organisation.

Name: JARED NOLANPosition: PRINCIPALOrganisation: AL YASMINA ACADEMYSignature: [Signature] Date: 18/11/21

Appendix 2: Ethical Approval (by School of Human and Social Sciences (SHSS) Ethics Panel)



School of Human and Social Sciences
University of West London
Paragon House
Boston Manor Road
Brentford TW8 9GA

To whom it may concern:

Name: Denise Buttigieg Fiteni

UWL id. Number: 21455080

has been granted **FULL APPROVAL** for the ethics application for a research study entitled:

Title of the project:

CULINARY SCIENCE AND FOOD PREPARATION SKILLS IN HOME ECONOMICS USING BOURDIEUSIAN - A SYNTHESIS OF THE EVIDENCE TO INFORM PROGRAM AND POLICY DEVELOPMENT FOR NUTRITION EDUCATION, HEALTH AND WELLNESS IN ABU DHABI.

Please accept this letter as confirmation that the ethics application for this study has been approved on January 27, 2021.

Yours sincerely,

Dr Henry Lee Johnson

Senior Lecturer in Psychology
Chair of SHSS Ethics Panel

School of Human and Social Sciences
University of West London
Paragon House, Boston Manor Road
Brentford, Middlesex
TW8 9GA

Office PR310

T: 02082094178

E: henry.johnson@uwl.ac.uk

Appendix 3: Participant Invitation Documents

a) Initial Letter to Potential Participants

Re: Invitation to participate in my research project

INVESTIGATION TOWARDS COMPREHENSIVE TEACHING OF FOOD AND NUTRITION IN ABU DHABI SECONDARY SCHOOLS: AN ETHNOGRAPHIC STUDY

The purpose of this email is to invite you to participate in my research study. The participant information sheet attached provides details of the purpose of the study, which you need to consider before deciding whether you will participate in the study. Enclosed find a consent form for you to sign.

You are not obliged to take part in this study, but I would appreciate your assistance as I need to collate 30 participants (teachers that are currently teaching a Food related discipline) who are currently teaching School-Based Food and Nutrition Education in UAE. If you do agree to participate, you remain free to withdraw from the study at any time and may do so without any disadvantage to yourself and without any obligation to give a reason.

If you decide that you would like to participate in the study once you have considered the information provided, please complete the forms electronically and email them back to me at your earliest. Ideally, I would like to visit the school you teach in but if ok with you, I would appreciate it if you could fill in the interview schedule and give pointers in detail on issues that you might find since you have been teaching in UAE.

If you still feel the need for me to visit, please do not hesitate to let me know and I will arrange for a visit which ideally I would prefer to be on a Friday.

Please do not hesitate to contact me if you would like to discuss the information provided or ask any questions before agreeing to take part in the study.

Many thanks for taking the time to read this information and look forward to receiving a reply soon.

b) Information Sheet

Information about this Study

Title: INVESTIGATION TOWARDS COMPREHENSIVE TEACHING OF FOOD AND NUTRITION IN ABU DHABI SECONDARY SCHOOLS: AN ETHNOGRAPHIC STUDY

I want to invite you to participate in an investigation. In order to help you to understand what the investigation is about, I am providing you with the following information. **Be sure you understand it before you formally agree to participate.** If you would like any clarifications before you start, please get in touch with me using the details below.

What is the purpose of this study?

The purpose of this study is to gather information from teachers about their thoughts on the feasibility of developing Food Science and Nutrition or related curriculum as part of the National Curriculum UAE.

Why have I been asked to take part?

You have been asked to participate in this study because you teach a subject related to Food Science and Nutrition in a UAE Secondary School. Your participation will help us understand ways to advance the teaching and learning of Food Science and Nutrition in the UAE as a way of raising a generation well-informed about food systems and how they influence health.

Do I have to take part?

It is up to you to decide. If you would like to participate, we will ask you to sign a consent form before participating. You are free to withdraw at any time without giving a reason.

What will happen if I take part?

If you decide to take part, you will receive a consent form which you will be expected to read and sign upon agreeing with what it outlines. The researcher will liaise with each of the teachers and attend their Food Science and Nutrition classes. The purpose of attending such classes is to observe teachers as they teach and interact with their students on the course, subject, or topic under study during their delivery of non-examinable assessments.

The data resulting from your participation may be used for purposes of publications and presentations, but no personal identifying information will be used for these purposes.

What do I get for taking part?

Although there might be no direct compensation for participation, your participation will be of great significance in ensuring that the teaching and learning of health, well-being, cookery life skills and nutrition practices become more sustainable in UAE. Your participation offers an opportunity to advance the non-examinable assessments related to Food Science and Nutrition, making the teaching and learning of the programme more efficient.

What will happen if I begin the study but then no longer wish to take part for any reason?

If you withdraw from the study, all data and information collected from you will be destroyed. Please note that you are free to withdraw for any reason at any time.

Will my taking part in this study be kept confidential?**Who has reviewed the study?**

Our research has been looked at by an independent group of people, the School Research Ethics Panel, so as to protect your safety, rights, well-being, and dignity.

c) Consent Form

Project Title: INVESTIGATION TOWARDS COMPREHENSIVE TEACHING OF FOOD AND NUTRITION IN ABU DHABI SECONDARY SCHOOLS: AN ETHNOGRAPHIC STUDY

- I have fully read the previous page, which contained information about the study and have had the opportunity to ask any questions that I may have had.
- I understand what is being proposed.
- I understand that my personal involvement and my detailed data from this study will remain strictly confidential. Only researchers involved in the investigation will have access.
- I have been informed about what the data collected in this investigation will be used for, to whom it may be disclosed, and how long it will be retained.
- I understand that the data resulting from my participation may be used for purposes of publications and presentations, and that no personal identifying information will be used for these purposes.
- I hereby fully and freely consent to participate in the study which has been fully explained to me.
- I understand that I am free to withdraw from the study at any time until the researcher's dissertation is submitted, without giving a reason for withdrawing.
- I agree to take part in the study.

Signed _____ Date _____

Appendix 4: Debrief

Thank you for your participation. The data that you have provided will be utilised to examine challenges that Food Science and Nutrition teachers face in their practice and to establish ways to develop the curriculum further to meet the current and future health needs of the society. For the security of your data, they will be discarded once the study is complete. A copy of the complete research including the findings will be available to you upon request. Once again, thank you.

Appendix 5: Interview Questions

Interview Questions

Questions

- 1) First, tell me about your current job and your academic qualifications
 - *Probe (if no specific answer is given): What do you teach?*
 - *Probe (if no specific answer is given): How long have you taught the subject(s)?*
 - *Probe (if no specific answer is given): What is your teaching degree in?*
 - *Probe (if no specific answer is given): What is your highest academic achievement?*
- 2) Does the subject you teach relate in any way to School-based Food and Nutrition Education? Could you please elaborate on that answer a bit more?
- 3) How many hours per week do you spend teaching the subject?
- 4) Based on your experience as a teacher so far, what key food and nutrition skills make School-based Food and Nutrition Education attempt to develop in learners?
- 5) How well do you feel equipped in terms of knowledge and resources to teach any food and nutrition subject in your current school? Please explain.
 - Probe any of the following as appropriate*
 - *Have you completed a course that you think contributed towards your professional development? Please explain further.*
 - *How would you characterise the relationship between you, your students, and the content they are supposed to learn?*
- 6) In your perception, what factors affect students' understanding of the key skills and concepts in your subject?
- 7) Are there any factors or situations that you find challenging in teaching the subject/s you teach?
 - Probe any of the following as appropriate*
 - *Why do you find these factors to be challenging?*
 - *Have you experienced these challenges in your current school?*
 - *How did you go about them?*
- 8) Based on your experiences as a teacher so far, what does non-examinable assessment mean to you?
- 9) In your perspective, which factors affect your abilities as a teacher to undertake non-examinable assessments (NEA)?
- 10) How do you judge that the subject(s) that you teach has been successful?
- 11) Are there any specific areas of the curriculum/syllabus you feel requires improvement/s in order to meet the school goals? Could you please elaborate on that answer a bit more?
- 12) From your perspective, which ideas would you recommend helping develop a better curriculum/syllabus in your school?

- 13) Are there any resources that you feel necessary that secondary schools in UAE need to support you and your students?
- 14) As we conclude, is there anything else that you would like to add to what you have already said?

Thank you

Appendix 6: Teacher Lesson Observation Schedule

	TEACHER OBSERVATIONS	SCHOOLS ABU DHABI	DATE	a.m. / p.m.	LESSON DURATION
MALE TEACHERS	[a]	British	06.05.22	a.m.	60min
	[b]	American	13.05.22	a.m.	45min
	[c]	British	26.05.22	a.m.	45min
FEMALE TEACHERS	[d]	British	02.06.22	p.m.	40min
	[e]	British	09.06.22	a.m.	50min
	[f]	British	16.06.22	p.m.	55min
	[g]	Dual (American and British)	24.06.22	a.m.	60min
	[h]	British	29.06.22	p.m.	50min
	[i]	American	09.09.22	a.m.	45min
	[j]	Charter	12.09.22	a.m.	45min
	[k]	Charter	15.09.22	p.m.	45min
	[l]	British	23.09.22	a.m.	50min
	[m]	British	30.09.22	a.m.	45min
	[n]	British	05.10.22	p.m.	60min
	[o]	American	13.10.22	p.m.	60min
	[p]	Dual (American and British)	20.10.22	p.m.	60min
	[q]	Charter	27.10.22	p.m.	60min
	[r]	Charter	11.11.22	a.m.	55min
	[s]	British	17.11.22	p.m.	60min
	[t]	British	28.11.22	p.m.	50min
	[u]	British	12.01.23	p.m.	55min
	[v]	American	20.01.23	a.m.	50min
	[w]	Charter	26.01.23	a.m.	50min

Appendix 7: Teachers (Classroom-based) Observation and Feedback Sheet

Activity		Procedure (What was done to complete the activity?)	Time (How long did it take to complete the activity?)	Comment
GRADE				
Getting Ready	Review Expectations			
	Find and review the evaluation form			
	Determine and evaluate opportunities and challenges within the observation environment			
	Evaluate your expectations for the teachers			
Review expectations with learner	Meet teacher(s) and create rapport			
	Establish their skill/knowledge level			
	Review program, teacher, and learner goals			
	Illustrate the evaluation process			

Assess	Observe teachers as they interact with students			
	Record the deliverables			
	Have teachers do self-assessment			
Discuss assessment at Mid-point	Organise a formal meeting			
	Have learners and teachers fill evaluation forms			
	Compare and discuss evaluations with teachers			
	Discuss similarities and differences in how expectations are being met			
End with a Grade	Perform a final evaluation			
	Assess and grade			
IMPROVE				
Identify and discuss objectives with teachers				
Make an environment friendly to feedback				
Assess teachers' performance				

Respond to assessment outcomes			
Be Objective : Report unique behaviours and potentials			
Validate teachers' performance and suggest areas for improvement			
Establish a strategy to encourage and implement changes			

Appendix 8: Demographic and Biographic Characteristics

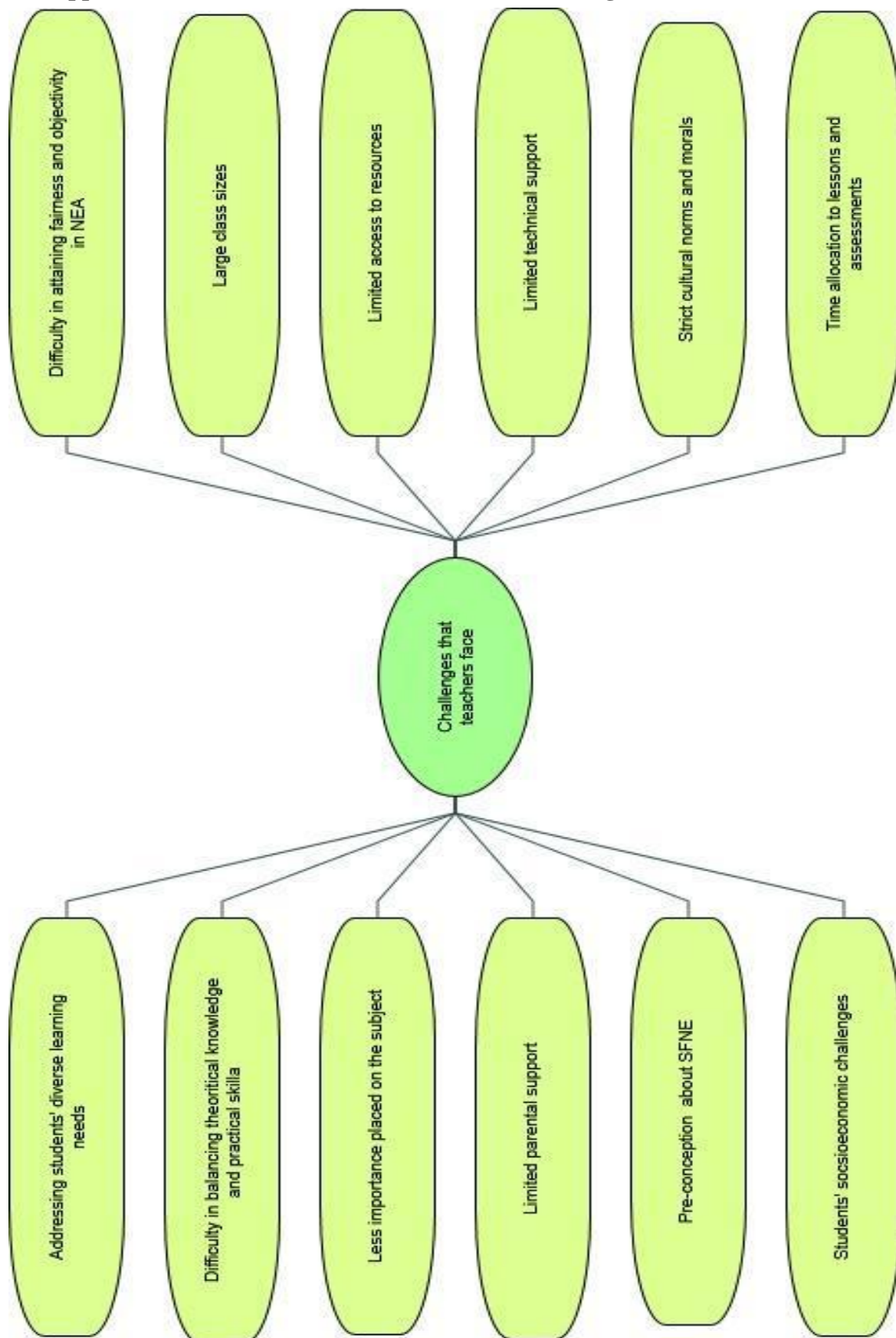
Characteristic	Category	Frequency (n)
Age	36-40	10
	41-45	6
	46-50	5
	Above 35	25
	Total	29
Gender	Female	26
	Male	3
	Total	29
Ethnicity	White	20
	Asian	5
	Black/British Black	4
	Total	29
SFNE Subject Taught	iGCSE Food and Nutrition	8
	GCSE Food Preparation and Nutrition	14
	CCEA Nutrition and Food Science	3
	IB Diploma Food Science and Technology	4
	Total	29
Years Teaching SFNE	Less than 5	3
	5-10	8
	11-15	7
	16-20	3
	21-25	4
	More than 25	4
	Total	29
Highest Academic Achieved	Bachelor's Degree	11
	Master's Degree	6
	Qualified Teacher Status (QTS)	5
	Postgraduate Certificate in Education (PGCE)	4
	Doctorate Degree	1
	Not Specified	2
	Total	29
Employment Status	Full-time	27
	Part-time	2
	Total	29

Appendix 9: Raw Data of the Interviewed Secondary School Teachers (SSTs)

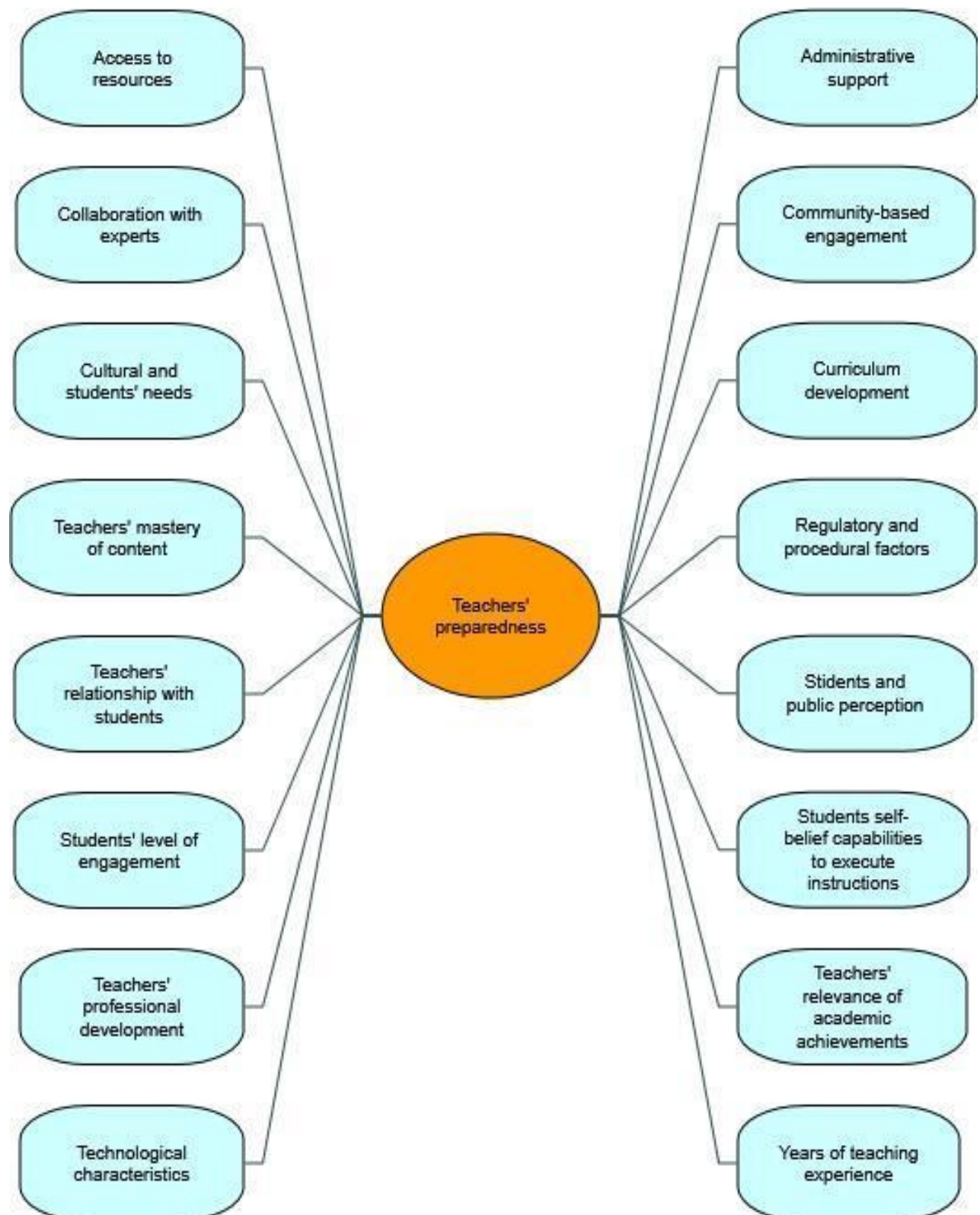
Participating Teacher	M/F	Teaching Subject	Years of Practice	Length of Interview
SST1	Female	Food Preparation and Nutrition	14 years	35 min
SST2	Female	Food and Nutrition	9 years	25 min
SST3	Female	Food and Nutrition	28 years	40 min
SST4	Female	Food Preparation and Nutrition	35 years	50 min
SST5	Female	Food and Nutrition	3 years	30 min
SST6	Male	Food Preparation and Nutrition	15 years	35 min
SST7	Female	Food Preparation and Nutrition	7 years	35 min
SST8	Female	Food Preparation and Nutrition	5 years	30 min
SST9	Female	Food and Nutrition	23 years	45 min
SST10	Female	Food Preparation and Nutrition	18 years	35 min
SST11	Female	Food and Nutrition	6 years	30 min
SST12	Female	Food Preparation and Nutrition	9 years	30 min
SST13	Female	Food and Nutrition	14 years	35 min
SST14	Female	Food and Nutrition	8 years	30 min
SST15	Female	Food and Nutrition	12 years	30 min
SST16	Female	Food Preparation and Nutrition	2 years	30 min
SST17	Female	Food Preparation and Nutrition	16 years	35 min
SST18	Male	Food Preparation and Nutrition	15 years	40 min
SST19	Female	Food and Nutrition	27 years	45 min
SST20	Female	Food Preparation and Nutrition	4 years	30 min
SST21	Female	Food Preparation and Nutrition	13 years	35 min
SST22	Female	Food Preparation and Nutrition	24 years	35 min
SST23	Male	Food and Nutrition	20 years	40 min
SST24	Female	Food Preparation and Nutrition	10 years	45 min
SST25	Female	Food and Nutrition	15 years	40 min
SST26	Female	Food Preparation and Nutrition	32 years	45 min
SST27	Female	Food and Nutrition	5 years	35 min
SST28	Female	Food Preparation and Nutrition	23 years	45 min
SST29	Female	Food Preparation and Nutrition	18 years	40 min

Note: SST – Secondary School Teacher

Appendix 10: Full List of Interview Themes: Challenges that Teachers Face



Appendix 11: Full List of Interview Themes: Factors Affecting Teachers' Preparedness



Appendix 12: The Codebook: Investigations towards Comprehensive Teaching and Learning
of SFNE

Name	Question		
Challenges that Teachers Face	What challenges do teachers face in supporting students during their NEAs?		
Name	Description	Sources	References
Addressing students' diverse learning needs	Diverse Learning Needs means the needs of all learners including: females as well as males; members of ethnic and racial minorities as well as ethnic and racial majorities	12	14
Difficulty in attaining fairness and objectivity in NEA	difficulty in ensuring that the NEA that students are doing is necessary and objective enough to get an accurate judgement of what a student knows, understands and can do	6	6
Difficulty in balancing theoretical knowledge and practical skills	The difficulty SFNE teachers experience in ensuring that students engage in hand-on and practical activities in a manner that matches the theoretical knowledge gained from those classes	8	9
Large class sizes	Some teachers feel that the number of students in their classes is large such that meeting the needs of each student and the expectation of the curriculum becomes intricate.	6	7
Less importance placed on the subject	Some teachers hold the feeling that SFNE has not been regarded as relevant as other subjects. They feel that as a consequence their subjects are allocated fewer resources and less time.	5	6
Limited access to resources	A significant number of respondents (more than half) decry limited access to resources such as food investigation and preparation labs.	15	19
Limited home-based practice	There is a feeling among a few teachers that parents are not providing a supportive home environment where children can practice food preparation and investigation knowledge and skills they acquired from school.	4	5
Limited parental support	Some teachers expressed that parents did not provide sufficient support to assist their children's learning experience both at home and at school.	6	6

Limited technical support	Classroom Support Technicians will assist with the following: Equipment inventory and maintenance. Replacement of broken classroom media equipment when applicable. Monitoring network database system upgrades and maintenance of computer database software. Limited technical support in some SFNE limit the practice of some teachers.	6	7
Pre-conception about SFNE	Some teachers were concerned that students come to class with preconceived and, sometimes, misconceived perceptions about food and dietary practices. They highlighted that some of these perceptions are society-based and hard to crack.	7	7
Strict cultural norms and morals	Cultural sensitivity emerged as a core issue. Teachers expressed that despite their classes being culturally diverse, strict cultural norms and morals limit the ingredients and recipes they can introduce to students.	10	13
Students' socio-economic challenges	Students' backgrounds, the income of their families, level of education of family members, and other socio-economic factors affect the ability of students to attend and concentrate in class	10	12
Time allocation to lessons and assessments	Time allocation merged as the main issue with over 62% of the teachers expressing that their SFNE subjects do not have sufficient scheduled time to adequately accommodate theoretical and practical lessons.	18	26
Factors affecting teachers' preparedness	What factors affect teachers' preparedness to support SFNE curriculum program development in Abu Dhabi?		
Name	Description	Sources	References
Access to resources	The extent to which teachers can access relevant and appropriate resources to guarantee effective teaching and positive students' outcomes. Such resources include sufficient time, curricular materials, technological resources, classroom supplies, and financial support.	19	45
Administrative support	Support given by school to teachers to ensure that they deliver curricular content in the most effective and efficient manner to guarantee students' learning outcomes.	8	10
Collaboration with experts	collaboration with industry professionals such as nutrition experts, healthcare professionals, chefs, food producers.	12	16

Community-based engagement	The level of collaboration and partnerships with community-based organisations and businesses as well as health authorities	8	8
Curriculum development	Curriculum development is the process of designing and creating an organised set of courses or educational experiences that make up a program of study. It involves planning and structuring the content, activities, assessments, and other components of an educational program to achieve specific learning objectives.	25	41
Diversity of the classroom	Classroom diversity refers to the presence of a variety of differences among students in a learning environment. These differences can manifest in various forms, including but not limited to cultural diversity, ethnic diversity, socio-economic diversity, gender diversity, and learning style diversity	11	17
Familial support	The level of support students receives from their parents and families at large	4	4
Mastery of content	A teacher's deep understanding and proficiency in the subject matter they are teaching. It involves more than just knowing the facts; it includes a thorough comprehension of the concepts, principles, and methodologies related to the subject. A teacher with a high level of content mastery is well-equipped to convey information clearly, answer students' questions, and facilitate meaningful learning experiences.	9	11
Regulatory and procedural factors	The rules, policies, and processes that govern how teaching and learning activities are conducted. These factors play a crucial role in creating a structured and effective educational setting.	7	8
Relationship with students	The extent to which students feel understood and supported within their learning spaces	13	13
Relevance of teachers' academic achievement	The relevance of the progress made by teachers towards the goal of acquiring educational skills, materials, and knowledge relevant to SFNE, usually spanning a variety of disciplines. It refers to achievement in academic settings rather than general acquisition of knowledge in non-academic settings.	24	30
Specialisation in the subject area	The extent to which a teacher is an expert in the subject or subject area they teach.	4	4

students' and public perception	The way in which the students and the general public regard, understand, and interpret food and dietary practices	7	7
Students' engagement	The degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education	10	12
Students' self-belief on capabilities to execute instructions	The students' beliefs and attitudes toward their capabilities to achieve academic success, as well as belief in their ability to fulfill academic tasks and the successful learning of the materials	18	20
Teachers' professional development	Teacher professional development is any type of continuing education effort for educators. It's one way teachers can improve their skills and, in turn, boost student outcomes.	16	24
Technological Characteristics	About 41% of the teachers expressed that they felt more prepared if they had access to modern technologies and technological solutions.	12	16
Years of teaching experience	Teachers who had more years of experience were more likely to exhibit higher levels of preparedness to teach and support SFNE curriculum development	8	9

Appendix 13: Lessons Taught During Observations

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
Classroom Content	Nutritional Concepts	The Eatwell Guide Revision	<ul style="list-style-type: none"> To describe the principles of The Eatwell Guide and how it relates to diet. To name the key nutrients provided by The Eatwell Guide food groups. To explain and apply the 8 tips for healthy eating, the 5 A Day message and portion size. To compare and evaluate existing products. 	Year 11	SST1
		Dietary Needs	<ul style="list-style-type: none"> To list and explain the dietary needs of children and young people. To investigate the relationship between physical activity and energy balance. 	Year 9	SST4
		Dietary Needs	<ul style="list-style-type: none"> To identify different special dietary needs (including food allergens, food intolerance, and religious/cultural needs). To investigate the information that is provided on food packaging. To modify a dish for a person with a specific dietary need. To create a food label for the modified dish. 	Year 9	SST12
		Key Micronutrients	<ul style="list-style-type: none"> To name the key micronutrients and state why they are needed in the diet. To explain the sources, types and functions of vitamins A, D, B-group (Thiamin, Roboflavin and Niacin) and C. To explain the sources, types and functions of calcium, iron and sodium. To explain the process of gelatinisation in sauce making. 	Year 11	SST15
		Sources of Proteins	<ul style="list-style-type: none"> To explain where beans, pulses, fish, eggs, meat and other proteins come from and their importance in the diet. To list the food choices available for vegetarians and explain how their dietary needs are met. 	Year 11	SST21

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
			<ul style="list-style-type: none"> To investigate the characteristics of beans, pulses, fish, eggs, meat and other proteins foods in cooking. 		
	Food Safety	Health and Safety within the Kitchen and Food	<ul style="list-style-type: none"> To explain the layout of the food lab and to recognise, name and locate the tools and equipment in the food lab. To describe the expectations for working in the food lab including food hygiene and safety practices. 	Year 9	SST7
		Equipment Safety	<ul style="list-style-type: none"> Identify common kitchen equipment and their potential hazards. Demonstrate proper usage and care of kitchen equipment. Explain the importance of regular equipment maintenance. Discuss emergency procedures in case of equipment malfunction. 	Year 11	SST18
		Allergen Awareness	<ul style="list-style-type: none"> Define common food allergens. Discuss the impact of food allergies on individuals. Identify strategies for preventing cross-contact with allergens. Demonstrate proper allergen labelling and communication in the kitchen. 	Year 11	SST20
	Food Choice	Food Choice, Meal Option and Need-based Recipes	<ul style="list-style-type: none"> To investigate food choice, meal options and recipe-kits available in supermarkets or for home delivery. To write a plan for a recipe-kit to meet a specified need. 	Year 11	SST3

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
		Individual Food Choices and Dietary Needs	<ul style="list-style-type: none">● To identify and explain the factors that affect individual food choice.● To investigate the dietary needs of young people● To summarise the actions in the school food standards related to school lunches.● To consider ways recipes can be modified to meet the nutritional needs of young people.	Year 11	SST23
		Diet, Religion and Culture	<ul style="list-style-type: none">● To investigate the significance of food across cultures● To examine the role of religion in food choices● To analyse traditional cuisines in various cultures e.g., UAE, UK, USA● To investigate cultural diversity and food choices	Year 11	SST26
Lab Content	Food Preparation (NEA2)	Preparation and cooking of decorated gelatine cheesecake	<ul style="list-style-type: none">● To develop and demonstrate measuring, knife skills, grating, cake making, and using the oven (baking) to prepare and cook decorated gelatine cheesecake● To develop and demonstrate the principles of food hygiene and safety, focusing on handling eggs, using pieces of electrical equipment and the hob/oven.● To calculate the nutritional content information for a recipe and create a food label for a dish.	Year 11	SST5
		Preparation of wholesome home-made short crusty pastry with whole meal flour.	<ul style="list-style-type: none">● To demonstrate ability to prepare wholesome home-made short crusty pastry with whole meal flour.● To explore the nutritional benefits of whole meal flour● To practice and master the art of mixing and handling pastry dough● To practice the techniques for resting and chilling to enhance the texture and flavor of the pastry.● To demonstrate accurate measurement techniques for ingredients using standard kitchen tools.	Year 9	SST6

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
		Preparing and Cooking Fruit Scones	<ul style="list-style-type: none"> To develop and demonstrate knife skills, rubbing-in, forming and shaping a dough, and using the oven (baking) to prepare and cook fruit scones. To develop and demonstrate the principles of food hygiene and safety, focusing on using knives, grating and the oven. To explain the term 'seasonality' and how to reduce the waste of fruit, vegetables and bread in the home and at school. 	Year 11	SST11
		Preparation of a Savoury Dish- Thai green curry (chicken) with rice	<ul style="list-style-type: none"> To secure, consolidate and demonstrate knife skills, using the hob (frying, boiling, simmering) to prepare and cook a Thai green curry (chicken) with rice. To secure, consolidate and demonstrate the principles of food hygiene and safety, focusing on using knives, handling and cooking raw chicken (if using), cooling and storing rice, and the hob. To create a practical plan for the preparation and cooking of a recipe-kit dish to be made next lesson 	Year 10	SST14
		Preparing and Cooking Roasted Vegetable Soup	<ul style="list-style-type: none"> To acquire and demonstrate knife skills and using the hob (frying, boiling and simmering) to prepare and cook a roasted vegetable soup. To acquire and demonstrate the principles of food hygiene and safety, focusing on using knives, the kettle (hot water), and the hob. To investigate and evaluate the effects of cooking vegetables 	Year 11	SST17
		Preparing and Cooking Samosas (Dough)	<ul style="list-style-type: none"> To secure and demonstrate knife skills, using the hob (frying, boiling and simmering), draining, portioning, forming and shaping, and using the oven (baking) when preparing and cooking samosas. To develop and demonstrate the principles of food hygiene and safety, focusing on using knives, handling and cooking raw meat (if using), the hob, and the oven. To produce a recipe card with top tips, suggesting how to include food certification and assurance scheme ingredients 	Year 11	SST22

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
		Preparing Mini Quiche with a Variety of Fillings: using Protein to Set Mixtures/Shortcrust Pastry.	<ul style="list-style-type: none"> To define and differentiate quiche from other savoury pastry dishes To demonstrate the step-by-step process of preparing shortcrust pastry for quiches and key techniques for achieving a flaky and flavourful pastry. To introduce various protein options for quiche fillings (e.g., ham, bacon, smoked salmon, chicken, or vegetarian alternatives) and experiment with the different protein options for unique flavour profiles. To demonstrate skills on preparation of egg and dairy mixtures as the base for quiche fillings 	Year 10	SST24
		Preparation and Cooking of Dutch Apple Cake	<ul style="list-style-type: none"> To demonstrate weighing and measuring, knife skills, creaming, folding, preparing baking tins, and using the oven (baking) to prepare and cook a Dutch apple cake. To secure and demonstrate the principles of food hygiene and safety, focusing on handling eggs, using knives, small pieces of electrical equipment, and the oven. To explain the science of aeration. 	Year 11	SST25
		Preparing and Cooking Chicken and Mushroom pie	<ul style="list-style-type: none"> Students to demonstrate proficiency in knife skills by dicing chicken and slicing mushrooms with precision and safety. Students to efficiently prepare and organise ingredients, showcasing time-management skills and attention to detail. Students to master crimping and sealing techniques to create a visually appealing and securely sealed pie crust. Students to demonstrate the ability to mix and mash ingredients to achieve a cohesive and well-textured filling for the chicken and mushroom pie. Students to work collaboratively in pairs or small groups, effectively communicating and sharing tasks to complete the cooking lab successfully. Students will present their chicken and mushroom pies attractively, considering the visual appeal of the crust and the overall appearance of the dish. 	Year 11	SST28

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
		Preparing Crème caramel	<ul style="list-style-type: none"> To demonstrate proficiency in separating egg yolks and the albumen To practice and master the art of caramelising sugar To demonstrate proficiency in baking, testing, and refrigerating Crème Caramel 	Year 10	SST29
		Balanced meal composition	<ul style="list-style-type: none"> Students learn to create meals that include a balance of macronutrients (carbohydrates, proteins, and fats) to meet the body's nutritional needs. Emphasis on incorporating a variety of foods to ensure a wide range of essential nutrients. 	Year 9	SST8
		Dietary Restrictions and Modifications	<ul style="list-style-type: none"> Creating menus that accommodate various dietary restrictions, such as gluten-free, dairy-free, or vegetarian preferences. Modifying recipes to meet the needs of individuals with specific dietary requirements or health conditions. 	Year 11	SST9
		Incorporating Whole Foods	<ul style="list-style-type: none"> Encouraging the use of whole and minimally processed foods in menu planning for maximum nutritional benefit. Highlighting the importance of incorporating fruits, vegetables, wholegrains, and lean proteins. 	Year 11	SST16
	Food Investigation (NEA1)	Whole Wheat Flour	<p>To investigate:</p> <ul style="list-style-type: none"> Nutritional Components: Analysing the presence of macronutrients such as carbohydrates, proteins, and dietary fibre in whole meat flour. Micronutrients: Examining the levels of vitamins and minerals, such as iron and B-vitamins. Chemical Composition: Understanding the gluten content for those with gluten sensitivities. 	Year 11	SST2

Type of Content	Core Areas of Content of Instruction	Lesson Topic	Lesson Objectives	Year	Teacher
		Spinach	To investigate: <ul style="list-style-type: none"> ● Iron Content: Assessing the levels of iron, a crucial mineral for blood health. ● Vitamins: Studying the presence of vitamins such as vitamin K, vitamin A, and folate. ● Antioxidants: Analysing the antioxidant compounds that contribute to overall health. 	Year 11	SST10
		Olive Oil	<ul style="list-style-type: none"> ● Fat Composition: Assessing the types of fats present, such as monounsaturated fats. ● Antioxidants: Studying the presence of polyphenols with potential health benefits. ● Caloric Density: Understanding the caloric content and appropriate usage in a balanced diet. 	Year 10	SST13
		Salmon Fillet	<ul style="list-style-type: none"> ● Protein Content: Determining the amount of high-quality protein present in salmon. ● Omega-3 Fatty Acids: Analysing the levels of omega-3 fatty acids, beneficial for heart health. ● Caloric Density: Calculating the caloric content and understanding its implications for a balanced diet. 	Year 11	SST19
		Quinoa	<ul style="list-style-type: none"> ● Protein Quality: Evaluating the completeness of protein in quinoa, which is a good source of plant-based protein. ● Fibre Content: Analysing the dietary fibre content for digestive health. ● Micronutrients: Examining the presence of minerals like magnesium and phosphorus 	Year 10	SST27

Appendix 14: Sample of Teacher Observations and Feedback Schedule - SST6 (with Year 11 Students)

Activity		Procedure (What was done to complete the activity?)	Time	Comment
GRADE				
Getting Ready	Review Expectations	The observer discussed the expectations with the teacher, ensuring clarity on what is expected during the observation.	5 min	The teacher clarified that the expectation was that by the end of the lesson students were to demonstrate ability to prepare wholesome home-made short crusty pastry with whole meal flour.
	Find and review the evaluation form	The observer and the teacher went through the evaluation form, discussing each section and clarifying any uncertainties.	5 min	The teacher demonstrated understanding of the evaluation criteria
	Determine and evaluate opportunities and challenges within the observation environment	The observer and teacher assessed the cooking lab, identifying potential opportunities and challenges.	10 min	The availability of resources and a technician was an opportunity for teacher and students to complete learning activities. However, the cooking lab was small and could not effectively accommodate all students. The small lab/large class size was a challenge in effectively delivering content.
	Evaluate your expectations for the teachers	The observer discussed personal expectations with the teacher and clarified any points of confusion	10 min	The observer clarified the expectation that the teacher was to use the available resource and appropriate teaching strategies to maximise learning outcomes for every learner
Review expectations with learner	Meet teacher(s) and create rapport	An initial meeting was held to establish a positive rapport between the observer and the teacher.	10 min	The observer interacted with the teacher, creating a friendly and cooperative atmosphere.

Activity		Procedure (What was done to complete the activity?)	Time	Comment
	Establish their skill/knowledge level	Th observer held a brief conversation with the teacher asking about their academic and professional backgrounds.	10 min	Established that the teacher had excellent academic training and professional experience to teach any SFNE content in the secondary school level.
	Review program, teacher, and learner goals	Discussed and clarified the overall program goals, teacher's objectives, and learner expectations.	10 min	It was established that program, teacher, and learner goals were all in alignment
	Illustrate the evaluation process	Provided an explanation of the evaluation process to the teacher.	10 min	Focus was on the methodology used for the evaluation. The teacher confirmed clarity of the process.
Assess	Observe teachers as they interact with students	Actively observed the teacher's interaction with students, noting teaching methods and student engagement.	60 Min	<ul style="list-style-type: none"> • The teacher's teaching methods and students' engagement were satisfactory. • There was clear evidence of planning based on the lesson plan received but the objective limited the potential range of learning. • The main activity involved the teacher demonstrating how to prepare the finished product of the lesson. The teacher ensured there was active involvement of pupils throughout the demonstration. • The teacher related the lesson to current developments in the Food technology industry. There was appropriate use of technology in the lesson. • The practical activity matched the lesson objective (see comment below) and the students were encouraged to ask questions.

Activity		Procedure (What was done to complete the activity?)	Time	Comment
				<ul style="list-style-type: none"> Pupils demonstrated that they could fulfill the operational task of making pastry, although it was unclear whether they understood why they were doing this.
	Record the deliverables	Documented and recorded outcomes produced by the students during the observation.	15 min	Each pupil was consulted by the observer on their understanding of the lesson and it was evident that they were able to apply the mechanics of the pastry-making process.
	Have teachers do self-assessment	Facilitated a self-assessment by the teacher at the end of the lesson, allowing her to reflect on her performance.	15 min	The teacher exhibited confidence in how she delivered the lesson but reflected that there is still room for improvement
Discuss assessment	Organise a formal meeting	A brief meeting was set	5 min	The teacher and the students were highly cooperative
	Have learners and teacher fill evaluation forms	The learners filled a brief evaluation form rating how they felt the lesson was relevant, materials provided were helpful, lesson was organised, lesson were effective, and lesson held their attention. The teacher also completed a brief evaluation on how she felt the lesson objectives were being achieved.	10 min	Majority of students were able to turn in their filled evaluation forms within the stipulated time.
	Compare and discuss evaluations with teachers	Reviewed and compared the observations and evaluations, discussing strengths and areas for improvement.	30 min	The observer worked together with the teacher in reviewing students' evaluations. Both the observation and the evaluations provided constructive feedback and identified strategies for enhancement.

Activity		Procedure (What was done to complete the activity?)	Time	Comment
				<p>The following strengths were noted;</p> <ul style="list-style-type: none"> • Good teacher knowledge. • Satisfactory classroom management. • Satisfactory pace to the lesson. • A range of visual resources were readily available. • Marking is up-to-date. • Clear assessment strategies in place. <p>The following areas of improvement were also noted;</p> <ul style="list-style-type: none"> • Developing meaningful lesson objectives (pupil-related outcomes) rather than teacher - related activities. Setting the objectives in a meaningful wider context (e.g., prepared vs home-made pastry) and using this to strengthen/ develop/ explore understanding may help with this. • Lesson planning needs to be anchored in more challenging lesson objectives. • The teacher should have reviewed the objectives during the lesson, in the form of mini-plenaries. This would have allowed pupils to consolidate their understanding of what was expected of them throughout the lesson.
	Discuss similarities and differences on how expectations are being met	Engaged in a dialogue with the teacher to discuss alignment with expectations and areas of divergence.	20min	Clarified any discrepancies and discussed strategies for improvement. Areas addressed include focusing on student-related outcomes, contextualising lesson objectives, aligning objectives with curriculum standards, differentiated instruction, regular self-reflection, mini-plenaries and formative assessment strategies. Professional development was also recommended.

Activity		Procedure (What was done to complete the activity?)	Time	Comment
End with a Grade	Perform a final evaluation	Conducted a final evaluation of the teacher's performance based on the observations and feedback.	10 min	Summarised key strengths and areas for improvement and recommendations made
	Assess and grade	Provided a formal assessment and grading based on the established evaluation criteria.	10 min	The teacher's performance was satisfactory. Details of the grading were exclusively discussed, denoting areas of improvement and changes that needed to be made.

Appendix 15: Documentary Analysis Themes

No_	Theme	Brief Description
1	Curriculum Integration	FPN Curriculum Mapping (2022/2023) confirmed that the FPN is well integrated in accordance with the guidelines and protocols provided in the GCSE FPN CD Plan (2016).
2	Time Allocation	Lesson Timetables analysed indicated that lessons are scheduled for 50-55 minutes, which is less than the time stipulated in the GCSE FPN CD Plan (60 min or more for each lesson). FPN lessons were found to be fewer (2-3 lessons weekly) than Science subjects (over 4 lessons weekly).
3	Teacher Continuous Professional Development	CPD opportunities are barely available in UAE despite the CD plan encouraging it. Similarly, opportunities are widely available for non-SFNE subjects. SFNE/FPN teachers access such opportunities from other countries, especially the UK, majorly through online platforms.
4	Cultural Relevance	CD plan (created using UK Standards) provides clear guidelines on foods to explore, investigate, prepare and cook. UAE has Sharia laws that strictly emphasise only halal foods (and dispute haram foods). Students in international schools also have diverse interests in and perspectives about different foods. These three constructs generate confusion and challenge for teachers in their effort to design responsive and compliant lessons.
5	Assessment Methods	Analysis of assessments revealed that teachers used both formative and summative assessments and applied multiple assessment and feedback techniques. FPN Curriculum mapping and plan provides that students in year 11 write an exam on all areas (50%), NEA 1: Food Investigation (15%) and NEA 2: Food Preparation Assessment (35%). All assessments were in compliance with these requirements.
7	Student Engagement	SoW and lesson plans analysed indicate the application of different strategies to ensure student engagement. Discussions, peer assessments, demonstrations, and hands-on activities were the most common strategies highlighted. Student engagement was nonetheless rare in content classrooms compared to cooking lab lessons.
8	Policy Alignment	From the GCSE FPN CD plan, the main aim of the subject is to GCSE equip students with the knowledge, understanding and skills required to cook and apply the principles of food science, nutrition and healthy eating so as to ensure that they feed themselves and others affordably and nutritiously, now and later in life. This is consistent with the UAE National Action Plan in Nutrition, which aims to improve the nutrition status of the UAE population throughout their life cycle and reduce

		the morbidity and mortality from diet-related risk factors of NCDs to achieve the global targets by 2025 and the corresponding SDG targets by 2030.
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Appendix 16: Skills Requirements: Preparation and Cooking Techniques

No	Skill Group	Techniques
1	Knife skills	Be able to demonstrate the following techniques for fruits and vegetables and, where appropriate, also those that relate to meat and fish or their alternatives: <ul style="list-style-type: none"> Meat, fish and alternatives - fillet a chicken breast, portion a chicken, remove fat and rind, fillet fish, slice raw and cooked meat and fish or alternatives (such as tofu and halloumi) evenly and accurately fruits and vegetables - bridge hold, claw grip, peel, slice, dice and cut into even size pieces (i.e. batons, julienne)
2	Prepare fruits and vegetables	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> mash, shred, scissor snip, scoop, crush, grate, peel, segment, de-skin, de-seed, blanch, shape, pipe, blend, juice and prepare garnishes whilst demonstrating the technical skills of controlling enzymic browning and spoilage and preventing food poisoning (wash and dry, where appropriate)
3	Prepare combine and shape	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> roll, wrap, skewer, mix, coat, layer meat, fish and alternatives, and shape and bind wet mixtures (such as falafels, fish cakes or meatballs) whilst demonstrating the technical skill of preventing cross contamination and handle high risk foods correctly
4	Tenderise and marinate	Be able to demonstrate how acids denature protein and marinades add flavour and moisture when preparing vegetables, meat, fish, and alternatives.
5	Select and adjust a cooking process	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> select and adjust the cooking process and length of time to suit the ingredient, for example to match the cut of meat, fish and alternatives
6	Weigh and measure	Be able to demonstrate accurate measurement of liquids and solids.
7	Preparation of ingredients and equipment	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> grease/oil, line, flour, evenly and with attention to finished product
8	Use of equipment	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> use a blender, food processor, mixer, and microwave

9	Water based methods using the hob	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● steaming ● boiling and simmering ● blanching ● poaching
10	Dry heat and fat based methods using the hob	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● dry frying ● pan (shallow frying) ● stir frying
11	Using the grill	Be able to demonstrate the following techniques with a range of foods, such as vegetables, meat, fish or alternatives such as halloumi, seeds and nuts: <ul style="list-style-type: none"> ● char ● grill or toast
12	Using the oven	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● baking ● roasting ● casseroles and/or tagines ● braising
13	Make sauces	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● make a blended white sauce (starch gelatinisation) such as a roux and all in one blended sauce, infused sauce, veloute, bechamel, to demonstrate understanding of how liquid/starch ratios affect the viscosity and how conduction and convection work to cook the sauce and the need for agitation ● make a reduction sauce such as pasta sauce, curry sauce, gravy, meat sauce (including meat alternatives such as myco-protein and textured vegetable protein) to demonstrate how evaporation concentrates flavour and changes the viscosity of the sauce ● make an emulsion sauce such as a salad dressing, mayonnaise, hollandaise to demonstrate the technical skill of how to make a stabilised emulsion
14	Set a mixture - removal of heat (gelation)	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● use starch to set a mixture on chilling for layered desserts such as custard or cheesecake
15	Set a mixture - heating (coagulation)	Be able to demonstrate the following techniques: <ul style="list-style-type: none"> ● use protein to set a mixture on heating such as denatured protein in eggs for quiche, choux pastry

16	Use of raising agents	<p>Be able to demonstrate the following techniques:</p> <ul style="list-style-type: none"> ● use egg (colloid foam) as a raising agent - create a gas-in-liquid foam - whisking egg whites, whisked sponge ● use chemical raising agents - self raising flour, baking powder ● use steam in a mixture (choux pastry, batter)
17	Make a dough	<p>Be able to demonstrate the following techniques:</p> <ul style="list-style-type: none"> ● use the technical skills of shortening, gluten formation, fermentation (proving) for bread, pastry, pasta
18	Shaping and finishing a dough	<p>Be able to demonstrate the following techniques:</p> <ul style="list-style-type: none"> ● roll out pastry, use a pasta machine, line a flan ring, create layers (palmiers), proving/resting, ● glazing and finishing such as pipe choux pastry, bread rolls, pasta, flat breads, pinwheels, pizza, calzone
19	Test for readiness	<p>Be able to demonstrate the following techniques:</p> <ul style="list-style-type: none"> ● use a temperature probe, knife/skewer, finger or 'poke' test, 'bite', visual colour check or sound to establish whether an ingredient or recipe is ready
20	Judge and manipulate sensory properties	<p>Be able to demonstrate the following techniques:</p> <ul style="list-style-type: none"> ● how to taste and season during the cooking process ● change the taste and aroma through the use of infusions, herbs and spices, paste, jus, reduction ● how to change texture and flavour, use browning (dextrinisation) and glazing, add crust, crisp and crumbs ● presentation and food styling – use garnishes and decorative techniques to improve the aesthetic qualities, demonstrate portioning and presenting

Appendix 17: Sample KS3 SoW Curriculum Mapping GCSE Food Preparation and Nutrition Specification 2016

Term	7	8	9
	7.1 You Are What You Eat	8.1 Food Science	9.1 World Street food
Aut 1	<p>Diet & Good Health Energy requirements of individuals Why do we eat food? Energy in Food Government Guidelines</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Knife Skills - Fruit Salad</p>	<p>Science Of Food The effect of cooking on food Heat transfer Cooking methods Enzymes, pH, Oxygen NEA1 Enzymic Browning</p> <p>Using microorganisms Raising Agents NEA1 Chemical Raising Agents</p> <p>Cooking & Food Preparation H&S and Food Hygiene</p> <p>Preparation and cooking techniques Using Raising agents - Pizza Time plan</p>	<p>Where Food Comes From Food provenance Staple Foods Fine Dining Street food World Cuisines & Equipment</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Timing/presentation - eggs mornay Knife/presentation - veg sushi Dovetail Time plan</p>
	Healthy Eating Week 28th September to 4th October		
	7.2 I Can't Eat That! No Really, I Can't Eat That!	8.2 Carbon Footprint and Plastics	9.2 Eco Warrior Chef
Aut 2	<p>Diet & Good Health Plan Balanced Diets Allergies & Intolerances Vegetarian and vegans Ethical choices Alternative proteins Religion & Food Celebrations</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Electrical equipment/shaping/teamwork - falafels</p>	<p>Science Of Food Food Spoilage Food Storage Extending Shelf Life Food Packaging materials Environmental Issues</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Dovetailed Time Plan - spaghetti bolognese</p>	<p>Where Food Comes From Food Provenance Food packaging waste and alternatives Food Waste and finances Food Sustainability Food Security Government Initiatives</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals NEA2 Costing/Dovetail time</p>

	Online Food Allergies Certificate		plan /multitask - refrigerator meal challenge
AP1	AP1 Assessment FAR & Data drop		
	Great Student/Teacher Festive Gingerbread Challenge/Maltese Festive Log		

	7.3 How Safe Is Your Food?	8.3 Macronutrients	9.3 Science In The Kitchen
Spr 1	Science Of Food Food Spoilage Temperature Control Why do we cook food? Food Hygiene Cooking & Food Preparation H&S and Food Hygiene NEA1 Microwave/Temperature - Hot Chocolate Preparation and cooking techniques Oven/High Risk Foods - Chicken Goujons	Principles of Nutrition Macronutrients Protein Carbohydrates - inc. sugar and fibre Fats Malnutrition Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques - Fresh Pasta Timeplan	Science Of Food The effect of cooking on food Chemical and Functional Properties of Foods Proteins Carbohydrates Fats Cooking & Food Preparation H&S and Food Hygiene NEA1 Thickening Agents (HWK) Preparation and cooking techniques Portion/pastry - Mini Quiche Lorraine (dovetailed timeplan) Developing recipes and meals Consistency/presentation - Valentines Cupcakes
	7.4 Sense-Seasonal Food	8.4 Micronutrients	9.4 Food Engineering and The Future
Spr 2	Cooking & Preparing Food Factors affecting food choice Senses Sensory Analysis - Yogurts Where to buy food Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Boiling/knife - pleasing pasta	Principles Of Nutrition Micronutrients Fat soluble Vitamins Water Soluble Vitamins Minerals Trace Metals Nutrition and Life Stages Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals	Where Food Comes From Food Manufacturing New Foods Functional Foods Future Foods Food Manufacturing Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals NEA2 Unusual Foods Research - World food savoury dish

	Timeplan	NEA2 Dovetail time plan Baked cod in a herb crust with potatoes and veg	Dovetailed timeplan
AP2	AP2 Assessment FAR & Data drop		
	International Federation for Home Economics 22nd March – Theme (Waste Reduction Literacy) British Science Week (Theme ‘Connections’) - First week in March 2023 Abu Dhabi Science Festival – 30th January – 8th February 2023		

	7.5 Ration Books To TV Dinners	8.5 Selecting Food Products	9.5 Careers in Nutrition & Food Hygiene
Sum 1	Where Food Comes From Food Manufacturing History of cooking food Food Processing Crop production Animal Husbandry Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Dovetail time plan Frying/Grilling/Microwave - Healthy breakfast	Where Food Comes From Food provenance Climate & Geography Food Miles Food Labelling Food Costs Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Raising/baking/timing - pineapple upside down cake Combining and shaping/oven - cheese & onion triangles Time plan	Diet & Good Health Energy Requirements of Individuals & Plan Balanced Diets Complementary Actions of nutrients Nutritional Analysis Planning A Diet Food Poisoning Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Teamwork/high temperatures - Cranberry Mincemeat/Jams Dovetailed time plan
	7.6 In The Bin	8.6 Jacket Potatoes To Smiley Faces	9.6 Hospital Food

Sum 2	<p>Where Food Comes From Food Provenance Labelling - traffic lights and date marks Food waste Organic v mass production Food poverty</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals NEA2 Planning cheap meal - student choice Must use oven/hob/grill/knife Dovetail time plan</p>	<p>Where Food Comes From Food Manufacturing Population Transport Economy Environment Marketing Research & Development in Food manufacturing Consumer demands</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals NEA2 Planning healthy family meal, marketing campaign Dovetail time plan</p>	<p>Diet & Good Health Calculate energy and nutritional values of recipes, meals and diets Energy requirements of individuals Multicultural Society Medical Requirements Different Age groups Planning appropriate menus</p> <p>Cooking & Food Preparation H&S and Food Hygiene Preparation and cooking techniques Developing recipes and meals Raising agents/problem solving - Bread Budget meal planning Dovetailed time plan</p>
AP3	AP3 Assessment, FAR & Data drop		
	Activities Week. Afternoon Tea		

Appendix 18: Sample KS4 SoW 3 Year Curriculum Mapping GCSE Food Preparation and Nutrition Specification 2016

AQA Food Preparation and Nutrition GCSE

Teaching: 3x45 minute lessons a week for 3 years

NOTE: This Scheme of Work is designed to support the teacher to deliver the content of the GCSE. Teaching activities are suggestions and are to be adapted to suit the teacher and the learner. However, it is the teacher's responsibility to ensure that the full specification is taught to all students taking the course. The full GCSE specification for Food Preparation and Nutrition can be found on: <https://WWW.aqa.org.uk/subjects/food/gcse/food-preparation-and-nutrition-8585/specification-at-a-glance>

Prior learning and understanding		GCSE Course Overview	
The students have completed a rotation of DT in years 7 and 8, and therefore will only have been taught 8 weeks in Food Nutrition prior to the GCSE. Some students will have more knowledge than others depending on skills taught and practised at home. Students will have been assessed in their technical knowledge, evaluation, making and designing or researching skills within DT in Key Stage 3. All students will have a very basic understanding of nutrition, and all will have demonstrated key skills in food hygiene, safety and food preparation in their DT rotation. Some students will have attended extra-curricular sessions in Food and these need to be challenged further during lesson time.		This course develops and extends skills and knowledge taught and learnt in Key Stage 3. It is designed to teach skills in food, science and nutrition, leading to an A Level qualification in Food Science. They can also opt for a Level 3 Diploma in Food Science which is equivalent to A level. Theory and practical work are designed to be taught together, with the addition of food science investigations to deepen knowledge and understanding of food and its properties within food preparation and cooking. The 6 areas of content are: food commodities; principles of nutrition; diet and good health; the science of food; where food comes from; cooking and food preparation. All 6 areas should be taught through different commodities and are planned to be delivered over a whole term with a variety of practical skills. For each commodity, learners need to know and understand the value of it in the diet; features and characteristics including storage and hygiene; understanding of skill preparation and cooking methods for safe eating; origins and environmental issues surrounding it.	
Skills		Differentiation	Assessment
There are 20 skills that the students must demonstrate during their practical work and their final (Non-Examinable Assessment) NEA. Each skill group must be evident in each commodity as it is taught, and the student should record this on their practical work Personal Learning Checklist (PLC). Each skill will have been taught briefly in Key Stage 3, however, this needs to be fully understood and independently demonstrated in order to gain high grades.		Differentiation of the course will be planned by: -grouping students -seating plan organisation -practical tasks -support from assistants -use of additional equipment to support practical work -scaffolded worksheets and recipes	The course is assessed in two different ways. 50% of the course is assessed by a written examination and 50% of the course is assessed by an internally assessed Non-Examined Assessment (NEA) consisting of 2 parts; a food investigation and a food preparation assessment. The written examination will last 1 hour 45 minutes and will have two parts; Section A contains questions based on stimulus material and is multiple choice while Section B has questions and extended response questions related to theory of food and nutrition. The NEA will be released by AQA annually. Students will be assessed on their theory and practical work each

In addition to practical skills, food science investigation skills will be learnt and developed in each food commodity. Timing and planning will be essential to complete the practical NEA and should be carefully monitored during each practical lesson.	-ingredients provided to some students in particular those with low income	half term in line with the school's policy. The GCSE is graded levels 9-1 and all assessment can only be completed in Year 11. A mock examination for practical and theory work should take place each year to assess skills and practice. Students are given Personal Learning Checklists (PLCs) for each topic.
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Links to Technology Department Improvement Plan and School Improvement Plan:

Engagement/Achievement	Extracurricular Opportunities	Raising Attainment and Achievement in Technology	Community Values
<p>Students are expected to bring their own ingredients. However, at times ingredients can be provided to students that are struggling. If there is a low budget, some students may be required to work in pairs or make a reduced quantity. Students should be encouraged to contribute towards their ingredients with something from home.</p> <p>The engagement of boys is important for the department results and is clear on the school improvement plan. This will be a focus during lesson time. Lessons may include: food investigation work, lots of competition, careful seating plans to boost motivation and independence, choice of dishes, menu planning for sports events, nutrition for athletes, online diary Home learning.</p> <p>There can be the need to develop a garden to grow our own crops.</p>	<p>The students will be able to engage with visits and trips throughout the course to bring learning about food to life. Visits will include going to a farm, an allotment and a butcher to see where food comes from, how it is produced and how it ends up in a shop ready for consumers to purchase. Visits may also include trips to hotels, restaurants and cafes to see how a kitchen functions in the food industry.</p> <p>Young Chef Award will run on a year basis.</p>	<p>Regular practical and theory assessment with regular feedback</p> <p>Peer assessment to scaffold and support students</p> <p>Glossary of keywords available to students and on the wall to help with Spelling. Punctuation and Grammar (SPAG)</p> <p>SOLO Taxonomy</p> <p>Personal Learning Checklist (PLC)</p> <p>Clear PLC that is regular updated</p> <p>Meaningful home learning</p> <p>Extracurricular opportunities</p> <p>Planning for sports hospitality events</p>	<p>Students will understand where food comes from and how it is produced in UAE. This will include the rearing and slaughtering of animals for meat, the farming and harvesting of fruits and vegetables and within key words such as organic and free range. They will know how to set a table for consumers and how to use cutlery correctly. Students will be taught religious requirements and needs for each commodity. Students will also experience aquaponics and farm-to-fork in relation to sustainability.</p>

Literacy in Technology

Literacy is important in Technology and should be supported in each lesson. Strategies to promote literacy include;

Spellings, use of picture cards to support literacy with Literacy Assessment Practices (LAPs), appropriate differentiation, dictionaries should be available for all

work, key words will be on the walls in each classroom and be made clear to students each lesson. Key words related to the specification will also be on each PLC and are clearly written in the student's revision guides.

In addition, each half term will have an extended piece of writing to develop literacy skills. This could be within the half termly assessment or a separate piece of assessment. Home learning will reflect key words and terminology learnt in lesson and will practise exam style questions. Theory activities in lessons will promote literacy by reinforcing key terminology and confirming students understanding.

Risk Assessment

Potential Hazards	Risk Low, medium or high	Control measures
Dirt or food poisoning bacteria present on raw food can cause cross contamination and food poisoning.	Low	<ul style="list-style-type: none"> Wash vegetables
Students could cut themselves from using a knife unsafely.	Med	<ul style="list-style-type: none"> Teacher demonstrates safe use of knives and monitor students' use. <ul style="list-style-type: none"> A blue plaster should be used for cuts. Knives in locked cupboard when not in use Knives will be counted in and out of the cupboard 1 box of sharp knives will be placed on the worktop for groups of students to use so that they do not need to be carried around the classroom
Ingredient past their date marks could lead to food poisoning.	Low	<ul style="list-style-type: none"> Check all date marks before purchase and use. If possible, replace ingredients if they are out of date Do not accept any donation of ingredients without best before/use by dates clearly visible
High risk foods such as milk are not stored correctly which could lead to food poisoning	Low	<ul style="list-style-type: none"> Students should bring their ingredients in first thing in the morning and store in the refrigerator. Students should be encouraged to store ingredients on the shelf or in the fridge at the start of the Academy Day Check temperature of refrigerators regularly to ensure they are between. 0-5°C. freezing: -18°C, chilling: 0 to below 5°C danger zone: 5 to 63°C, cooking: 75°C, reheating: 75°C.
Burns from using the hob and/or hot appliances/saucepans	Low/Med	Demonstrate safe use of the hob and monitor students' use.

		If a mild burn, the student should run cold water over the burn. more severe send for medical aid. Students need to be sent to the school nurse and record any burns.
Burns from placing and removing food in the oven.	Low/Med	Demonstrate safe use of the oven, promote the use of dry oven gloves and monitor students' use.
Using a food processor/ blender or hand blender could: <ul style="list-style-type: none"> cut students if they touch the blade give an electric shock Splash students with hot foods 	Low	<ul style="list-style-type: none"> Visual check of electrical cords and plugs before the lesson begins. Ensure Portable Appliance Tests (PAT) tests up to date Demonstrate safe use before letting the students use them Inform students of the dangers of using blenders and processors including: <ul style="list-style-type: none"> Cutting themselves on the blade Getting an electric shock if the motor or power cord is placed in water. Draping the cable over a hot hob Not putting the blender fully into the liquid as it will splash
Using a kettle could give an electric shock/steam burns	Low	<ul style="list-style-type: none"> Electrical cords and plugs visually checked before the lesson begins. Inform students of the dangers of using electrical equipment near water. Advise that steam as well as heat burns

Direct Links to Specification

There are 6 criteria that must be taught for the GCSE. These are briefly identified here, and more clearly identified in Food Preparation Room.

1) Food Commodities	4) Food Science
2) Nutrition	5) Food Provenance
3) Diet and good health	6) Cooking and Preparation

Year 9 Autumn Term Fruits and Vegetables

Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	1, 2, 5	To understand basic nutrition	Starter - Introduction to the course, PLC given out	-PLC understanding and understanding of the course	Self-using PLC

		To know what the Eatwell Guide is and how it is used To know the different types of fruit and vegetables	Basic nutrition and the Eatwell Guide Main - Introduction to food provenance and what it means to consumers Plenary - Types of Fruit and vegetables Home learning: List fruit and vegetables under classification	-Behaviour and work contract signed and dated -Eatwell Guide labelled and explained -Food provenance explanation -Fruit and vegetables listed under classification	
2	1, 5, 6	To develop knowledge of fruit and vegetables To know how and why food is preserved To recap the rubbing in method and understand the technique	Starter - match up fruit and vegetable to correct group Main - fruit crumble practical, food preservation, rubbing in method, baking method Plenary - other methods of preserving fruit: canning, stewing, freezing, jam/jelly/curd Home learning: advantages and disadvantages of preservation methods	-developed understanding of the classification of fruits and vegetables -fruit crumble product -explanation of key words; preservation, rubbing in method, baking -knowledge of preservation methods including advantages and disadvantages	Self with PLC Peer assessment
3	1,3,4, 6	To understand cooking methods using the hob To know what the different chopping methods are and how to use them To understand why a hand blender may be used To know what a garnish is and how it is used on a starter	Starter - preservation word bingo/game to understand key terminology Main - vegetable soup practical, chopping techniques and names, cooking on the hob, using a hand blender to smooth the soup Plenary - garnishing starters Home learning: evaluation of vegetable soup	-preservation of vegetables -vegetable soup product -cooking methods on the hob including simmering, boiling, frying -understanding of garnishing techniques to add decoration -basic evaluation skills WWW and EBI	Self and peer assessment
4	1, 2, 5	To know and understand processing techniques of fruits and vegetables To understand how and why fruits and vegetables are stored	Starter - star profile of soup from previous lesson Main - processing methods of fruits and vegetables in detail, storage of fruits and vegetables, health and safety understanding	-evidence of star profile -understanding of processing, storage and health and safety of fruit and vegetables - exam question and answer to test knowledge	Peer assessment

		To know how to prepare fruits and vegetables safely and why it is important	Plenary - exam questions related to the lesson content Home learning: research 4 different cake making methods		
5	1, 4, 6,	To know what the different cake making methods are To understand why food is stored in tins To develop dessert presentation skills making an upside down cake	Starter - 4 cake making method match up activity Main - upside down all in one cake practical, tinning theory, storage of cakes Plenary - peer assessment of presentation Home learning: star profile for cake	-upside down cake -4 cake making method explanation -developed preservation knowledge -storage of cakes and similar product knowledge	Self and peer assessment
6	1, 2, 3	To know and understand vitamins and minerals To understand traffic light labelling on packaging	Starter - traffic light labelling system analysis Main - vitamin and minerals including source, excess, deficiencies Plenary - test on vitamins and minerals Home learning: questions to extend knowledge on vitamins and minerals	-understanding of packaging labelling techniques to inform consumers about healthy eating - evidence of understanding vitamins, minerals and DRV -70% or above on test questions	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
7	1,4,6	To develop vegetable preparation skills and knife skills To understand what a side dish is and to know why side dishes are important To understand how to increase nutritional value in vegetable dishes by adding breadcrumbs, cheese or milk	Starter - chopping methods Main - Vegetable bake practical, adding additional ingredients to increase nutritional value, baking method, adding cream or milk to soften the vegetables, discussion of seasoning to increase flavour Plenary - recording what a side dish is and what else to serve with it for a balanced meal Home learning: evaluation	-understanding of chopping technique -understanding of side dishes and increasing nutritional value in dishes -knowledge of using the oven -understanding of seasoning to increase flavour	Response to marking in green pen
8	1, 4	To know how to conduct a food investigation successfully	Starter - food investigation introduction and expectations	-understanding of enzymic browning and how it can be prevented	Check Green pen comments using rapid marking

		To know what enzymic browning is and to understand how it can be prevented	Main - food investigation on enzymic browning . Suggestion using different types of apples and liquids. Students set own prediction and write a conclusion Plenary - why are investigations important in the food industry Home learning: WWW and EBI	-evidence of completed food investigation with prediction -knowledge of how to conduct a food investigation	
9	4, 5, 6	To develop fruit and vegetable preparation skills To demonstrate how to prevent enzymic browning in a dish	Starter - exam question Main - fruit salad practical , garnishing and food presentation Plenary - recording of methods used to prevent enzymic browning Home learning: How could you adapt your dish to suit different seasons?	-completed exam question -evidence of understanding of electrical v manual equipment -completed fruit salad/coleslaw dish	self assessment
10	1, 2, 4	To develop fruit and vegetable preparation skills using electrical equipment To demonstrate how to prevent enzymic browning in a dish	Starter - exam question Main - coleslaw practical , use of food processor, assessment of food preparation skills Plenary - advantages and disadvantages of using electrical equipment to prepare food	-completed exam question to assess knowledge learnt so far -evidence of understanding of electrical v manual equipment -completed fruit salad/coleslaw dish	peer assessment
11	2, 3	To develop food investigation skills To demonstrate knowledge learnt for an assessment	Starter - set a target to improve previous food investigation work Main - in pairs or group of 3 conduct an experiment on fruit and vegetables . Write prediction as a class Plenary - extended conclusion including key words Home learning: exam question	-successful food investigation -developed understanding of food investigations -assessment of food investigation	self assessment
12	1, 2, 3, 6	To understand how to increase sensory appeal using vegetables	Starter - A to Z of spices Main - Vegetable curry and rice practical , discussion of vegetable dishes from around the world	-successful practical dish -understanding of spices and using spices in cooking -completed exam question	In depth teacher marking including: WWW and EBI

		To develop knowledge of spices	Plenary - exam question on cooking vegetables Home learning: revision resource to remember key words		Question extending knowledge Formative comment
13	3	To know what Dietary Reference Values are To understand how DRV's are used	Starter - test on knowledge learnt this half term Main - DRV theory, exam questions Plenary - end of half term skills update Home learning: research two different diets in depth to find out what they eat and why	-understanding of DRV -developed exam question technique -skills update record	Response to marking in green pen
Half Term					
14		To understand a variety of diets for illness To know what dietary deficiencies are and understand how to improve them To understand how to make flaky pastry to use next lesson	Starter - dietary deficiency quiz Main - flaky pastry practical then freeze for next lesson, dietary deficiency and illness theory Plenary: revision resource for dietary deficiency Home learning: exam question	-understanding of dietary deficiency and illness -successful flaky pastry to use next lesson	Check Green pen comments using rapid marking
15		To understand food preservation methods To know how to shape pastry correctly To safely prepare turnovers using a variety of fillings	Starter - food preservation methods Main - turnovers using pastry from lesson 14, use tinned, frozen and fresh fruit Plenary - star profile for each turnover Home learning: record how different preservation methods affect taste and texture	-theory of preservation and practical application of preservation -understanding of why food is preserved	
16		To understand how to increase nutritional value by adding vegetables to a main meal To develop food preparation and presentation skills	Starter - quiz on vitamins and minerals Main - practical with additional vegetables own choice (eg cottage pie, bolognaise, chilli con carne) Plenary - evaluate the dish against a ready made product to compare Home learning: WWW and EBI	-understanding how to modify a recipe to increase nutritional value -successful practical with understanding of how to improve and develop	

17		To understand different dietary requirements To know how to plan a dish that is suitable for a different diet To know how and why to create a timeplan	Starter - dietary requirements Main - dish planning for dietary requirements, select 1 dish to make next lesson and write a timeplan for it Plenary - peer assessment of timeplan Home learning: research methods to present dish next lesson	-evidence of understanding dietary requirements -dish planning for different diet -completed and peer assessed time plan	
18		To use timeplan to create own dish To make and present a full meal to a high quality restaurant standard	Starter - key word quiz on words learnt this half term Main - own dish following and adjusting timeplan Plenary - group assessment of skills and presentation Home learning: self reflection of skills developed this half term	-completed meal in 1 hour -timeplan followed throughout with corrections in green pen -group discussion of skills learnt and developed this half term	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
19		To understand how to evaluate a product in detail To develop extended writing To demonstrate an understanding for nutrition	Starter - WWW and EBI Main - evaluation and extended writing from previous lesson, sensory analysis diagrams included Plenary - peer assessment Home learning: research other cake decoration techniques	-develop evaluation and extended writing skills -understand how to create sensory analysis diagrams and know how to analyse them	
20		To develop flavouring skills in food preparation To develop chopping skills To understand how to stir fry	Starter - frying cooking methods Main - Stir fry practical, chopping skills, stir fry understanding Plenary - recording what stir frying is and how to complete it Home learning: research other Chinese vegetable dishes and practice making one at home	-develop understanding for different flavours and cooking methods -successful vegetable stir fry	
21		To develop understanding of preserving fruits and vegetables	Starter - exam question on preservation techniques Main - making a lemon/lime/orange curd and storing in a sterilised jar	-practical application of preserving citrus fruits -understanding of storing preserved fruits	Response to marking in green pen

		to demonstrate an understanding of making a curd	Plenary - marking exam question Home learning: watch the video on jam making for next lesson		
22		To understand how jam is made and used in products To recap secondary processing techniques for fruit and vegetables	Starter - primary and secondary processing recap Main - own product using jam (e.g. roly poly, sponge pudding) Plenary - comparison of shop bought and homemade nutrients using a label Home learning: research own dish to make next lesson to show the skills you have learnt this term	-practical understanding of using a preserved fruit in a dessert -recap of processing of fruit and vegetables	Check Green pen comments using rapid marking
23		To know how to develop a cake for an occasion To know how to increase nutritional value in sweet dishes to develop dessert preparation skills	starter - designing a cake for different occasions and consumers Main - cake making with additional fruits or vegetables Plenary - peer assessment Home learning: WWW and EBI	-cake for fridge or freezer -cake designs for different occasions -understanding of religion	
24		To know how to develop a cake for an occasion To know how to increase nutritional value in sweet dishes to develop dessert preparation skills	Starter - WWW and EBI from last lesson Main - Decorate a cake for Christmas, watch you tube video if cannot demo Plenary - group assessment Home learning: star profile of cake	-decorated cake for Christmas -understanding of increasing nutritional value	
25		To reflect on key skills learnt this term To know how to revise To know how to answer long exam questions	Starter - complete mind map Main - long answer exam questions and practise, then how to revise in depth, revision prompt cards to be created Plenary - mini test using whiteboards Home learning: revision with evidence	-revision evidence -PLC up to date -mind map completed -revision mini test -long answer questions understood	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment

26		To complete an end of term assessment with key words learnt this term To develop exam technique	Starter - mind map of knowledge Main - exam paper Plenary - peer assessment Home learning: choose 3 questions to have another go at	-completed exam paper at 65% or above -improved exam question technique	Response to marking in green pen
		To review skills learnt this term To make a product that reflects knowledge this term	Starter - skills list update Main - own choice of dish that best reflects knowledge and skills demonstrated this term, could be one made this term that could be improved Plenary - reflection of learning Home learning: exam question	-demonstrated understanding of knowledge learnt this term -improved practical skills to show progress	Check Green pen comments using rapid marking
End of Term					

Year 9 Spring Term					
Milk, Cheese, Yoghurt					
Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	CHI	To know where dairy products come from and how they are produced To know what varieties are available to consumers To know where milk, cheese and yoghurt comes from around the world	Starter - mind map of what you already know about milk, cheese and yoghurt Main - Eatwell Guide recap, GDA recap, provenance, varieties, could do blind taste test, intro into processing Plenary - products that can be made from milk, cheese and yoghurt	-evidence of knowledge -understanding of where from and how obtained -knowledge of secondary processing of milk, cheese and yoghurt -recap of GDA and Eatwell Guide to develop knowledge	

			Home learning: research gelatine and its properties for next lesson		
2	CHI Thur Wk 2	To know how to use milk and cream to create a dessert To understand how to make a coulis for flavour and presentation To know what gelatine is and why it is used	Starter - success criteria for panna cotta Main - panna cotta practical , gelatine understanding, coulis to challenge Plenary - other products that could be made Home learning: WWW and EBI	-completed panna cotta -some will have made a coulis, some will use one prepared by technician -knowledge of making a panna cotta and understanding of what makes a successful one	
3	EBU Tue Wk1	To understand the difference between primary and secondary processing of milk, cheese and yoghurt To know how to store dairy foods safely To know how to prepare dairy foods safely and hygienically	Starter - group products into primary and secondary processing Main - processing methods in depth, could do sensory analysis, food storage and food safety including food poisoning Plenary - exam question Home learning: revision resource on processing methods	-evidence of understanding of primary and secondary processing with examples -food storage, safety and poisoning understanding -exam question completed	
4		To understand what special diets are related to dairy products To know what the nutritional value of milk, cheese and yoghurt is To know how to increase nutritional value of products	Starter - special diet recap Main - nutritional value of milk, cheese and yoghurt; possible sensory analysis of product not already tasted, religious needs Plenary - increasing nutritional value of products Home learning: exam question on special diets	-evidence of knowledge of nutritional value -sensory analysis record -understanding of special diets developed	
5	CHI Fri Wk 1	To know what a batter is and how to make one To develop food investigation skills To understand how nutritional value differs in milk	Starter - different milk analysis Main - food investigation in pairs or groups making yorkshire puddings with different milk Plenary - conclusion write up Home learning: exam question	-knowledge of milk -understanding of batter -developed food investigation skills	
6	EBU Tue Wk2	To know why dairy is important in the diet To develop sauce making skills	Starter- dairy in the diet	-understanding of importance of dairy in the diet	In depth teacher marking including:

		To know how to increase dairy content in dishes	Main - Macaroni Cheese practical , sauce making, understanding of the function of ingredients Plenary - sauce making theory Home learning: write a success criteria for making a sauce using key words	-knowledge of making a sauce using roux method -understanding how to make an excellent sauce	WWW and EBI Question extending knowledge Formative comment
7	CHI Thur Wk2	To know what coagulation of protein is and understand why it is important To recognise sensory properties during coagulation	Starter - what do these products have in common game Main - coagulation, could fry an egg in pairs and record results, how sensory properties change Plenary - coagulation in products Home learning: revision resource of coagulation and revision of work learnt so far	-understanding of coagulation of protein and sensory properties	Response to marking in green pen
8	EBU Wed Wk 1	To complete an assessment with key words learnt this term To develop exam technique	Starter - mind map of knowledge Main - exam paper Plenary - peer assessment Home learning: choose 3 questions to have another go at	-completed exam paper at 65% or above -improved exam question technique	Check Green pen comments using rapid marking
9	CHI Fri Wk 1	To understand how to make a layered dessert using a variety of skills for a high grade To know how to make a jelly successfully	Starter - trifle recipe modifications for different diets Main - jelly and sponge for trifle practical; keep in the fridge for lesson 10 Plenary - demonstration or video of making custard for next lesson Home learning: research decoration methods for dessert	-understanding of making a jelly -knowledge of making a layered dessert	
10	EBU Tues Wk 2	To know how to make a custard successfully To understand how eggs thicken a sauce To demonstrate dessert presentation techniques	Starter - write a recipe for making custard Main - making and chilling custard, whipping cream to top trifle practical Plenary - theory of making custard Home learning: evaluation	-understanding of making a custard; knowledge of thickening a liquid with eggs -successful finished trifle with decoration	

Half Term					
11		To understand cheese and its importance in a balanced diet To know where cheese comes from and understand cheese in other cultures To know how cheese is processed into secondary products	Starter - secondary cheese processing Main - demonstration of making cheese, cheese from other culture taste test, safe cheese storage Plenary - exam question Home learning: researching cheese provenance	-understanding of processing of cheese and cheese products -knowledge of other types of cheese from other cultures -developed exam question technique	
12		To know how cheese is made To demonstrate cheese making with excellent food hygiene and safety	Starter - youtube video on cheese making Main - making cheese in groups , offer flavourings and see how the flavourings affect sensory properties of the soft cheese, record results and tasting each others with cheese biscuits Plenary - what secondary processing could be done to the cheese to make it into something else Home learning: design packaging for your cream cheese including nutritional value	-cheese making demonstrated -evidence of recorded knowledge -understanding how to develop product into secondary processing phase -understanding that adding flavours will change sensory properties of cheese -record in books of taste test	
13	EBU- Wk2- Tues	To develop confidence and understanding in food investigations To demonstrate knowledge in food commodities learnt	Starter - recap key words learnt this term Main - dish with cream cheese, suggest cheesecake , student's choice Plenary - conclusion of investigation Home learning: WWW and EBI	-increased understanding and confidence off completing a food investigation	
14	CHI- Wk2- Thur 28/2/19	To know how to use milk to make a set custard To understand how to make a caramel	Starter - demonstration of making caramel Main - creme caramel practical including making a custard Plenary - WWW and EBI Home learning: definition of key words learnt in the lesson	-completed creme caramel -understanding of how to make a caramel and a custard -knowledge of making a set custard	
15	EBU- Wk1- Wed 6/3/19	To know how to make yoghurt To understand the difference between types of yoghurt	Starter - youtube video on making yoghurt	-demonstrated making yoghurt safely	

		To know how to complete a product analysis	Main - yoghurt making in groups, product analysis comparing frozen, fruit and a set yoghurt Plenary - secondary yoghurt products Home learning: research cost of different milk, yoghurt and cheese products and think about why it changes	-understanding of product analysis and why one is carried out -understanding of secondary yoghurt products	
16	CHI- Wk1- Fri 8/3/19	To know how yoghurt can tenderise and flavour meat or meat alternatives To understand how to cook a savoury dish with with yoghurt or cheese	Starter - tenderising meat methods Main - curry with yoghurt marinated meat or paneer cheese, understanding that it could split Plenary - self assessment of knowledge learnt this half term	-curry with yoghurt -tenderising theory -self assessment of skills	
17	EBU Wk 1- Tues 12/3/19 Yr 11 Exam So Cover To Do lesson 18 CHI to dp Rice pudding Flavouring Experiment	To use food investigation knowledge to make the best rice pudding To understand how heat and coagulation thickens a product	Starter - rice pudding flavourings Main - boiled rice pudding experiment to find the best recipe and flavour Plenary - write a recipe to show the best way to make a boiled rice pudding Home learning: revision for assessment		
18	CHI- Done	To complete an assessment with key words learnt this term To develop exam technique	Starter - mind map of knowledge Main - exam paper Plenary - peer assessment Home learning: choose 3 questions to have another go at	-completed exam paper at 65% or above -improved exam question technique	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
19	CHI- Done	To understand why soft cheese is popular with consumers	Starter - ravioli demonstration Main - ravioli using a cream cheese filling practical	-increased knowledge of cheeses from different cultures -successful pasta practical	Response to marking in green pen

		To know how to make fresh pasta successfully	Plenary - evaluation Home learning: star profile of dish		
20	CHI	To know how to make ice cream and frozen yoghurt using a machine and by hand To understand how to prevent ice particles in a frozen dessert	Starter - shop bought v homemade taste test Main - group work to make frozen yoghurt and custard based ice cream; group taste test, using the freezer as storage theory Plenary - star profiles to record results Home learning: research cost of dishes and why some are more expensive	-understanding of frozen desserts -knowledge of using the freezer to store foods -comparison of home-made and shop bought products	Check Green pen comments using rapid marking
21	EBU	To use knowledge learnt to plan a dish high in milk, cheese or yoghurt suitable for a consumer and diet To know how to create a dovetailed timeplan	Starter - dovetailed timeplan example, WWW and EBI Main - dish planning including dovetailed time plan (colour coding to help the students), write a shopping and equipment list for the lesson Plenary - peer assessment of timeplan Home learning: research and sketch presentation of dish for next lesson	-understanding of time plan dovetailing -demonstrated ability to create a full meal suitable for a diet and consumer	
22	CHI	To use dovetailed timeplan to create a full meal suitable for consumer and diet To demonstrate excellent food presentation and preparation skills throughout	Starter - explain dish to someone else and guess consumer and diet Main - own choice, using time plan, editing time plan with green pen as going along Plenary - self and peer assessment of dish	-completed full meal in 1 hour -timeplan followed throughout with corrections -peer and self assessment evidenced	
End of Term					

Year 9 Summer Term
Cereals

Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	EBU	To understand the variety of cereals and cereal products To know and understand the milling process To know what wholegrains are and their importance on the body	Starter - how many wheat products can you think of Main – Grain chain resources, milling process, primary and secondary production of wheat, wholegrains and effect on the body Plenary - exam question Home learning - watch video on bread making for next lesson	-understanding of milling process -evidence of exam style question -understanding of wheat provenance	
2	CHI	To understand how to make a basic bread dough To know how to flavour a bread dough To know bread making keywords	Starter - bread making keyword match up Main - basic bread rolls practical with a flavouring Plenary - check keyword from starter Home learning: watch video on proving and think about why proving improves the texture of bread	-successful bread rolls -understanding of basic bread recipe -understanding of bread keywords	
3	EBU	To understand why yeast is used in bread making To know what the best conditions are for yeast fermentation To develop food investigation skills	Starter - exam question on bread making Main - yeast experiment in groups, have one already setup to demonstrate, yeast theory Plenary - write conclusion Home learning: revision resource	-understanding of yeast and best conditions for fermentation -developed knowledge of bread making keywords -developed food investigation skills	
4	CHI	To know what gluten is and why it is needed in bread products	Starter - gluten alternatives Main - gluten experiment in pairs with prediction and conclusion	-understanding of use of gluten -evidence of own experiment	In depth teacher

		To understand what happens without gluten in baked products and what gluten replacements are available to consumers on a special diet	Plenary - revision resource	-revision resource to remember	marking including: WWW and EBI Question extending knowledge Formative comment
5	EBU	To know and understand the provenance of cereals in the UK and around the world To understand how to store cereals safely and why	Starter - quiz on bread making Main - taste test of cereal products from around the world, theory on provenance Plenary - star profile and extended writing on results Home learning: timeplan for next lesson	-evidence of understanding of provenance of cereal and cereal products -understanding of secondary processing of wheat from around the world	Response to marking in green pen
6		To know how to develop bread into another product To review bread making techniques To understand how the ingredients work together when making bread and to know why vitamin C is sometimes added	Starter - mindmap of bread products Main - bread practical made into another product e.g. pizza, focaccia, rolls, pinwheels, cinnamon rolls, theory of adding vitamin C to bread dough Plenary - explanation of key words learnt during practical Home learning: evaluation of bread against an existing product	-demonstrated bread making technique -understanding of how to develop a basic bread dough -evidence of understanding of bread keywords	Check Green pen comments using rapid marking
7		To know where rice comes from and to understand how it is produced To understand primary and secondary processing techniques of rice and rice products To understand the food hygiene dangers of cooking	Starter - food poisoning symptoms and types Main - rice production, rice types from different cultures and different cooking ideas, cooking rice theory Plenary - warning poster on cooking rice Home learning: exam question	-understanding of where rice comes from and how it is produced and processed -knowledge of storage and food safety -understanding of different types of rice from different cultures	

		with rice and how to prevent food poisoning			
8	CHI	To know how to prepare and cook with rice To understand food safety issues when cooking with rice To know how rice is produced and prepared	Starter - exam question Main - rice practical e.g. risotto, savoury rice, boiled rice pudding with coulis, theory of rice safety Plenary - mark exam question for mid term assessment Home learning: recording issues with cooking and storing rice	-completed rice dish -label for rice product with reheating and storing instruction -understanding of food safety when cooking and storing rice	
9	EBU	To know and understand different types of flours and why different types are used in cooking To understand how to adapt pastry for different diets and how to increase nutritional value to a product for a consumer To know how to store cereals and cereal products	Starter - cereal storage Main - in groups of 4, jam tarts with different flours; sensory analysis at the end of the lesson Plenary - conclusion of class experiment Home learning: exam question on best flour	-understanding of different flours -knowledge of how to increase nutritional value for different consumers	
10	CHI	To know what cornflour is and how it is processed To understand the properties of cornflour To develop food investigation skills	Starter - cornflour products Main - cornflour experiment, look at cornflour as a thickening agent, understanding of viscosity, drip test Plenary - conclusion of experiment Home learning: WWW and EBI	-understanding of cornflour as a thickener, viscosity, drip test -developed understanding of food investigations	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment

11	EBU	To develop curd making skills using cornflour as a thickener To know how to make a sweet pastry and understand why it should be chilled To know what dextrinisation is and how it occurs in baked products	Starter - shortening method in pastry making Main - lemon curd for lesson 12, pastry for lesson 12, theory on flavouring pastry Plenary - dextrinisation theory Home learning: research presentation techniques for lemon meringue pie	-knowledge of dextrinisation -understanding of shortening method -developed understanding of cornflour use in cooking	Response to marking in green pen
12	CHI	To demonstrate dextrinisation in pastry making To understand what blind baking is and to know why it is important	Starter - what is blind baking Main - lemon meringue pie practical using pastry and curd from lesson 11, meringue, dextrinisation theory Plenary - peer assessment Home learning: evaluation	-demonstration of dextrinisation -understanding of the importance of blind baking -successful lemon meringue pie	Check Green pen comments using rapid marking
Half Term					
13		To understand dietary requirements for cereal and cereal products To know and understand coeliac disease To know and understand the importance of fibre in the diet	Starter - recap of special diets Main - gluten free, coeliac, fibre theory Plenary - exam question Home learning: research into gluten for next lesson	-recap of special diets -theory on gluten, coeliac disease and fibre -exam question completed	
14		To understand how to increase nutritional value in pasta products To know how to layer a savoury product	Starter - layering dishes Main - lasagna or vegetarian lasagna with homemade sauce, pasta and filling, nutritional analysis of ingredients Plenary - peer assessment of nutritional analysis Home learning: exam question on nutrients	-understanding of layering -developed pasta skills -increased timing and confidence using the oven and hob -understanding of nutrients	
15		To understand why breakfast is the most important meal of the day To know what happens to the body without a nutritious meal	Starter - breakfast video Main - importance of breakfast theory, research into sugary breakfast foods, could do visually using sugar cubes	-understanding of breakfast -knowledge of simple sugars -understanding of balanced diet	

		To understand how simple sugars are used by the body quickly resulting in weight gain	Plenary - write a letter to a friend encouraging them to eat breakfast Home learning: design a healthy breakfast bar to make next lesson		
16		To know how to develop a flapjack recipe to increase nutritional value for a consumer To develop understanding for breakfast foods	Starter - diets for ill health (calorie increase/decrease, low salt and sugar) Main - breakfast bar with choice of flavourings, knowledge of nutritional value Plenary - evaluation Home learning: exam question	-successful breakfast bar practical -understanding of nutrition	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
17		To use timeplan to make own cereal dish suitable for a consumer and a high fibre diet	Starter - success criteria for product Main - own dish high in fibre (eg pizza with wholemeal flour, ravioli with wholemeal flour, scones with dried fruit), green pen changes Plenary - WWW and EBI in small groups Home learning: exam questions on cereals	-success criteria and explanation of if met or not -completed practical using timeplan -evaluation of dishes in groups	Response to marking in green pen
18		To understand knowledge learnt so far in the course To develop exam question technique	Starter - mindmap of knowledge Main - past paper Plenary - paired marking	-completed past paper above 60%	Check Green pen comments using rapid marking
19		To understand cereal products from other cultures To develop knowledge of flavourings To understand how to make samosa pastry	Starter - pastry exam question to review skills Main - samosa pastry practical for lesson 20, cereal products from other cultures theory Plenary - herbs and spices test Home learning: function of ingredients list for samosas	-successful pastry -understanding of flavours from different cultures	

20		To know how to shape samosas To develop flavouring skills To increase confidence using the oven	Starter - cooking method test Main - samosas either fruit or vegetable with flavourings Plenary - star profile Home learning: gather feedback from friends and family	-successful samosa making -confidence using the hob and oven	
21		To develop evaluation skills To understand how to complete a nutritional analysis using the computer To adapt the samosa recipe for different cultures and diets	Starter - recipe modification Main - in depth evaluation and nutritional analysis using the computer Plenary - peer assessment Home learning: exam question	-developed evaluation and nutritional analysis skills	
22		To know what a raising agent is and why they are used in baked products To develop food investigation skills To know how to adapt a basic recipe	Starter - cake making method recap Main - scone experiment using different raising agents, could show students how to make welsh cakes and rock buns adapting the recipe Plenary - conclusion Home learning: exam question on raising agents	-understanding of raising agents -developed food investigation skills -knowledge of adapting appearance of a recipe	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
23		To understand how lifestyle choices affect diet To know how to increase carbohydrates to suit athletes	Starter - athletic food video Main - lifestyle diets, planning a dish high in carbohydrates to make next lesson, completing a dovetailed timeplan for a complete meal Plenary - peer assessment	-understanding of lifestyle diets -developed timeplan skills	Response to marking in green pen
24		To use timeplan to make own cereal dish high in carbohydrate suitable for an athlete	Starter - success criteria for product Main - own dish using timeplan, green pen changes Plenary - WWW and EBI in small groups Home learning: exam questions on cereals	-success criteria and explanation of if met or not -completed practical using time plan	Check Green pen comments using rapid marking

				-evaluation of dishes in groups	
25		To know how to make a successful whisked sponge To develop dessert presentation skills To know how to store baked products	Starter - exam question Main - whisked sponge to decorate next lesson, could pipe pattern onto sponge Plenary - evaluation against an existing product Home learning: research into decoration and plan	-understanding of whisked sponge and how to store safely -knowledge of nutrition -knowledge of decoration	
26		To successfully decorate whisked sponge using cream and fruit To evaluate skills learnt this term and identify areas of improvement	Starter - share ideas to decorate cake with other student Main - cake decoration and presentation, peer assessment Plenary - skill list from this half term Home learning: practise 2 dishes from this year over the summer, bring in a photograph as evidence	-improved decoration skills -understanding of knowledge learnt this year -understanding of WWW and EBI with practical work	
End of Term					

Year 10 Autumn Term Meat, Fish, Eggs and Poultry					
Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	1, 2, 3, 5	To understand the farming and rearing of meat, fish, poultry and eggs To know where meat, fish, poultry and eggs come from	Starter- mind map everything you know about meat, fish, poultry and eggs Main - farming and rearing theory Plenary - free range and how food is labelled Home learning: visit a supermarket and research the cost of different farmed foods	-theory of rearing, farming, free range -understanding of types of commodity -understanding of provenance	

				-knowledge of where it comes from and why	
2	1, 5, 6	To know and demonstrate how to safely shape meat To understand how to mince meat and why it is minced	Starter - YouTube video on mincing and description Main - meatball or beef burger practical , shaping meat safely Plenary - instructions on food hygiene when preparing meat dishes Home learning: match up meat cut to place on the animal	-knowledge of mincing and shaping -successful meat practical with excellent food hygiene observed	
3	1, 2, 3, 5	To demonstrate an understanding of provenance To understand food choices from different cultures and religions	Starter- religion and cultures Main - provenance theory, choosing food for religion or cultural needs, meat rearing in different countries including halal Plenary - adapting a recipe for different culture/religion Home learning: find 2 recipes for using meat from different cultures. Stretch yourself by making one at home and emailing your teacher a photo	-theory of religion and cultural food choices -understanding of provenance	
4	3,5,6	To know how to portion a chicken To understand why portioning a chicken is a cost effective way to create many dishes To know what the different parts of the chicken are and understand how to use them in cooking	Starter - label the different parts of a chicken Main - portioning a chicken, demonstration then practical , freeze in 3 bags; legs, breasts and wings Plenary - add recipe ideas to chicken from starter activity Home learning: write up instructions on portioning a chicken	-successful portioned chicken -understanding of how to different portions can be used -evidence of understanding of parts of chicken with suitable recipe suggestions	
5	1, 2, 3, 5	To know and understand the primary and secondary processing of meat, fish, eggs and poultry	Starter - types and provenance Main - theory of processing meat, fish, eggs and poultry, curry paste demonstration Plenary - A to Z of spices	-theory of primary and secondary processing -record of making curry paste ideally Indian and Thai	

		To know how to make a curry paste			
6	1, 5, 6	To know what a breadcrumb coat is and why it is used To demonstrate safe handling of raw meat To understand how to cook with the breast of the chicken To know what shallow frying is and demonstrate safe frying technique	Starter - recap of cooking methods Main - chicken goujons/nuggets with breadcrumb coat practical, discussion of why raw meat is not washed, discussion of safe frying techniques Plenary - exam question on safe preparation of raw meat Home learning: labelling parts of cow and lamb to show meat cuts	-successful chicken goujon/nugget practical -demonstration of safe cooking and preparation of raw meat -understanding of breadcrumb coat and shallow frying	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
7	1, 2, 3	To know and understand why protein is important for the body To understand different lifestyle choices and dietary needs	Starter - Eatwell Plate youtube clips Main - protein theory, lifestyle choices including babies, children, adults and elderly Plenary - green pen Home learning: Revision resource for 4 lifestyles to remember needs	-protein theory -lifestyle theory -application of knowledge to challenge HAPS by introducing dishes for lifestyle groups -green pen corrections	Response to marking in green pen
8	3, 5, 6	To understand how to use chicken legs to make a meal To know how to increase portion sizes to make a meat dish feed more people To understand what a marinade is and know why meat is marinated	Starter - marinating chicken legs, recording what a marinade is and why one is used Main - chicken tagine/curry with chicken legs practical Plenary - evaluation against a ready made product Home learning: research costing of beef cuts	-successful chicken leg dish -understanding of marinating meats	Check Green pen comments using rapid marking
9	1, 2, 3, 4, 5, 6	To complete a written assessment on meat cuts and types To know how to fillet a fish successfully	Starter - quiz quiz trade Main - exam questions on meat, fish filleting demonstration and timeplan to fillet fish next lesson in pairs Plenary - salad for a consumer and diet to make next lesson	-completed meat exam questions with over 65% -timeplan to fillet fish -salad plan for next lesson	

			Home learning: research food illness caused by poor meat and fish storage or preparation		
10	1, 5, 6	To understand fish provenance To know how to fillet a fish successfully	Starter - quiz quiz trade Main - fish filleting demonstration and timeplan to fillet fish next lesson in pairs Plenary - salad for a consumer and diet to accompany fish Home learning: research food illness caused by poor meat and fish storage or preparation	-timeplan to fillet fish -salad plan for next lesson	
11	1, 3, 5, 6	To demonstrate filleting fish in pairs safely To serve the fish fillets with a salad suitable for a consumer and a diet To know the types of fish and give examples	Starter - questions on safe storage and preparation Main - fish filleting , freeze in 2 portions for next 2 lessons, fish types and examples Plenary - evaluation of fish filleting Home learning: research types of fish	-demonstrated fish filleting safely -evidence of evaluation for fish filleting	
12	1, 3, 5, 6	To demonstrate breadcrumb coat To demonstrate understanding of balanced dish	Starter - what is wrong with these meals (not balanced) Main - fish and chips or cous cous practical as complete meal Plenary - peer assessment Home learning: evaluation and star profile of meal	-successful fish meal practical -demonstrated understanding of balanced meals	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
13	1, 3, 5, 6	To understand preserving of meat and fish To demonstrate shaping fish	Starter – preserving Main - fish cakes using other fillet practical Plenary - cartoon strip of filleting fish and making fish cakes Home learning: revision resource for fish preparation	-successful fish cakes -preserving theory	Response to marking in green pen

Half Term					
14	1, 2, 3	To develop and enhance knowledge of preparing fish safely To understand how fish is stored and know why	Starter - Jamie Oliver chicken caesar salad hygiene youtube clip Main - health and safety and storage of fish Plenary - revision resource to remember key facts Home learning: revision of vitamins and minerals	-health and safety and storage of fish theory -revision resources	Check Green pen comments using rapid marking
15	1, 2, 3, 5	To know and understand the nutritional properties of meat, fish, eggs and poultry To know what an emulsion is and how to create one with eggs	Starter - label the part of an egg Main - nutrition and dietary values, mayonnaise demonstration and tasting, recording of emulsion and emulsion theory Plenary - exam question Home learning: watch a video on making mayonnaise before next lesson	-labelled egg -theory of nutrition -emulsion understanding evidenced	
16	1, 2, 3, 5	To demonstrate making an emulsion To understand how to serve different courses	Starter - set the table Main - mayonnaise practical and tasting, recording of emulsion and emulsion theory, serving differences between starter, main and dessert Plenary - compare against an existing product in evaluation Home learning: watch a video on making mayonnaise before next lesson	-own mayonnaise -ability to set a table correctly -written explanation of differences and purpose of starter, main and dessert courses	
	1, 3, 5, 6	To understand how to shape meat To know how to boil an egg successfully To develop breadcrumb coating skills To understand that baking is healthier than frying	Starter - rank cooking methods according to health Main - scotch egg practical Plenary - recording of cooking methods demonstrated in lesson Home learning: star profile	-successful scotch eggs by boiling egg, flavouring and shaping minced meat, bread crumb coat and baking in oven -record of cooking skills demonstrated in lesson	

	1, 4, 6	To understand how to make a meringue with cornflour and vinegar to change the texture To understand what aeration means To develop food investigation skills	Starter - set target to improve food investigation Main - paired investigation into meringues and eggs using different ingredients to change texture, aeration theory Plenary - conclusion of experiment Home learning: practise cooking with eggs, meat, fish or poultry and take a photo	-investigation into eggs and aeration -prediction and conclusion	
18	1, 4, 6	To demonstrate ability to make meringue To demonstrate aeration and making a foam	Starter - WWW and EBI with meringues Main - mini meringue practical Plenary - developing meringues into a dessert Home learning: star profile	-successful meringues -understanding how to develop a product into a dessert	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
19	1, 6	To develop evaluation skills To know how to create a nutritional analysis	Starter - green pen Main - nutritional analysis of a recipe online, evaluation of meringues from previous lesson Plenary - peer assessment Home learning: exam question	-green pen -nutritional analysis -evaluation of what makes a good meringue	Response to marking in green pen
20	1, 3, 5	To understand how meat, fish and eggs are priced To know how to develop products to make more cost effective	Starter - costing game Main - costing a recipe, cheaper dishes high in protein, discussion of why expensive products have more processing techniques Plenary - developing a recipe to make cost effective Home learning: revision resource for meat	-costing understanding and practical application to develop a recipe to make cheaper	Check Green pen comments using rapid marking
21	3, 5, 6	To know how to cook with beef or lamb safely	Starter - test of meat cuts	-understanding of stewing and braising method	

		To understand how to stew or braise a cheaper cut of meat to tenderise it and increase flavour	Main - beef or lamb stew practical , theory of stewing Plenary - nutritional value of stew Home learning: evaluation of practical with reference to using cheaper cuts of meat	-successful stew dish -understanding of nutritional value and costing of cheaper cut of meat	
22	1, 2, 3, 5, 6	To understand how to reduce the amount of salt and sugar in a savoury dish To know how to safely cook chicken wings	Starter - comparison of BBQ sauce recipe with shop bought BBQ sauce Main - chicken wings with BBQ sauce practical Plenary - evaluation of jointing a chicken and cooking with different parts	-comparison of shop bought v homemade -understanding how to reduce salt and sugar in a dish -successful chicken wings with a BBQ sauce	
23	1, 2, 3, 4, 5, 6	To complete a written assessment on commodities	Starter - quiz quiz trade Main - exam paper and mark in pairs Plenary - update PLC and diet to make next lesson Home learning: research finishes on Swiss rolls for next lesson	-completed meat exam questions with over 65% -timeplan to fillet fish -salad plan for next lesson	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
24	1, 3, 4, 6	To know how to make a cake using the whisking method To know how eggs add air to cake mixtures	Starter - function of cake ingredients to add air Main - Swiss roll practical to decorate into a chocolate log for next lesson Plenary - green pen Home learning: research finishes for chocolate log	-successful swiss roll -function of ingredient theory in whisking method	Response to marking in green pen
25	1, 3,4, 6	To understand how to decorate a cake for an occasion	Starter - cake decoration occasion mind map Main - chocolate log decoration for festive season Plenary - group assessment	-successful Christmas chocolate log -understanding of decoration for an event or occasion	Check Green pen comments

			Home learning: WWW and EBI		using rapid marking
End of Term					

Year 10 Spring Term Butter, Oils, Margarine, Sugar and Syrup					
Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	1, 2, 5	To know and understand where butter, oil, margarine, sugar and syrup comes from	Starter - what do you already know Main - provenance and theory, products primary and secondary Plenary - exam question Home learning: research flavouring fats	-theory of provenance -understanding of types	peer
2	1, 3, 4, 6	To develop food investigation skills To understand how fat works in pastry making to change texture	Starter - different fat quiz Main - rough puff pastry experiment, write the best recipe to use next lesson Plenary - what other dishes can be made with this pastry and who for Home learning: exam question	-understanding of fat types by experimenting -demonstrated making rough puff pastry	group
3	1, 3, 4, 6	To understand and know about a variety of pastry To understand how fat works in pastry making to change texture	Starter - pastry types and sensory properties Main - rough puff pastry practical, freeze for lesson 4 Plenary - what other dishes can be made with this pastry and who for Home learning: exam question	-understanding of pastry types -demonstrated making rough puff pastry	self
4	1, 2, 3, 5	To know the primary and secondary processing methods	Starter - sorting out food products into primary or secondary processing	-theory on primary and secondary processing	In depth teacher

		of butter, oil, margarine, sugar and syrup To understand the safe storage and food hygiene of the commodities	Main - theory of primary and secondary processing and recording, understanding the secondary processing methods that occur after making butter Plenary - label for a product with storage instructions on Home learning: exam question	-knowledge of safe storage	marking including: WWW and EBI Question extending knowledge Formative comment
5	1, 5, 6	To know how to make a tarte tatin To demonstrate decoration of desserts	Starter - quiz on provenance of products Main - tarte tatin practical using pastry from lesson 2 and butter from lesson 3 Plenary - making a caramel evaluation Home learning: exam question	-successful tarte tatin practical -understanding and demonstration of primary and secondary processing	Response to marking in green pen
6	1, 2, 3, 5	To know how butter is made To understand how dairy products are preserved	Starter - preservation Main - butter making and scone practical , recording method in book, flavouring butter Plenary - taste test and star profile Home learning: exam question	-successful butter making and scone practical and recorded in book -understanding of flavouring -preserving dairy theory	Check Green pen comments using rapid marking
7	1, 4, 6	To independently complete a food investigation To know how to make brandy snaps with sugar To know what caramelisation is and how it can be used in dishes	Starter- different sugars and caramelisation theory Main - food investigation independently into different sugars making brandy snaps Plenary - conclusion Home learning: decorate brandy snaps and record	-food investigation -understanding of sugars and how they work	
8	1, 3, 4, 6	To know how to use a syrup making an Italian meringue To know how to warm syrup safely	Starter - YouTube clip on making syrup Main - Italian meringue practical Plenary - record method with quality checks Home learning: evaluation of meringue	-successful and safe Italian meringue	
9	1, 2, 5	To review knowledge on processing and cooking methods of commodities	Starter - mind map of knowledge Main - exam question assessment Plenary - peer assessment of long answer question	-pass exam at 65% or over	

			Home learning: choose 2 questions to redraft at home		
10	1, 2, 3,	To know and understand the nutritional value of each commodity To know what replacements are available for consumers on a special diet	Starter- exam question on special diets Main - theory on nutrition, deficiency, excess, health implications of too much fat and sugar in the diet Plenary - replacements for low fat low sugar diets Home learning: exam question	-theory on nutrition -understanding of replacements in the diet	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
Half Term					
11	1, 2, 3, 6	To review cake making methods To understand how to adapt a cake to make it suitable for a consumer	Starter - adapting a recipe Main - chocolate brownies practical with the melting method Plenary - changing the recipe to adapt sensory properties; eg adding brown sugar for a darker colour Home learning: exam question	-successful chocolate brownies -understanding of adapting ingredients for sensory properties	Response to marking in green pen
12	1, 2, 3, 6	To know how to use sugar and syrup in a recipe To understand the properties of sugar and syrup	Starter - sugar and syrup quiz Main - caramel shortbread practical, making a shortbread and caramel to top with chocolate next lesson Plenary - tempering chocolate theory Home learning: making chocolate shapes	-successful shortbread and caramel -understanding of using the hob and oven at the same time to create a dessert -understanding of tempering chocolate	Check Green pen comments using rapid marking
13	1, 2, 3, 6	To use all knowledge learnt so far to complete an exam To melt chocolate with oil to top caramel shortbread	Starter - mind map of what learnt so far Main - melting chocolate and oil to top caramel shortbread, assessment Plenary - mark assessment in pairs	-successfully melting chocolate safely -achieving 70% or more in assessment	

			Home learning: costing caramel shortbread		
14	1, 2, 4	To develop food investigation skills To know how to make sponge puddings in steam and dry heat with different fats	Starter - different fats Main - food investigation into using different fats in sponge, and different types of heat to cook the mixture Plenary - conclusion Home learning: exam question on different fats	-food investigation -understanding of dry and wet heat to cook -understanding of how different fats work	
15	1, 2, 4, 6	To know how to make a custard using heat	Starter - custard success criteria Main - custard making practical , demo first to avoid disaster. To challenge HAPs could make sponge pudding too Plenary - flavouring custards Home learning: emulsion revision	-successful custard practical	
16	1, 2, 4	To develop food investigation skills To know how to make an emulsion using different fats	Starter - emulsion revision Main - food investigation into using different fats to emulsify and stabilise mixtures Plenary - conclusion Home learning: exam question on different fats	-food investigation -understanding of emulsion and stabilisation -understanding of how different fats work	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
17	1, 2, 3	To understand malnutrition To know what tooth decay is and how to avoid it	Starter - tooth decay Main - malnutrition Plenary - energy values Home learning: poster on malnutrition to put up around school to encourage healthy eating	-theory on malnutrition -theory on tooth decay	Response to marking in green pen
18	1, 2, 3, 4, 5, 6	To complete an assessment on commodities	Starter - mindmap of knowledge Main - exam assessment Plenary - peer assessment	-completed exam paper 65% or above	Check Green pen comments

		To develop exam question technique	Home learning: choose 2 questions to redraft		using rapid marking
19	1, 2, 3, 4, 6	To know how to make choux pastry To understand the function of ingredients in choux pastry	Starter - success criteria for choux pastry Main - choux pastry practical Plenary - record method in book Home learning: record quality control checks for choux	-choux pastry theory -choux pastry product	
	1, 2, 6	To know and demonstrate how to finish a pastry product successfully	Starter - choux pastry products WWW and EBI Main - choux pastry filling and decoration practical Plenary - group assessment Home learning: evaluation	-finished choux pastry product	
20	1, 3, 6	To use all knowledge learnt to plan a dish using the food commodities To independently produce a detailed timeplan	Starter - match dishes to consumers and diets Main - plan a dish for a consumer with a special diet, create a timeplan and research presentation methods Plenary - exam question Home learning: cost recipe for next lesson	-plan a dish suitable for a diet, consumer that is high or low in commodities -completed time plan	
21	1, 3, 6	To create own dish and present 2 portions To develop evaluation skills	Starter - write a caption to advertise your dish Main - own dish following time plan , correct time plan with green pen as lesson progresses, present 2 covers of dish made Plenary - group evaluation Home learning: review of skills developed this half term	-completed practical following time plan -presented two identical covers of dish -adapted time plan with green pen	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
End of Term					

Year 10 Summer Term
Soya, Tofu, Beans, Nuts and Seeds

Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	1, 2, 5	To understand the provenance of soya, tofu, beans, nuts and seeds To understand seasonality of these commodities and know why that is important for the consumer and the environment	Starter - seasonality Main - provenance of soya, tofu, beans, nuts and seeds theory Plenary - exam question Home learning: research recipes that contain these commodities	-understanding of provenance and types -exam question	Response to marking in green pen
2	1, 2, 3	To understand nutritional properties of the commodities To know how to prepare and store these commodities safely To understand what diet these foods are suitable for	Starter - different diet ideas Main - theory on nutrition, storage and safety of commodities Plenary - exam question Home learning: revision resource	-understanding of diets -evidence of understanding of nutrition, storage and safety of using these commodities	Check Green pen comments using rapid marking
3	1, 3, 5	To understand the primary and secondary processing of soya, tofu, beans, nuts and seeds	Starter - grouping products into types Main - processing method theory and types of commodities Plenary - how could these commodities can be made into products Home learning: research environmentally friendly food production methods	-understanding with evidence of processing methods -knowledge of how these commodities can be used in full meals	
4	1, 2, 3, 6	To know how to use soya in dishes To compare nutrition with soya and meat and understand the differences	Starter - compare meat and soya nutrition Main - soya dish e.g. stir fry, bolognaise, stuffed peppers Plenary - WWW and EBI Home learning: research where your ingredients have come from for next lesson	-successful soya product -understanding of difference in nutrition between meat and soya	

5	1, 3, 5	To understand and know why food miles are important to the consumer, chef and food industry To know how to reduce food miles in dishes	Starter - where do you think these commodities have come from game Main - food miles theory and case study Plenary - reducing food miles in different recipes Home learning: research how far ingredients have come from for next lesson; prize to the student with the lowest food miles	-understanding of food miles - theory and knowledge of how food miles are calculated -practical application for next lesson	
6	1, 2, 3, 6	To know how to use alternative proteins in a recipe To understand the difference between types of vegetarians	Starter - difference between vegan, lacto and lacto ovo vegetarians Main - kidney bean or chickpea burgers with relish practical Plenary - evaluation Home learning: nutritional analysis	-evidence of understanding of vegetarian diets -successful alternative bean burgers with relish -excellent presentation of food	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
7	1, 3	To know how these commodities are stored and why To understand what marinade means	Starter - marinating and its purpose Main - storage Plenary - exam question Home learning: revision for assessment	-theory on storage of these commodities -marinating theory	Response to marking in green pen
8	1, 2, 3, 4, 5, 6	To revise key words learnt and complete an exam paper	Starter - mind map of key words Main - exam paper Plenary - peer assessment Home learning: 3 questions you need to improve; revise and answer them again	-completed exam paper -improvements on exam technique for Home learning	Check Green pen comments using rapid marking
9	1, 2, 3, 6	To know how to use tofu in dishes To compare nutrition with tofu and meat and understand the differences	Starter - compare meat and soya nutrition Main - tofu dish e.g. stir fry, bolognaise, stuffed peppers Plenary - WWW and EBI	-successful tofu product -understanding of difference in nutrition between meat and soya	

			Home learning: research where your ingredients have come from for next lesson		
10	1, 2, 3, 4	To develop understanding of the properties of nuts in savoury dishes To develop food investigation knowledge	Starter - types of nuts and provenance Main - food investigation using nuts to thicken a soup or a sauce Plenary - conclusion write up Home learning: research nut allergies and anaphylactic shock	-understanding of nuts -food investigation to find the best thickener	
11	1, 2, 3, 4	To understand the different properties of nuts To develop food investigation skills	Starter - function of nuts Main - food investigation using different nuts to thicken a soup Plenary - conclusion Home learning: exam question	-theory of nuts -completed food investigation	
12	1, 2, 4, 6	To understand how to use a food processor to make a dressing To know about different types of herbs available To make a pesto dressing successfully	Starter - types of herbs dry and fresh Main - pesto using pine nuts and a food processor, recap using oil as an emulsion, could make fresh pasta to develop skills Plenary - evaluation Home learning: design a ready made product using nuts, tofu, beans or seeds	-understanding of herbs -successfully making a pesto dressing using a food processor with an understanding about what ingredients are used and where they come from	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
Half Term					
13	1, 2, 3, 5	To develop sensory testing skills To know how to record sensory tasting	Starter - sensory tasting in food industry Main - taste test of different alternative proteins, recording results on hedonic scale, ranking, star profile and in table Plenary - conclusion from results Home learning: research these commodities and their use in 2 different countries/cultures	-completed sensory analysis with recorded results	Response to marking in green pen

14	1, 2, 3, 4, 5, 6	To revise key words learnt and complete an exam paper	Starter - mind map of key words Main - exam paper Plenary - peer assessment Home learning: 3 questions you need to improve; revise and answer them again	-completed exam paper -improvements on exam technique for Home learning	Check Green pen comments using rapid marking
15	1, 3, 5, 6	To know what Textured Vegetable Protein is, how to cook with it, store it and where to buy it To understand the nutritional value of TVP and what diet it is suitable for	Starter - TVP provenance Main - any meat dish using TVP or Quorn as a replacement (e.g. bolognaise, stir fry, cottage pie) practical, alternative protein theory Plenary - evaluation of TVP Home learning: other alternatives for different cultures	-own choice of dish with meat alternative completed in 1 hour -understanding of nutritional value of meat alternatives	
16	1, 2, 3, 6	To develop understanding and knowledge of seeds To make bread using seeds	Starter - seeds and where they come from Main - bread practical using seeds (e.g. chicken stir fry with sesame/nigella seeds, bread rolls with seeds, flapjacks) Plenary - evaluation Home learning: sensory analysis of seeded product	-own choice of dish using seeds completed in 1 hour -understanding of where seeds come from and why they are used	
17	1, 2, 3	To understand how to use nutritional analysis software and to know why it is important to the food industry	Starter - YouTube clip on food designing in industry, Iceland? Main - food nutrition analysis on dish made in lesson 16. Full detailed analysis and extended writing Plenary - star profile on excel Home learning: practise food preparation skills over the summer and bring in at least 3 photos as evidence	-understanding of using the computer to analyse nutrition of dishes made in lesson 16 -to complete extended piece of writing developed from last lesson	
18	1, 2, 5, 6	To know how to make a biscuit with additional NSP	Starter - nuts and seeds in desserts Main - biscotti with seeds, NSP theory Plenary - criteria for biscuit making Home learning: write method for own experiment next lesson	-successful biscotti -understanding of NSP	In depth teacher marking including:

					WWW and EBI Question extending knowledge Formative comment
19	1, 2, 3, 4	To develop food investigation skills To explore alternative proteins to understand their properties	Starter: alternative protein match up Main - food investigation of own design Plenary - conclusion Home learning: exam question	-food investigation -developed knowledge of proteins	Response to marking in green pen
20	1, 2, 3, 6	To understand how to use beans to increase nutritional value and thickness of a sauce To understand what a casserole is To know how to cook sausages safely	Starter - ingredients in sausage meat Main - sausage casserole with lentils or bean practical , using beans to thicken a sauce theory, casserole cooking method Plenary - costing of beans and lentils Home learning: exam question	-successful casserole dish -understanding of casserole cooking method -understanding of using beans to thicken a sauce and knowledge of cost to bulk out a meal	Check Green pen comments using rapid marking
21	1, 2, 3, 4, 6	To know how to modify a basic recipe To demonstrate cake making technique To know how additional ingredients change the chemical structure of a cake	Starter - recap of cake ingredients and their function Main - cake with dry fruit or seeds practical , structure and texture of cake with added ingredients Plenary - group assessment Home learning - exam question	-successful cake -theory of cake structure with diagrams	
22	1, 2, 3, 5, 6	To know how to make a curry paste To understand labelling	Starter - labelling matchup definitions Main - curry paste either Indian or Thai Plenary - own label Home learning - exam question	-successful curry paste -label on a jar -labelling theory	
23	1, 3, 5, 6	To use curry paste to create a main course To know how to cook with paneer	Starter - paneer tasting Main - curry using chicken/tofu/paneer and paste made in previous lesson Plenary - star profile	-homemade curry -understanding of paneer	

			Home learning: nutritional analysis of homemade curry		
24	1, 3, 6	To plan a two course meal using nuts, seeds, beans, tofu or TVP as main protein To explain the nutritional value of choice of dish To complete dovetailed timeplan	Starter - example of timeplan WWW and EBI Main - planning two course meal depending on strengths, completing nutritional evaluation of plan and time plan Plenary - peer assessment	-developed and improved time plan writing -knowledge of commodities clear in planning -nutritional content understood	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
25	1, 3, 6	To create a two course meal suitable for a specific consumer high in these commodities	Starter - explain to another student what you are making and why Main - two course meal, own choice , time plan followed throughout with green pen adjustments Plenary - self assessment of skills including time management Home learning: collect feedback on dishes to use next lesson.	-completed and presented two course meal -understanding of nutritional value -adjusted time plan	Response to marking in green pen
26	1, 2, 3	To understand how to use nutritional analysis software and to know why it is important to the food industry	Starter - YouTube clip on food designing in industry, Iceland? Main - food nutrition analysis on own dish. Full detailed analysis and extended writing Plenary - star profile on excel Home learning: practise food preparation skills over the summer and bring in at least 3 photos as evidence	-understanding of using the computer to analyse nutrition of own dish -to complete extended piece of writing developed from last lesson	Check Green pen comments using rapid marking
End of Term					

Year 11 Autumn Term					
Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	NEA 1: Released 1st September, worth 15% of final GCSE	To develop research skills To understand NEA 1	ESP: Annotation of a photograph Home learning hand out Group work, students are given a food investigation title and told to briefly plan it in pairs, swap and peer assess. Select a final investigation to plan on own	Revision - how to revise theory, key sites to use Research, how to research, key sites to use Home learning out	Peer assessment green pen
2	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section A	ESP: give out PLC's for NEA. Fill in target grade, name and date given Start NEA 1 Section A; title, introduction and background information Complete PLC	NEA 1	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
3	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section A	ESP: check PLC	NEA 1	Students are not allowed feedback on

			NEA 1 Section A; hypothesis and prediction, plan of action Complete PLC		their investigation work as it is an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
4	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section A	ESP: check PLC NEA 1 Section A; plan of action and experiments Complete PLC	NEA 1 Home learning check	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
5	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section B	ESP: check PLC NEA 1 Section B; experiments Complete PLC	NEA 1	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 1 will be marked at the

					end of the 8 hours.
6	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section B	ESP: check PLC NEA 1 Section B; experiments and experiment write up with photos Complete PLC	NEA 1	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
7	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section B	ESP: check PLC NEA 1 Section B; experiments and experiment write up with photos Complete PLC	NEA 1 Home learning check	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
8	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section C	ESP: check PLC NEA 1 Section C; analysis of results Complete PLC	NEA 1	Students are not allowed feedback on their investigation work as it is

					an examined piece of work. NEA 1 will be marked at the end of the 8 hours.
9	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1 Section C	ESP: check PLC NEA 1 Section C; conclusion Complete PLC	NEA 1	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
10	NEA 1: Released 1st September, worth 15% of final GCSE	To complete NEA1	ESP: check PLC NEA 1; check all students have completed. Give this lesson as an extra if any have missed time. Complete paper work and collect in. Complete PLC Revision prompt cards using glossary in back of text book	NEA 1 Home learning check	Response to marking in green pen
11	Start revision of year 10 theory work	To know what and how to revise To practise writing timeplans including skill numbers, hygiene, safety	ESP: Find all PLC's from year 10. Spares will be in the filing cabinet at the beginning but will need photocopying. Correct and update.	Personalised revision PLC Practise timeplans	Check Green pen comments using rapid marking

		and including accurate timings	Create a personal revision checklist on the ones in red first and then amber Time plan practise for religion, special diet, age group Swap time plans and check in green pen		
12	Practise NEA2 project;	To know what NEA2 will consist of To develop researching skills	Practise NEA2 project; “Research and make 3 dishes that are suitable for a 10 year old child’s party” Complete plan of research, teach the differences between primary and secondary research	Plan of research Primary research understanding Secondary research understanding	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
13	Practise NEA2 project;	To know what a research analysis is an how to write one	Practise NEA2 project; Teach students how to do a research analysis and how to draw conclusions. Green pen peer assess	Home learning check Research analysis practise	Response to marking in green pen
Half Term					
14	Practise NEA2 project;	To know how to select suitable dishes To know how to explain choices and relate explanation to the question	Practise NEA 2 project; Select 4 dishes, explain selection, choose 1 dish to trial and explain why. Complete a time plan for next lesson	Selection of dishes Timeplan to use next lesson	Check Green pen comments using rapid marking
15	Practise NEA2 project;	To know how to conduct a trial and gather	Practise NEA2 project;	Trial dish	In depth teacher

		feedback from other students	Practical Trial of 1 dish. MUST COLLECT FEEDBACK FROM OTHERS USING PROFILING TEST Peer assess WWW and EBI.	Feedback from others using hedonic scale, star profile or taste table	marking including: WWW and EBI Question extending knowledge Formative comment
16	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	ESP: go back to PLC's and update for NEA 2 Explain NEA 2 and the chosen task. Students will complete a task description and a plan of research Update PLC	Task description Plan of research Home learning check	Response to marking in green pen
17	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	ESP: update PLC Primary and secondary research Update PLC	Primary research Secondary research	Check Green pen comments using rapid marking
18	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	ESP: update PLC Research analysis and choose 4 trial dishes with explanation Update PLC	Research analysis 4 trials with explanation	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 2 will be marked at the

					end of the 12 hours.
19	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	<p>ESP: update PLC</p> <p>Practical; 2 trial dishes</p> <p>Do not worry if students don't trial 4 - that is for the most able student - there is only enough time to trial 4 dishes if 2 can be made in 1 lesson. Trial's don't have to be complete dishes, they can be components or accompaniments such as a sauce or bread roll</p> <p>Take photos of the trials with candidate names, no faces</p> <p>Update PLC</p>	<p>2 trial dishes</p> <p>Home learning check</p>	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 2 will be marked at the end of the 12 hours.
20	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	<p>ESP: update PLC</p> <p>Practical; 2 trial dishes</p> <p>Do not worry if students don't trial 4 - that is for the most able student - there is only enough time to trial 4 dishes if 2 can be made in 1 lesson. Trial's don't have to be complete dishes, they can be components or accompaniments such as a sauce or bread roll</p> <p>Take photos of the trials with candidate names, no faces</p> <p style="text-align: center;">AND</p> <p>Select 3 dishes and explain choices</p> <p>Update PLC</p>	<p>2 trial dishes</p> <p>Dish selection</p>	<p>3 hour practical planning must be done so the students are ready to do their practical exam!</p> <p>-letters to parents</p> <p>-PP ingredients organised</p> <p>-TA's organised</p> <p>-every student</p>

					MUST be up to the same stage before the practical-plan another date for any who are ill on the day
21	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	<p>ESP: update PLC</p> <p>Practical: Compare selected dishes with 1 ready made one related to the dish selection made in lesson 20.</p> <p>Students will need to purchase one and compare them in detail. PP students can have theirs bought. Comparison must be suitable to task and should include ingredients, cost, portion, healthy eating, sensory properties etc.</p> <p>Summerise findings and link to exam task</p> <p>Update PLC</p>	<p>Product comparison with a shop bought product</p> <p>Summary of findings</p> <p>Home learning check</p>	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 2 will be marked at the end of the 12 hours.
22	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section A	<p>ESP: update PLC</p> <p>Timeplan including; shopping list, equipment list, skills, hygiene and accurate timings for next time</p> <p>Update PLC</p>	Completed time plan	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 2

					will be marked at the end of the 12 hours.
23	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section B	<p>ESP: update PLC</p> <p>3 hour practical exam including additional ½ hour preparation time at the start. 1 student per oven and sink. Exam conditions. Students must collect feedback from other students/teachers after their 3 hours. I would book the whole day, start at 9am to allow students ½ hour prep time, finish at 12 to do feedback and take photos with candidate name. In the afternoon students can finish clearing and draft their comments</p> <p>Update PLC</p>	3 dishes in 3 hour practical	Students are not allowed feedback on their investigation work as it is an examined piece of work. NEA 2 will be marked at the end of the 12 hours.
24	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section C	<p>ESP: update PLC</p> <p>Evaluation dish 1 and dish 2</p> <p>Update PLC</p>	<p>2 evaluations with photos</p> <p>Home learning check</p>	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment
25	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2 Section C	<p>ESP: update PLC</p> <p>Evaluation dish 3</p>	Evaluation 3 Suggestions Improvements	Response to marking in green pen

			Suggestions and improvements linked to exam task		
			Update PLC		
26	NEA 2: Released 1st November, worth 35% of final GCSE	To complete NEA 2	ESP: update PLC Finalise bibliography Number pages Proof read Exam paper work signing Update PLC	Bibliography Number pages Proof read Sign all exam paper work from exam board Home learning check - Home learning booklets to be collected and marked. Give a past paper as Home learning for over Christmas	Check Green pen comments using rapid marking
End of Term					

Year 11 Spring Term					
Lesson number	Link to GCSE AQA Specification	Learning objectives	Lesson Activities	Learning Outcomes	Assessment and Marking
1	NEA2 completion	To complete NEA 2 and begin revision	ESP: Update PLC for NEA2 Use this lesson to ensure that students have completed all coursework and paperwork If students have finished, go back to personalised revision PLC and create resources to help students revise those topics	NEA 2 complete Coursework paperwork signed off PLC complete for revision and NEA2	Students are not allowed feedback on their investigation work as it is an examined piece of

					work. NEA 2 will be marked at the end of the 12 hours.
2 and 3	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision over 2 lessons: Food Commodities chapter one in text book. Students need to know nutrition, storage, provenance and cooking method/preparation for; carbohydrates (bread, cereals, flour, oats, rice, potatoes and pasta), fruit and vegetables, dairy (milk, cheese and yoghurt), protein (meat, fish, poultry and eggs), alternative proteins (soya, tofu, beans, nuts and seeds) and fats and sugars (butter, margarine, oil, sugar and syrup).</p> <p>Could do a presentation, table of information, prompt cards on each one, poster, gain mind map</p> <p>Plenary: update PLC</p>	Exam question completed and corrected	
4	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: Macronutrients. Protein including HBV and LBV, too much or too little, illnesses related to nutrient, how much we need</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	In depth teacher marking including: WWW and EBI Question extending knowledge

					Formative comment
5	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: Macronutrients. Fats and Oils including saturated and unsaturated, sources, too much or too little, illnesses related to nutrient, how much we need</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	Response to marking in green pen
6	Revision	Revision of theory work	<p>ESP: update PLC</p> <p>Revision: Macronutrients. Carbohydrates including simple and complex, too much or too little, illnesses related to nutrient, how much we need, sources, Fibre NSP is not essential nutrient but body needs it</p> <p>Plenary: answer exam question</p>	Exam question completed and corrected	Check Green pen comments using rapid marking
7	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: Micronutrients. Vitamins. Water soluble B and C. Fat soluble ADEK. Where they come from, too much and too little, cooking methods to preserve vitamins</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	

8	Revision	Revision of theory work	<p>ESP: update PLC</p> <p>Revision: Micronutrients. Minerals including calcium, iron, magnesium and sodium. Where they come from, why they are needed in the body.</p> <p>Water; why we need it. What happens if we have too much or too little. Where we get it from (soup, fruit, yoghurt)</p> <p>Plenary: answer exam question</p>	Exam question completed and corrected	
9	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: Energy requirements of individuals page 60 - 67</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	
10	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: planning balanced diets pages 68 - 72. Include the Eatwell Guide, nutritional requirements and planning a menu for a consumer</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	In depth teacher marking including: WWW and EBI Question extending knowledge Formative comment

Half Term					
11	Revision	Revision of theory work	<p>ESP: update PLC</p> <p>Revision: planning a menu for babies, children, teenagers, adults and older people. Split the group into 5 and get them to present facts to the others about the dietary groups. 73-77 in text book</p> <p>Plenary: answer exam question</p>	Exam question completed and corrected	Response to marking in green pen
12	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: religion including hindu, muslim and jewish. Ethical beliefs, what they lack in and where their nutrition comes from, diets to lose weight</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	Check Green pen comments using rapid marking
13	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision:</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	
14	Revision	Revision of theory work	<p>ESP: update PLC</p> <p>Revision: planning a balanced diet for people with specific dietary needs or illnesses including:</p>	Exam question completed and corrected	

			<ul style="list-style-type: none"> -coeliac disease -type 2 diabetes -cardiovascular disease -coronary heart disease -stroke -obesity -calcium deficiency -anaemia and iron deficiency -dental caries -allergies and intolerances (nut and lactose) <p>Find a definition and recipe example for each illness. Large mindmap or prompt card</p> <p>Plenary: answer exam question</p>		
15	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: calculating energy and nutrients</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	
16	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: science of cooking of food including cooking methods and convection, conduction and radiation. Could cook eggs in different ways to look at heat transfer (boil, fry, poach, microwave, bake, grill)</p>	Exam question completed and corrected	In depth teacher marking including: WWW and EBI Question extending knowledge

			Plenary: answer exam question again to show progress		Formative comment
17	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: Food spoilage and microorganisms in cooking -signs of food spoilage -storing in the fridge, freezer and dry storage -growth of bacteria</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	Response to marking in green pen
18	Revision	Revision of theory work	<p>ESP:update PLC</p> <p>Revision: food poisoning and food wastage 4 types of food poisoning; campylobacter, salmonella, Ecoli and staphylococcus Food wastage - cost implications and result on the environment</p> <p>Plenary: answer exam question</p>	Exam question completed and corrected	Check Green pen comments using rapid marking
19	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: growing and rearing foods, food miles, packaging and labelling</p>	Exam question completed and corrected	

			Plenary: answer exam question again to show progress		
20	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: sustainability and food security -food choice and factors that affect it -culinary traditions -primary and secondary processing including technological developments of processing</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	
21	Revision	Revision of theory work	<p>ESP: Exam question related to the revision topic. AQA question bank has questions and mark schemes available</p> <p>Revision: preservation -freezing -freezer burn -pickling -jam making -bottling -vacuum packing</p> <p>Plenary: answer exam question again to show progress</p>	Exam question completed and corrected	
22	Revision	Revision of theory work	ESP: update PLC	Exam question completed and corrected	In depth teacher

			Revision: planning a balanced diet for people with high energy needs including: -illness -dietary or genetic conditions -sports people and athletes Plenary: answer exam question		marking including: WWW and EBI Question extending knowledge Formative comment
End of Term					

If year 11 still have lessons after half term up until their exam, the suggestion is to go over exam questions and how to answer them alongside the mark scheme. There are questions in the revision guide too.

Appendix 19: NEA 1 – Sample Framework Guidelines for the Assessment

Assessment 1: The Food Science Investigation

This task must be supported by investigational work – refer to guidelines given below.

Day	Lesson	Date	Task
	1		Introduce the brief for NEA task 1 Analyse the brief
	2		Create introduction
	3		Research information to support brief.
	4		Analyse research - create Hypothesis
	5		Step by plan for experiment and recording method
	6		Finalise plan 1 st experiment
		13 th Sept	1 st experiment trial
		Title	
			Create graphs, charts etc for results
			Analyse results
		20 th Sept	2 nd experiment trial
		Title	
			Create graphs, charts etc for results
			Analyse results
			Add conclusion and science information
		27 th Sep	3 rd experiment trial
		Title	
			Create graphs, charts etc for results
			Analyse results
			Add conclusion and science information
		4 th Oct	4 th experiment trial
		Title	
			Create graphs, charts etc for results
			Analyse results
			Add conclusion and science information

		11 th Oct	5 th experiment trial
		Title	
			Create graphs, charts etc for results
			Analyse results
			Add conclusion and science information
		21 st Oct	Assessment deadline

Write your investigative task.

Supportive Work Guidelines

Your supportive work should show evidence of the scientific principles underlying the preparation and cooking of food through research, investigation, trialling, modifying and developing, and evaluation.

The written evidence can be limited to a 2,000-2,500 word count.

The written evidence may be submitted electronically or as a paper version and must include evidence of the following:

- Section (a)** Research and investigate the task.
 Carry out research and produce a plan of experiments.
 Predict an outcome.
 Justify your choices for experimental work/modifications. **[10 marks]**
- Section (b)** Investigate the working characteristics*, functional* and chemical * properties of ingredients through **practical** experimentation and use the investigation findings to achieve a **particular result*** with respect to the **preparation and cooking** of food. **[20 marks]**
- Section (c)** Analyse and evaluate the task.
 Analyse the data and results collected, draw conclusions.
 Justify all findings and results.
 Evaluate the hypothesis and confirm if predictions were proven. **[10 marks]**

Additional guidance and clarification

Section (b)

***Working characteristics** refers to how the food/ingredient behaves, its performance or how it is used to its best advantage, when in a recipe cooked on its own, or as an accompaniment e.g. using block margarine for rubbing-in rather than low fat spread.

***Functional** refers to the purpose for which the ingredient is being used and can be linked to its: structure, nutritional value, taste, texture, appearance, shelf life etc. e.g., whisking an egg for a fatless sponge.

***Chemical** refers to actions that are irreversible and can refer to raising of products, setting, deterioration, degeneration, loss of nutritional content, loss of colour, loss of structure etc. e.g. the action of baking powder in baked products.

***Ingredients:** can refer to any food commodity, food/ingredient used as a component of a recipe or served as a single item.

***Through practical experimentation:** *can include* making modifications as appropriate to the brief i.e. changing ingredients, ratios, cooking methods.

***Particular result** can be: to improve the quality of final outcome through; increasing nutritive value, decreasing fat content, increasing fibre (NSP) content, enhanced taste, texture, appearance, etc.

Section (c)

You are advised to gather results from a range of preference testing; this could include sensory analysis, charts, and consumer feedback via peer assessment.

Grade Guidance Tracker

Date marked									
	Marks	Percentage	Grade	Marks	Percentage	Grade	Marks	Percentage	Grade
Section A		%			%			%	
Section B		%			%			%	
Section C		%			%			%	
Section D		%			%			%	

You may use the following template to help you organise your work, extra marks are given for individual presentation.

Task

Type the description of the task you have chosen here.

Introduction

This needs to be a brief analysis of the task. It can include a spider graph, but must show your conclusions written in full sentences. You must clearly identify what you need to consider when approaching the task.

Plan of action

It might be helpful to identify some key objectives that you would like to achieve.

This can be presented in bullet form, as a chart with some additional notes, a detailed spidergram or you could create a table. (See p.391 of text book.)

This is where you explain what you are planning to do, make sure you say (briefly) what you are hoping to find out too.

Research methods

You need explain how you will research your task and the sources you will use.

You need to identify the methods and tasks that you could undertake.

- *This can be shown as a list or a chart or a spidergram.*

(If you would like to do this as a kind of mind map you can do so in a separate Word document. Once it's completed, copy it in as an image and keep it quite small (but still readable!) so that it doesn't take up too much of your page allowance.)

Results and analysis of research

You need to summarise each research task – lists key findings, gives a brief analysis.

Use your key objectives as a starting point for your discussion during the Evaluation.

Write a summary of the research methods that you did (see p.390 of the textbook for ideas).

For each research method you use, make sure you say:

- *What you did.*
- *What you found out.*
- *How you can use this information in this task.*

Hypothesis

You need to briefly explain your idea as a starting point that you will then test through study and experimentation. You need to say what you think the outcomes of the experiments will be: what you expect to happen.

Experiments

1. (See p392–394 of the Illuminate textbook for an example of an experiment.)
2. For each experiment you do, make sure you complete the following
 - This must include your ingredients and equipment required for each experiment. You include photos of each step.
 - You must include a brief summary of the method you will use for the
 - experiment.
 - You must include photographs and explanations where appropriate.

Results

You must include clear photographic images that are labelled.

- You can present this as a chart with clear appropriate comments.

- You must include peer assessment (min of 3 other pupils)

Analysis of results

You can use graphs and charts to show your results with clear explanations summarising your results.

Conclusion

This must be a paragraph where you review the experiment and based on your findings, give suggestions for possible further experiments.

Science

You can either include references to the science behind your experiment throughout the report or you can complete a paragraph at the end detailing a clear explanation.

Word count:

*Write down how many words and remember your document should fill between **6 to 7 sides of A4 (2000–2500 words)**. However, you can exceed this, and no marks will be deducted.*

Use the following marking scheme tracker to check your progress, tick and date when you feel you have achieved the criteria to help you improve.

Assessment 1: The Food Science Investigation – marking scheme

Section A - Research and investigate the task: maximum 10 marks Candidates will be expected to:	<ul style="list-style-type: none"> • research the chosen task • produce a plan of experiments to be carried out • predict an outcome • apply knowledge and understanding to justify choices for experimental work/modifications 		
3 10 marks	Research reflects a mature understanding of the task and the ability to interpret information extremely accurately.		
	Plan is realistic, very detailed and accurate.		
	Excellent justification given for choice of experimental work/modifications.		
	Information is very well organised and presented in a highly appropriate manner.		
	Excellent use of specialist language, with accurate grammar, punctuation and spelling		
3 8-9 marks	Research reflects a sound understanding of the task and the ability to interpret information accurately.		
	Plan is realistic, detailed and accurate		
	Very good justification given for choice of experimental work/modifications.		
	Information is well organised and presented in an appropriate manner.		

	Very good use of specialist language, with accurate grammar, punctuation and spelling.		
2 6-7 marks	A good range of relevant research has been evidenced showing a good understanding of the task		
	Plan is mostly detailed and realistic.		
	Good justification given for choice of experimental work/modifications.		
	Information is generally well organised.		
	Generally good use of specialist language, with mostly accurate grammar, punctuation and spelling.		
2 4-5 marks	A range of relevant research has been evidenced, showing an understanding of the task.		
	Plan is fairly detailed and realistic.		
	Adequate justification given for choice of experimental work/modifications.		
	Information is mostly organised		
	Some use of specialist language, with reasonably accurate grammar, punctuation and spelling		
1 1-3 marks	Some basic aims produced leading to basic research from a narrow range of sources.		
	Some understanding shown, with limited application of knowledge.		
	Plan of action is limited.		
	Limited justification given for choice of experimental work/modifications Information shows some evidence of structure.		
	Limited use of specialist language. Some errors in grammar, punctuation and spelling affecting clarity of communication.		
0 marks	Not credit worthy or not attempted.		
Section B – (20 marks) Investigate and evaluate the working characteristics, functions and chemical properties of ingredients through practical experimentation:		Candidates will be expected to: <ul style="list-style-type: none"> demonstrate their ability to review and make improvements to the investigation by amending the ingredients to include the most appropriate ingredients, process and cooking method. demonstrate an understanding of the working characteristics and functional and chemical properties of the ingredients selected. record in detail the outcomes of their investigation, the modification and adjustments made during the preparation and cooking process, and the sensory preference tests carried out to formulate the results. 	
16-20 marks	The candidate has executed a range of modifications and trialling of ingredients whilst following their plan during the preparation and cooking processes.		

	An excellent, detailed knowledge and understanding of the working characteristics and functional and chemical properties of the ingredients selected during the investigation is evident by the decisions made.		
	Candidate has recorded in detail the investigation, the modification and adjustments made during the preparation and cooking process.		
	A wide range of tests have been carried out to include sensory preference tests and participant feedback to formulate the results.		
	Photographic evidence identifying the stages of the investigation have been well annotated and documented.		
	Results are well presented and clearly communicated in a logical manner using a range of different formats.		
10-15 marks	The candidate is able to follow their plan and carry out the investigation, modifying the ingredients, preparation and cooking processes during the investigation.		
	The candidate demonstrates good knowledge and understanding of the working characteristics and functional and chemical properties of the ingredients selected during the practical investigation, as evidenced by further decisions made.		
	The candidate has recorded the investigations and changes made during the preparation and cooking process.		
	A range of tests have been carried out, to include sensory preference tests and customer feedback, to formulate the results.		
	Photographic evidence identifying the stages of the investigation have been included with some annotation.		
	Results are presented in a logical manner using at least two different formats.		
6-9 marks	The candidate was able to follow their plan and carry out the investigation with limited modification, by amending the ingredients, preparation or cooking method.		
	The candidate shows adequate knowledge and understanding of the working characteristics and functional and or chemical properties of the ingredients selected during the practical investigation by the decisions made.		
	The candidate has recorded some of the modification and adjustments made during the preparation and cooking process.		
	A few tests have been carried out which include sensory preference tests and participant feedback to formulate the results.		
	Photographic evidence of the investigation have been included but not annotated. Results presented satisfactorily, using a more than one format.		
1-5 marks	The candidate struggles to follow the plan, limited changes are made to the investigation, requires teacher support.		
	Limited knowledge and understanding of the working characteristics and functional and chemical properties of the ingredients selected during the practical		
	A few tests were carried out which required teachers guidance.		

	A few results have been simply explained		
0 marks	Not credit worthy or not attempted.		
Section C	Candidates will be expected to:		
Analyse and evaluate the task: maximum (10 marks)	<ul style="list-style-type: none"> analyse the data and results collected, draw conclusions justify findings, the reasons for the success or failure of the ingredients selected to trial evaluate the hypothesis and confirm if the prediction was proven 		
10 marks	The candidate has analysed the task in great detail and conclusions presented are based on scientific knowledge and understanding of the ingredients selected, and the preparation or cooking methods used.		
	The candidate shows an excellent understanding of the task in their ability to justify their findings with very specific reasons given based on the methods used to gather the results.		
	The prediction is reviewed in depth and conclusions have been based on very accurate based on analysis of data and information from the research and investigation, demonstrating a clear in depth understanding of the task.		
	Writing is very well structured, using accurate grammar, punctuation and spelling. A broad range of specialist terminology is used with accuracy and ease.		
8-9 marks	The candidate has analysed the task in detail and conclusions presented are based on scientific knowledge and understanding of the ingredients selected, and the preparation or cooking methods used		
	The candidate shows a very good understanding of the task in their ability to justify their findings with clear reasons given based on the methods used to gather the results.		
	The prediction is reviewed and conclusions have been based on the accurate analysis of data and information from the research and investigation, demonstrating a clear in depth understanding of the task.		
	Writing is well structured, using accurate grammar, punctuation and spelling. Specialist terminology is used with accuracy and ease.		
6-7 marks	The results have been briefly analysed with reference to the research and investigation carried out.		
	The candidate shows an understanding of the task evidenced in their ability to justify their findings against the range of tests and the results		
	The prediction is reviewed and findings have been based on the analysis of data and information from the research and investigation. Adequate attempt to link the prediction back to the task. Adequate use of specialist vocabulary.		

	The results have been briefly analysed with reference to the research and investigation carried out.		
	Writing is generally well structured, using reasonably accurate grammar, punctuation and spelling. Specialist terminology is used appropriately.		
4-5 marks	The candidate shows some understanding of the task evidenced in their ability to justify some of their findings against the range of tests and the results.		
	The prediction is reviewed with some analysis of data and information from the research and investigation, some attempt to link the prediction back to the task.		
	Some specialist vocabulary has been used.		
	Writing is reasonably structured, using mostly accurate grammar, punctuation and spelling. Some specialist terminology is used appropriately.		
1-3 marks	A brief attempt has been made to interpret the information collected, analysis is simplistic with limited conclusions discussed and evaluated.		
	The candidate has shown limited understanding in the justification of the results.		
	The prediction has not been evaluated.		
	Writing shows some evidence of structure though limited use of specialist terminology. Some errors in grammar, punctuation and spelling affecting clarity of communication.		

Appendix 20: NEA 2 - Sample Framework Guidelines for the Assessment

20 assessment hours to include 3-hour practical exam

Answer **one** of either Option A or Option B.

Option A Example (These are only examples)

France is often considered the culinary capital of the world. Research, plan, prepare and cook three dishes (with accompaniments if appropriate) that showcase French cuisine. This task must be supported by investigational work – refer to guidelines given below.

Option B Example

“Kids’ school packed lunches are still full of junk food”, research finds. Research a range of dishes suitable for a child’s packed lunch. Plan, prepare and cook at least three dishes (with accompaniments if appropriate) that would meet the UK and UAE government’s advice for healthier packed lunches.

Supportive Work Guidelines

Your supportive work should show evidence of research, investigation, selection of dishes, justification, planning and evaluation.

It is recommended that your work be limited to no more than 30 pages (60 sides) of A4 or equivalent A3, comic sans font size 11/12. To include all photographs, graphs and charts.

The written evidence may be submitted electronically or as a paper version and must include evidence of the following:

Section (a) Research and investigate your chosen task (to include testing and trialling).

[10 marks]

Section (b) Plan the task: Select a final menu to be produced to showcase skills. Justify your choice of dishes and produce an order of work for the practical execution of the dishes.

[15 marks]

Section (c) Prepare, cook and present a menu of three dishes and accompaniments within a single 3 hour session.

Photographic evidence of the completed dishes is essential.

[45 marks]

Section (d) Evaluate the selection, preparation, cooking and presentation of the three dishes and any accompaniments. **[10 marks]**

It is an expectation that you will use the correct tools, safely and competently when carrying out a range of techniques. You will be expected to demonstrate essential hygiene rules and food safety principles, when storing, preparing, cooking and presenting food for this assessment.

No marks will be allocated to hygienic working as this is a mandatory requirement.

Independent Project Schedule				
			Analyse the tasks – choose your project	<ul style="list-style-type: none"> Consider possible solutions for both briefs. Create your introduction
			Research relevant information for your task and appropriate recipes. You need to have 2 instruments	<ul style="list-style-type: none"> Keep a record of all the websites you visit and the information you acquire. Research a wide range of recipes; a wide variety will help you challenge yourself and achieve higher marks.
			Create a questionnaire, interview, visit, case study	<ul style="list-style-type: none"> Create a questionnaire that will be relevant to the task. Distribute the questionnaire.
			Analyse questionnaire results etc	<ul style="list-style-type: none"> Use the results to help you justify your possible choices for your dishes. (minimum of 5-6 options)
			Justify reasons for choice of recipes,	<ul style="list-style-type: none"> Add to your report details of your research; include the results of your questionnaire. Show your awareness of seasonality and air miles etc
			Adapt and plan recipes for practical trial 1	<ul style="list-style-type: none"> Show the original recipes and how you adapted them to be suitable portion sizes.
			Create plan of making and shopping list	<ul style="list-style-type: none"> Make sure your plan of making is correct and you have an accurate list of ingredients.
WED	29/11	1/6	Practical recipe trials 1	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			adapted Step by step plan – order of works	Develop your step by step plan for your recipes – add health & safety awareness.
			Make improvements to plan	<ul style="list-style-type: none"> Respond to feed back.
			Create shopping list	<ul style="list-style-type: none"> Make sure your plan of making is correct and you have an accurate list of ingredients.
Thur	23/11		Theory – Food Commodities	
Wed	06/12	1/6	Practical recipe trials 2	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.

Thur	07/12		Theory – Cooking – Preparation of Food	
Wed	03/01	1/6	Practical recipe trials 3	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Work on report responding to feedback	
			Work on report responding to feedback	
Thur	04/01		Theory – Diet -Health	
Wed	10/01	1/6	Practical recipe trials 4	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Work on report responding to feedback	
			Work on report responding to feedback	
Thur	11/01		Theory – Principles of Nutrition	
Wed	17/01	1/6	Practical recipe trials 5	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Work on report responding to feedback	
			Work on report responding to feedback	
Thur	18/01		Theory – The Science of Food	
Wed	24/01	1/6	Practical recipe trials 6	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.

			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Work on report responding to feedback	
			Work on report responding to feedback	
Wed	07/02	1/6	Preparation for Final Practical	1 hour 30 mins in food room
Prepare for Final Exam – 1.30 in Food Room				
			Shopping list for final	<ul style="list-style-type: none"> Make sure your plan of making is correct and you have an accurate list of ingredients.
			Practical recipe trials – at home	<ul style="list-style-type: none"> Prepare and cook a selection of your chosen dishes.
			Evaluate recipe trials	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Dovetail recipes	Make sure your plans of making are correct and that all your time is accounted for and accurate.
			Dovetail recipes	Make sure you have identified all the health and safety and quality control points.
			Dovetail recipes & shopping list.	Make sure you have an accurate list of ingredients.
Practical Final Exam – 14th February 2024				
			Evaluation	<ul style="list-style-type: none"> Detailed evaluation for each of your recipes will help you finalise your final choice of dishes.
			Finalise report	Make sure that every section has been completed to maximise your marks.
Thur	15/02		Theory – Where food comes from	
Assignment deadline – 28th February 2023				

Appendix 21: Halal and Haram Foods

Ingredients to Avoid	Sources	May be Found in:
Alcohol	Wine, beer or spirits	Alcoholic drinks, desserts, confections, packaged foods, combination foods
Animal Shortening	Pork, non-Zabihah ¹ beef	Combination foods, baked products, desserts
Broth	Pork, non-Zabihah beef and chicken	Soups, sauces, other combination foods
Gelatin	Pork, non-Zabihah beef	Some desserts, candy, baked goods, ice cream, molded puddings, yogourt
Ham, bacon	Pork	Canned beans, deli meats, frozen dinners, processed foods, soups, Caesar salad, salad dressings
Lard	Pork	Bread, crackers, pies, baked products
L-cysteine	Pork, non-Zabihah beef	Dough, flour
Lipase	Pork	Cheese, processed cheese, products containing cheese or yogourt
Mono and diglycerides	Pork, non-Zabihah beef	Bread, baked products, processed foods, animal shortening and some margarines ²
Pepsin	Pork	Cheese, yogourt
Rennet	Pork, non-Zabihah beef	Cheese, yogourt
Sodium stearoyl-lactylate	Pork, non-Zabihah beef	Bread
Vanilla extract ³	Pure or artificial vanilla extract	Baked products, confections, desserts, candies
Whey ⁴	Milk	Cheese, crackers, combination foods

1. **Zabihah** means slaughtered according to Islamic dietary laws.

2. **Some margarines** may contain monoglycerides and diglycerides from animal sources.

3. **Vanilla** in powdered form can be used.

4. **Whey** is Haram if prepared with non-microbial enzyme.

Halal Foods (Permitted Foods)		Haram Foods (Not Permitted)	
Grain Products			
✓ Rice ✓ Pasta ✓ Any grain product, such as bread, breakfast cereal or baked goods prepared without Haram ingredients		✗ Any grain products prepared with Haram ingredients such as alcohol, animal shortening, lard or pure and artificial vanilla extract (see page 4)	
Vegetables and Fruit			
✓ All vegetables and fruit: raw, dried, frozen or canned. ✓ All vegetables and fruit cooked or served with water, butter, or vegetable oils ✓ All juices		✗ Any vegetables and fruit prepared with alcohol, animal shortening, bacon, gelatin, lard or some margarines which contain monoglycerides or diglycerides from an animal source	
Milk and Milk Products			
✓ Milk ✓ Yogourt, cheese and ice cream made with bacterial culture or microbial enzymes, e.g. microbial rennet		✗ Cheese, yogourt, ice cream, frozen tofu desserts made with animal rennet, gelatin, lipase, pepsin, pure or artificial vanilla extract or whey	
Meat and Alternatives			
✓ Meat and poultry slaughtered according to Islamic dietary law (Zabihah) ✓ Seafood ✓ Nuts, seeds ✓ Tofu ✓ Dried beans, peas and lentils		✗ Pork and pork products, e.g. bacon, deli meats, ham and sausage ✗ Meat and poultry not slaughtered according to Islamic dietary law ✗ Canned beans, peas and lentils containing pork ✗ Any meat and meat alternative dish prepared with alcohol, pork products or animal shortening	
✓ Eggs ✓ Peanut butter ✓ Halal deli meats			
Other			
✓ Beverages: carbonated drinks, fruit juice, punch, cocktails, tea and coffee ✓ Fats and oils: butter, margarine, mayonnaise, vegetable oils and some salad dressings ✓ Miscellaneous: chutneys, coconut milk, jam, pickles, spices ✓ Desserts made with agar and/or carrageenan base only ✓ Sweeteners: honey, sugar, syrup, chocolate liquor (roasted ground cocoa bean syrup)		✗ Beverages: beer, wine, alcohol, liqueur ✗ Fats and oils: animal shortening, lard ✗ Miscellaneous: chocolates/candies made with alcohol or pure or artificial vanilla extract ✗ Desserts made with gelatin ✗ Sweeteners: chocolate liqueur (made from alcohol)	
Combination Food			
✓ Main dish entrées: any Zabihah meat or alternative dish, pizza, pasta or rice prepared without Haram foods and ingredients ✓ Soups/sauces: any made without Haram foods and ingredients ✓ Desserts and sweets: any made without alcohol, or without pure or artificial vanilla extract or any other Haram ingredient		✗ Main dish entrées: any combination foods prepared with Haram foods and ingredients ✗ Soups/sauces: any prepared with Haram foods and ingredients ✗ Desserts and sweets: any prepared with alcohol, pure or artificial vanilla extract or any other Haram ingredient	

Appendix 22: Paper 1 Written Mock Exams (Samples Analysed)

GCSE Food Preparation & Nutrition – Principles of Nutrition Assessment

Name: _____

Target Grade	Assessment Grade	Re-mark grade

1. Match the macronutrients to their correct functions (3)

Protein
Carbohydrate
Fat

Insulation & Energy
Energy
Growth & Repair

2. Name 3 sources of carbohydrate (3)

I. _____

II. _____

III. _____

3. Complete the table below on the source and function of vitamins (5)

Vitamin	Source	Function
A		Healthy Immune System
D	Oily Fish & Eggs	
E		Healthy Skin & Eyes
K	Dark green leafy vegetables	Wound Healing and Blood Clotting
C		

4. State the source and function of one of the B vitamin group (2)

Vitamin B _____

Source: _____

Function: _____

5. Describe the function of Iron in the diet (2)

6. Name a source for the following types of Iron (2)
- I. Heam iron: _____
 - II. Non-Heam iron: _____
7. Evaluate the role of salt in the diet (6)
{Remember to discuss the importance of salt in the diet and the dangers of consuming too much salt}
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
8. Name 2 of the 4 trace elements (4)
- I. _____
 - II. _____
9. What 3 chemical elements make up the composition of carbohydrate? (3)
- I. _____
 - II. _____
 - III. _____
10. What proportion of the diet should come from starchy carbohydrate? Circle the correct answer (1)
- 1/2 3/4 1/3
11. Name the three types of carbohydrate, one has been completed for you (2)
- I. *Monosaccharides*
 - II. _____
 - III. _____
12. Name 3 functions of fibre in the diet (3)
- I. _____
 - II. _____
 - III. _____
13. Describe the difference between intrinsic sugars and extrinsic sugars (3)
- _____
- _____
- _____
14. Discuss the dangers of consuming too much sugar in the diet (6)

15. Name 2 sources for each of the following types of protein (4)

I. Low biological Value Protein

i. _____

ii. _____

II. High biological Value Protein

i. _____

ii. _____

16. What are known as the 'building blocks' of protein? (1)

17. Describe the term 'complimentary proteins' (3)

18. Name 2 sources for each of the following types of fat (4)

I. Saturated Fat

i. _____

ii. _____

II. Unsaturated Fat

i. _____

ii. _____

19. Name 2 health conditions associated with a diet high in saturated fat (2)

I. _____

II. _____

20. Name 3 symptoms of dehydration

I. _____

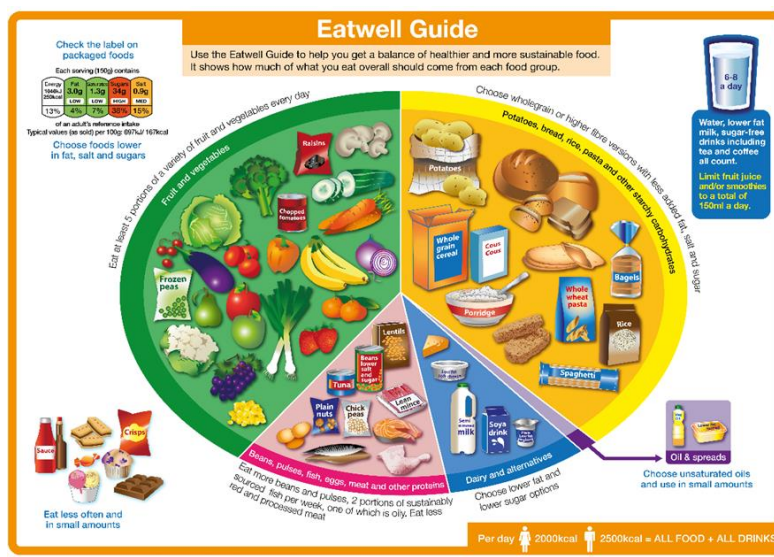
II. _____

III. _____

GCSE Food Preparation & Nutrition – Diet & Good Health Assessment

Target Grade	Assessment Grade	Re-mark grade

Name: _____



1. Above is a copy of the Eatwell guide, the following questions are related to the Eatwell guide:
 - i. Name the 2 main nutrients provided by the green and yellow sections (2)
 - ii. What is the main nutrient provided by the beans, fish, eggs and meat section? (1)
 - iii. What is the main nutrient provided by the dairy section? (2)
 - iv. Name 2 functions of fat in the diet? (2)
 - v. What proportion of the diet should be provided by the yellow section? (1)

2. Tick true or false for the following statements (3)

	True	False
We should have a diet high in fat and sugar		
We should have 5 portions of fruit and veg every day		
We should drink 6 – 8 glasses of water every day		

3. Name 4 of the 8 tips for healthy eating/living (4)

- a. _____
- b. _____
- c. _____
- d. _____

4. Discuss the benefits of eating a healthy and varied diet (6)

Per 100g	Cereal A	Cereal B	Cereal C
Sugar	8g	4.4g	24g
Fibre	3g	10g	9g
Carbohydrate	84g	69g	69g
Salt	1.13g	0.28g	1g
Iron	8mg	12mg	8.8mg
Protein	7g	12g	8g

5. Above is the nutritional information for 3 different breakfast cereals.

Answer the following questions relating to the information (4)

- a. Which breakfast cereal contains the least amount of sugar per 100g?

- b. Which breakfast cereal contains the most amount of fibre per 100g?

- c. Which cereal has the highest Iron content per 100g?

- d. Which cereal contains the least amount of salt per 100g

6. Explain the differences in the dietary needs between teenagers and the elderly (4)

7. Jenny has recently been diagnosed with anaemia, suggest 4 foods that Jenny should include in her diet to help her overcome her condition (4)

- a. _____
- b. _____
- c. _____
- d. _____

8. Matthew has recently been diagnosed with type 1 diabetes, below give Matthew some advice to help him manage his condition (5)

9. Match the correct food intolerances to the description (2)

Coeliac

Cannot eat dairy products

Lactose Intolerant

Cannot eat Gluten or wheat

10. Religious beliefs have an influence on many people diets, in the table below state one food that each of the religions are forbidden to eat.(3)

Hindu	
Jewish	
Muslim	

11. Below are 3 examples of foods found on a children's menu, give 2 adaptations to each item that will make them a healthier choice (6)

Menu Item	Adaptations
Deep fried chicken nuggets served with chips and beans	i. _____ ii. _____
Beef burger in a white seeded bun served with potato wedges	i. _____ ii. _____
Macaroni cheese and Garlic Bread	i. _____ ii. _____

12. Discuss the dangers of a diet which is high in fat, salt and sugar (10)

GCSE Food Preparation & Nutrition – Cultures & Cuisines

Name: _____

Target Grade	Assessment Grade	Re-mark grade

1. Which country do the following foods originate from? (10)

Food	Country
Ravioli	
Meatloaf	
Moussaka	
Cassoulet	
Soda Bread	
Patatas Bravas	
Sauerkraut	
Borsch	
Saag Aloo	
Dim Sum	

2. Name 3 dishes that are typically British (3)

I. _____
 II. _____
 III. _____

3. Name 3 ingredients found in Indian cuisine (3)

I. _____
 II. _____
 III. _____
 —

4. Name 1 food from the following British regions (3)

I. Wales - _____
 II. Scotland - _____
 III. Cornwall - _____

5. Describe the term 'staple food' including an example of a 'staple food' (4)

6. Name 1 piece of equipment typically used in Chinese cuisine (1)

7. Name 1 type of bread found in the following cuisines (3)

- I. Mexican - _____
II. Indian - _____
III. Greek - _____

8. Name 2 ingredients found in the Japanese dish 'Sushi' (2)

- I. _____
II. _____

9. Miquel is opening a Spanish restaurant in Gloucester and is looking for recommendations for dishes that he could include on his menu. Suggest 3 dishes for Miquel to consider (3)

- I. _____
II. _____
III. _____

10. There has been a huge rise over a number of years in the UK of restaurants and takeaways from multinational cuisines.
Discuss the reasons why multicultural foods have become a popular food choice in the UK (10)
