The Warriner School Subject Curriculum Map

Subject: **Food – Preparation and Nutrition**	Year Group: Key Stage 10	GCSE

By studying food preparation and nutrition learners will:

- To know effective and safe cooking skills by planning, preparing and cooking a variety of food commodities whilst using different cooking techniques and equipment
- To know knowledge the functional properties and chemical characteristics of food as well as a sound knowledge of the nutritional content of food and drinks
- To know the relationship between diet, nutrition and health, including the physiological and psychological effects of poor diet and health
- To know the economic, environmental, ethical and socio-cultural influences on food availability, production processes, diet and health choices
- To know the functional and nutritional properties, sensory qualities and microbiological food safety considerations when preparing, processing, storing, cooking and serving food
- To know a range of ingredients and processes from different culinary traditions (traditional British and international) to inspire new ideas or modify existing recipes.

Context for study:

This specification builds on subject content which is typically taught at Key Stage 3.

Year 7 – Health and Safety, Food Hygiene
Year 8 – Healthy Eating, The Eatwell Plate, Nutrients – vitamins and minerals, Fibre, Energy, Food Provenance
Year 9 – Food Provenance, Food Miles, Food Choices – ethical, moral, social, choice of cuisine, Nutritional Analysis of Food

In addition, the specification provides a coherent, satisfying and worthwhile course of study for learners who do not progress to further study in this subject.
The specification will enable learners to make informed decisions about a wide range of further learning opportunities and career pathways.

Sequence of learning: *Knowledge content - list of statements of what students should know by progressing through this unit (identify key tier 2/3 vocabulary in* **bold***)*

Term 1:

Pupils should know:

Commodity: Fruit and vegetables, including potatoes (fresh, frozen, dried, canned and juiced)

Food Provenance:

How/where fruit and vegetables are grown, link to climate, soil types
The difference between **organic verses non-organic** (Soil Association, etc.)
How **pesticides and herbicides** are used in the food industry – discuss possible impact on health
How customer choice can be linked to cost – discuss
What are **Food miles**

And understand the concept of **Seasonality**

How commodity is grown/reared and processed:

Select one or two appropriate fruits/vegetables and discuss growing, harvesting, etc. Suggest link to your own area, e.g. West Country – apples, peas (lots of online videos to show growing, harvesting, storage and processing)

The difference between **primary and secondary processing**

How food can be **preserved** (carry out a taste test on one fruit/vegetable by looking at **fresh, frozen, canned, dried, jam, juiced**, etc.) - link in with methods of sensory testing

That due to cooking there are changes to **texture, colour and flavour**

Classification:

The difference between fruits and vegetables **– leaves, stems, roots, tubers, bulbs**, etc.

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

And understand the concept of **5 a day** – link to Eatwell plate
The function of **dietary fibre – soluble and insoluble**
Why we need **water**
The role of **vitamins and minerals** (cover **A, B, C, D, calcium and iron**), and include **complementary actions** of the nutrients
The specific roles of **vitamin C** and **iron/vitamin D** and **calcium**
What are our nutrient requirements – link to different life stages
The role of **fat and water soluble vitamins** – effect of oxidation, heat on vitamin content of fruits and vegetables
The nutrient content of a specific fruit or vegetable – fresh, frozen, canned, dried, etc.

Dietary considerations:

That people make **food choices** and why - **Vegetarians (lacto/lacto-ovo/vegan**)
That food choice can affect our heath:
Bone health – link in with vitamin D and calcium
Healthy blood – link in with vitamin C and iron

Food science:

The composition of fruits and vegetables
What **oxidation/enzymic browning** is

Food hygiene and safety:

Good practice in relation **to personal hygiene** –
Refrigeration temperatures
Why it is important to wash fruits and vegetables?
The importance of **Use-by** and **Best Before** dates
What is and the importance of **stock rotation**

Storage:

Why there is a loss of nutrient content over time; mention potatoes and **solanine** (green due to storage in light) - Ambient
Where in fridge should items be stored? Reinforce refrigeration temperatures - Chilling
Why canned foods should be **decanted** after opening, if not used immediately
That **blanching** slows down **enzymic browning**, the concept of home freezing, large scale freezing (nitrogen). Reinforce freezing temperatures - Freezing

Practicals to include:

Apple Crumble
Banoffee Pie
Fruit Kebabs
Vegetable Stir Fry
Vegetable Soup
Fruit filed Swiss Roll

Skills:

1, 2, 4, 5, 9, 13, 20, 1, 2, 5, 6, 8, 9, 19, 20, 1, 5, 6, 7, 8, 12, 15, 16, 19, 20

Term 2:

Pupils should know:

Commodity: Milk, cheese and yoghurt

Provenance:

The debate between **local versus nationally** distributed and also **imported**
Bring in cost and impact on milk prices for farmers livelihood
Why consumers may choose **organic food**
What is **food wastage** and **sustainabilit**y?

How commodity is grown/reared and processed:

How animals are **reared, fed and milked**. Animal sources of milk
The different methods of preserving milk (**drying, UHT, pasteurisation**, etc.) –link to convenience foods
The importance of hygiene for effective food safety **(heat treatment**)
The effect on nutritional content from processing
Examples of **secondary processing** – milk to cream, yoghurt, cheese, etc. Videos available online to show processing

Classification:

Different **animal sources** (also link in non-dairy milk – e.g. nut, soya, coconut; alternatives to non-dairy cream)
How they are **secondary processed** – to cream, yoghurt, cheese, etc.
Different types of milk – skimmed, semi-skimmed, etc.
Different types of cream – whipping, soured, etc. (link to fat content)
Different types of cheese – hard, soft, etc. (link to fat content)

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

Nutrient requirements (linked to different life stages)
Protein – HBV and discuss amino acids
Fats – saturated
Recap on vitamins and minerals (**cover vitamins A and D and calcium**), and include complementary actions of the nutrients
vitamin D and **calcium**
Fat soluble vitamins A and D
Trace element – iodine
Effect on nutritional content from processing

Dietary considerations:

Link to **bone health**:
Calcium and vitamin D
Link to **allergies**:
Lactose intolerance from cow milk (why?)
What are the alternatives?
Link to heart health:
Fat content and type

Food science:

Chemical and physical structure of dairy based products
Emulsion – explain why milk is an emulsion
Denaturation and **coagulation** of milk proteins
Making cream, butter, yoghurt – the science behind it
Making cheese – use **of rennet (curds and whey**). Benefits of bacteria in the making of yoghurt, cheese, etc.
Effect of heat on cheese

Food hygiene and safety:

Concept of **high-risk foods** (dairy being a category)
How bacteria multiply
How to avoid **cross-contamination**
Why heat-treating raw milk is important – link to food science
How should dairy based products be stored? Temperatures?

Storage:

Link to dried, cartons, unopened and opened cans, fresh, frozen, etc.
What are suitable conditions for storage? Why?

Practicals to include:

Sweet potato and goats cheese ravioli
Pasta Bake (cheese sauce)

Skills:

2, 5, 6, 8, 9, 17, 18, 19, 20, 1, 2, 5, 6, 12, 13, 19, 20

Term 3:

Pupils should know:

Commodity: Cereals (including flours, breakfast cereals, bread and pasta)

Provenance:

How climate, soil, etc., affects the types of cereals which can grow **GM crops** – discuss
Cereal – as a **staple food;** impact of crop failure on health of a nation (link to sustainability and world health)

How commodity is grown/reared and processed:

Look at how cereals are grown, harvested and processed
General structure of grain – **endosperm, germ** and **bran**
Suggest focusing on wheat and rice as there are many resources available online
Milling of wheat into flour – key processing stages
Secondary processing:

Breakfast cereals – use different grains and look at sugar and salt content (link in food labelling on packaging – look at breakfast cereal packaging to compare cereal types and nutrients – how healthy are the cereals? Also, link in function of packaging and environmental impact, and marketing of breakfast cereals – who are these cereals aimed at?)

Wheat into bread types, pasta
Key stages in the bread making process
Key stages in the pasta making process

Classification:

Look at the range of cereals grown and eaten across the world
Link secondary processing to selected cereals:
Wheat – wholemeal, white, self-raising, semolina, etc.
Rice – brown, white, basmati, Arborio, rice flour, rice vinegar, etc.
Oats – rolled, oatmeal, etc.
Discuss **gluten-free** flour

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

Cereals are a **staple food** (primary source of **carbohydrate**)
Energy requirements (link to different groups)
Balance of energy input with energy output
Nutrient requirements (link to different life stages)
Carbohydrate – **starch**
Dietary fibre (NSP**: non-starch polysaccharide**) – soluble and insoluble
B vitamins
Effect of nutrient absorption due to presence of phytates
Principal of **fortification** of food in the context of flour and breakfast cereals
Water soluble vitamin B group – effect of cooking

Dietary considerations:

Importance of **wholegrains** to reduce risk of heart disease,
type 2 diabetes and control blood **cholesterol**
Link to effect of low-fibre diet:
Haemorrhoids, diverticulitis, cancer of the colon
Deficiencies:
Beriberi – lack of thiamin (vitamin B1)
Pellagra – lack of niacin (vitamin B3)
Allergies:
Coeliac disease

Food science:

Chemical and physical structure of cereal grains

Gluten formation, gelatinisation, coagulation, dextrinisation, retrogradation
Gels

Breadmaking:
- Scientific principles, including problem solving
- **Chorleywood** process in breadmaking
- **Vitamin C (ascorbic acid)** in large scale bread manufacturing

Yeast as a raising agent
Recap on types of raising agents and discuss their principles

Food hygiene and safety:

Concept of **low-risk foods** (exception includes cooked rice)
Food spoilage – mould, etc.
Food safety issues with cooked rice

Practicals to include:

Risotto
Flaky Pastry Bacon and Cheese Turnovers
Profiteroles
Pesto Pasta
Chelsea Buns

Skills:

NEA Assessment 1 practise investigation:

1. What are the Optimum Conditions for Leavened Bread?
   Introduce using a worked template – experiment given

2. Which type of flour traps the most carbon dioxide and ethanol?
   Use a worked template – experiment devised

Term 4:

The students should know:

Commodity: Meat, fish, poultry, eggs

Provenance:

Look at and compare geographical areas where meat, fish, poultry and eggs are reared/produced
Discuss local verses imported (e.g., Welsh lamb verses New Zealand lamb, North sea fishing verses southern hemisphere fishing, local eggs verses imported eggs from Europe)
Compare sea fish and farmed fish (can link to fish quotas and availability/ethical fishing – Marine Stewardship Council, etc.)
Intensive farming verses **natural farming**
Link to **animal welfare**

How commodity is grown/reared and processed:

Links in with **provenance**
Look specifically at an animal of your choice, and review how this animal is farmed/reared and slaughtered (cattle, pigs, sheep, etc.)
Link to animal feed (can reference BSE) and shelter
How fish (including shellfish) is caught – again, reference sea fish and farmed fish (fish quotas and availability/ethical fishing)
Poultry (including eggs) – how poultry is reared and slaughtered/how egg farming is conducted (different animal sources as well as hens eggs). Can mention game, briefly
Secondary processing:
Cuts of meat and poultry, processing into bacon, ham, sausages, pies, etc. (link to methods of preservation)
Offal
Cuts of fish (whole, steaks, filets, etc.)
Eggs – pasteurised whole/white/yolk (link to food safety and convenience)

Classification:

Animal types
Cuts of meat (link in methods of cooking – tender versus tough cuts, and cost)
Gelatine
Categories of fish – **white/oily/shell**, etc., also flat, round, etc. (link in preservation – canned, smoked, etc.)
Types of egg

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

Nutrient requirements (link to different life stages)
Protein (HBV)
Saturated fat
B vitamins
Iron (include complementary action of vitamin C with iron)
Trace element – iodine and fluoride in fish and shellfish
Health benefits of eating

Dietary considerations:

Implications of excess or deficiency of protein
Healthy blood **– iron (haem and non-haem iron)**
Iron deficiency, and recap on complementary actions of vitamin C and iron
Health benefits of **omega 3**
Include religious considerations when eating meat

Food science:

Chemical and physical structure of meat, fish, poultry and eggs
Denaturation (e.g. uncoiling of protein molecules when making meringues)
Coagulation (e.g. setting of egg in cakes)
Foaming (e.g. formation of foam when whisking egg white protein)
Aeration
Connective tissue in meat and fish – how this should affect the cooking method
Maillard reaction

Food hygiene and safety:

High risk foods – link to specific **food poisoning bacteria**, correct storage temperatures
How to tell if meat is 'off'
Can link to preservation (e.g. dried meat, canned meat, pie fillings, smoked sausages, dried egg, etc.)
How to tell fish is fresh
Lion mark on egg

Storage:

Link with food hygiene and safety, also link with
preservation (e.g. how to store diced, frozen, canned foods as well as fresh foods)

Practicals to include:

Sausage rolls
Beef burgers
Meatballs in tomato sauce
French trimmed deep fried marinated chicken leg, potato wedges and mayonnaise
Scotch Eggs

Skills:

3, 5, 6, 7, 12, 17, 18, 19, 20, 1, 2, 3, 5, 6, 10, 11, 19, 20, 1, 2, 5, 6, 9, 13, 19, 20

Term 5:

Pupils should know:

Commodity: Butter, oils, margarine, sugar and syrup

Provenance:

Recap on:
Food miles (UK verses imported raw materials to make the butter, oil, margarine)
Where is sugar cane and sugar beet grown?
Organic verses non-organic, GM

How commodity is grown/reared and processed:

Butter, oils, margarine
Butter – how is butter made?
Oils/margarine – growing of vegetable crop for oil production, include pressing (mention fish oil)
Processing of margarine – different oil types used, fortification
Sugar and syrup
Cane and beet (climate requirements), refining process, process of making syrup
Primary processing:
Oil, sugar
Secondary processing:
Butter, margarine, sugar syrups

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

Butter, oils, margarine
Nutrient requirements (linked to different life stages)
Energy dense
Saturated and unsaturated fats
Calcium and vitamin content
Fortification
Sugar and syrup
Empty calories, link to weight gain, **obesity**, dental caries, type 2 diabetes, etc.
Free sugars

Dietary considerations:

Butter, oils, margarine
Energy dense
Implications of a diet high in saturated fat
Making sensible choices on fat type (unsaturated, etc.)
Lower fat alternatives
Fat soluble vitamins

Sugar and syrup
Consider sugar alternatives, including natural sugars
Again link to obesity, type 2 diabetes and dental caries

Food science:

Butter, oils, margarine
Chemical and physical structure of butter, oils, margarine
Hydrogenation of oils to produce hard fats – health implications

Plasticity
Shortening
Emulsification – make butter
Melting point/smoke point
Sugar and syrup
Chemical and physical structure of sugar and syrup

Caramelisation

Food hygiene and safety:

Butter, oils, margarine
Discuss storage relating to rancidity
Sugar and syrup
Low risk – cover foreign bodes, pests, etc.

Storage:

Butter, oils, margarine
Where should butter and margarine be stored?
Reinforce chilled food temperatures
Where should oil be stored? Discuss effect of light on quality and longevity of oil
Sugar and syrup
Where should sugar be stored? Why is humidity a consideration?
Syrup storage? **Crystallisation?**

Practicals to include:

Fairy cakes
Rough puff/flaky pastry
Shortcrust pastry
Chocolate brownies
Swiss Rolls

Skills:

1, 2, 5, 6, 7, 8, 12, 15, 16, 19, 20, 5, 7, 12, 17, 19, 20, 5, 7, 12, 17, 19, 20, 1, 2, 3, 5, 6, 7, 8, 12, 15, 16, 19, 20

Term 6:

The pupils should know:

Commodity: Soya, tofu, beans, nuts, seeds

Provenance:

Recap on how/where soya, beans, nuts and seeds are grown, link to climate, soil types
Organic verses non-organic
Food miles
Seasonality

How commodity is grown/reared and processed:

Soya, tofu
How soya beans are cultivated
Secondary processing:
How soya is processed into tofu, TVP (**textured vegetable protein**), and link back to soya milk
How beans (pulses/legumes), nuts and seeds are grown
Include: **mycoprotein** (Quorn TM) – what it is derived from, how it is processed into mycoprotein
Secondary processing:
Beans (legumes) – link to preservation (drying and canning)
Nuts – ground, flaked, nibbed, etc.
Seeds – drying, etc.

Classification:

Soya products – milk, yoghurt, TVP, tofu, tempeh
Beans (legumes) – red kidney, black eyed, aduki, etc.
Nuts – brazil, cashew, almonds, etc. (include a discussion on 14 allergens)
Seeds – sesame, poppy, caraway, etc.

Nutritional values (include sources, functions, deficiencies, excess, daily requirements):

Soya products and Quorn TM
Protein, amino acids, HBV source
Beans (legumes), nuts and seeds
Protein, amino acids, LBV source

Complementing proteins
High in fibre and other nutrient sources

Dietary considerations:

Soya products and Quorn TM
Good HBV source for vegetarians
Beans (legumes), nuts and seeds
Good LBV source for vegetarians
Nuts – high in good fats
Allergies:
Nuts (link to 14 allergens)
Fibre source – recap on soluble and insoluble

Food science:

Soya products and Quorn TM
Beans (legumes), nuts and seeds
Nuts as a **thickener**

Food hygiene and safety:

Soya products and Quorn TM
Recap on storage temperatures
Beans (legumes), nuts and seeds
Keep nuts away from other food sources – risk of allergen contamination
Discuss nut storage relating to **rancidity**

Storage:

Soya products and Quorn TM
Recap on chilled, frozen, ambient, and discuss suitable storage
Beans (legumes), nuts and seeds
Discuss suitable storage (mostly ambient)
Rancidity of nuts – how to avoid this

Practicals to include:

Vegetable and bean casserole
Honey and sesame seed chicken

Skills:

1, 2, 5, 6, 9, 13, 19, 20, 1, 5, 6, 10, 12, 19, 20,

NEA Assessment 2 practise investigation:

Celebration
2 dishes + accompaniments

1 two hour cook

Expected outcomes –

- Dish Research
- Evidence of trialling and dish development – two 1 hr. trials
- Costings
- Equipment
- Time Planning
- Evaluation
- Presentation

Possible Misconceptions and adaptive responses to these: *identified through formative assessment/retrieval practice/diagnostic questioning.*

- Q&A during the lessons
- Ability to correctly identify methods of manufacture in order
- Short answer questions that demonstrate understanding and AfL
- Use of exam questions(decoding)

Assessment/Final outcomes: *How will students apply their deep learning in a meaningful way that respects the subject's discipline?*

Baseline and low-stake testing
Practical outcomes – Linked to Skills
NEA2 practice exam
Regular assessment tasks supporting learning objectives focussing on key learning through food commodities – exam questions used to develop examination skills and technique
Formative Summative Assessment Task- when all content surrounding commodity delivered

Literacy and Oracy development opportunities:
Reading:

Pupils should be taught to understand increasingly challenging texts through:
• learning new vocabulary, relating it explicitly to known vocabulary and understanding it with the help of context and dictionaries;

Writing:

Pupils should be taught to write accurately, fluently, effectively and at length for pleasure and information through:
• summarising and organising material, and supporting ideas and arguments with any necessary factual detail;
• applying their growing knowledge of vocabulary, grammar and text structure to their writing and selecting the appropriate form;
Pupils should be taught to plan, draft, edit and proof-read through:
• considering how their writing reflects the audiences and purposes for which it was intended;
• paying attention to accurate grammar, punctuation and spelling;

Grammar and vocabulary:

Regular NEA 1 practice throughout the year: Application of scientific knowledge Developing and testing hypotheses in response to a set task	Pupils should be taught to consolidate and build on their knowledge of grammar and vocabulary through: • using Standard English confidently in their own writing and speech; Spoken English: Pupils should be taught to speak confidently and effectively, including through: • using Standard English confidently in a range of formal and informal contexts, including classroom discussion; • giving short speeches and presentations, expressing their own ideas and keeping to the point; • participating in formal debates and structured discussions, summarising and/or building on what has been said.

National Curriculum

Mathematics:

Number

Pupils should be taught to:

- understand and use place value for decimals, measures and integers of any size
- order positive and negative integers, decimals and fractions
- interpret percentages and percentage changes as a fraction or a decimal
- use standard units of mass, length, time, money and other measures, including with decimal quantities;
- Use a calculator and other technologies to calculate results accurately and then interpret them appropriately.

Ratio, proportion and rates of change

Pupils should be taught to:

- change freely between related standard units [for example time, length, area, volume/capacity, mass]

Statistics

- Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.

Science:

Nutrition and digestion

- content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed;

Energy

- comparing energy values of different foods (from labels) (kJ).

RSE and Health education: (statutory from September 2020)

Healthy eating

Secondary school pupils should continue to develop knowledge specified for primary:

- What constitutes a healthy diet (including understanding calories and other nutritional content).
- The principles of planning and preparing a range of healthy meals.
- The characteristics of a poor diet and risks associated with unhealthy eating (including, for example, obesity and tooth decay) and other behaviours (e.g. the impact of alcohol on diet or health).

and cover the specified secondary content:

- How to maintain healthy eating and the links between a poor diet and health risks, including tooth decay and cancer.

Physical health and fitness

Secondary school pupils should continue to develop knowledge specified for primary:

- The characteristics and mental and physical benefits of an active lifestyle.
- The importance of building regular exercise into daily and weekly routines and how to achieve this; for example walking or cycling to school, a daily active mile or other forms of regular, vigorous exercise.
- The risks associated with an inactive lifestyle (including obesity).

and cover the specified secondary content:

- The positive associations between physical activity and promotion of mental wellbeing, including as an approach to combat stress.
- The characteristics and evidence of what constitutes a healthy lifestyle, maintaining a healthy weight, including the links between an inactive lifestyle and ill health, including cancer and cardiovascular ill-health.

(Note: there are additional statements for Physical health and fitness in the statutory guidance.)

Health and prevention

Secondary school pupils should continue to develop knowledge specified for primary:

- The importance of sufficient good quality sleep for good health and that a lack of sleep can affect weight, mood and ability to learn.
- About dental health and the benefits of good oral hygiene and dental flossing, including regular check-ups at the dentist.
- About personal hygiene and germs including bacteria, viruses, how they are spread and treated, and the importance of handwashing.
- The facts and science relating to allergies, immunisation and vaccination.

and cover the specified secondary content:

- About personal hygiene, germs including bacteria, viruses, how they are spread, treatment and prevention of infection, and about antibiotics.
- About dental health and the benefits of good oral hygiene and dental flossing, including healthy eating and regular check-ups at the dentist.
- The importance of sufficient good quality sleep for good health and how a lack of sleep can affect weight, mood and ability to learn.

(Note: there are additional statements for Health and prevention in the statutory guidance.)