

Curriculum Map - Year 10 Food Preparation and Nutrition

	Autumn Term	Spring Term	Summer Term
Unit Length	15 weeks	12 Weeks	12 Weeks
Links to the National curriculum/Assessment Objectives	Commodity areas to be covered, on at a time, linking to all other areas of the Food preparation and Nutrition Specification : Food provenance, How commodity is grown, reared and processed, Classification, Nutritional Value, Dietary Considerations, Food Science, Investigational work, Food Hygiene and Safety, Storage.		
Description of the topic and key learning outcomes (key knowledge and understanding)	<ul style="list-style-type: none"> • Basics of Nutrition <p>Macronutrients :</p> <p>(i) protein: to include essential amino-acids in relation to nutritional requirements</p> <p>(ii) fats, oils and lipids: saturated fats, monounsaturated fats, polyunsaturated fats and essential fatty acids</p> <p>(iii) carbohydrates: monosaccharides, disaccharides and polysaccharides</p> <p>Micronutrients :(i) fat soluble vitamins: vitamin A, and vitamin D water soluble vitamins: B vitamins: B1 thiamin B2 riboflavin, B3 niacin, B12 cobalamin and B9 folic acid (folate) and vitamin C (ii) minerals: calcium, iron, potassium and magnesium (iii) trace elements, to include: iodine and fluoride</p> <p style="text-align: center;">Water + dietary fibre (NSP)</p>	<ul style="list-style-type: none"> • Commodity: Fruit and vegetables, including potatoes (fresh, frozen, dried, canned and juiced) <p>Food provenance: How/where fruit and vegetables are grown, link to climate, soil types Bring in organic verses non-organic (Soil Association, etc.) Use of pesticides and herbicides - discuss possible impact on health Customer choice can be linked to cost - discuss Food miles Seasonality</p> <p>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.</p>	<ul style="list-style-type: none"> • Commodity: Meat, fish, poultry, eggs <p>Food 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</p> <p>How commodity is grown, reared and processed: Links in with provenance</p>

- **Eat well guide and dietary recommendations**
- **Special Dietary requirements.**

(i) a range of life-stages: toddlers, teenagers, early, middle and late adulthood

(ii) individuals with specific dietary needs or nutritional deficiencies to include coeliac disease; diabetes (type 2 diabetes only to be considered), dental caries; iron deficiency anaemia; obesity; cardiovascular disease (CVD); calcium deficiencies to include bone health; nut or lactose (dairy) intolerances

(iii) individuals with specific lifestyle needs to include vegetarians: lacto-ovo, lacto, vegan, and those with religious beliefs that affect choice of diet, to include Hindu, Muslim, Jewish

- how nutrients work together in the body, e.g. Complementary actions
- basal metabolic rate (BMR) and physical activity level (PAL) and their importance in determining energy requirements

Clarify the difference between primary and secondary processing
 Include different methods of preservation (*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
 Link in changes to texture, colour and flavour due to cooking.

Classification:

Difference between fruits and vegetables - leaves, stems, roots, tubers, bulbs, etc

Nutritional Value:

Recap on 5 a day - link to eatwell plate
 Cover dietary fibre - soluble and insoluble
 Water
 Recap on vitamins and minerals (cover A, B, C, D, calcium and iron), and include complementary actions of the nutrients
 vitamin C and iron/vitamin D and calcium
 Nutrient requirements - link to different life stages
 Fat and water soluble vitamins - effect of oxidation, heat on vitamin content of fruits and vegetables
 Compare nutrient content of a specific fruit or vegetable - fresh, frozen, canned, dried, etc.

Dietary Considerations:

Vegetarians (lacto/lacto-ovo/vegan)

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

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

Food 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*

Bone health - link in with vitamin D and calcium
Healthy blood - link in with vitamin C and iron

Food Science:

Composition of fruits and vegetables
Oxidation/enzymic browning

Investigational work:

Enzymic browning (practical and written work covered)
• *Which fruits and vegetables turn brown?*
• *Can enzymic browning be slowed down or stopped?*
• *Does the way in which fruits and vegetables are cut affect their enzymic browning?*
• *How does the texture of fruits and vegetables change when cooked*

Food Hygiene and Safety

Recap on personal hygiene - good practice
Refrigeration temperatures
Why it is important to wash fruits and vegetables?
Discuss Use By and Best Before dates
Stock rotation
Bagged salads - food poisoning risk (link to processing of leaves for bagged salads)

Storage

Nutritional Value:

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 fish
Omega 3 in oily fish

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

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 and 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 Value:

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

Ambient - loss of nutrient content over time; mention potatoes and solanine (*green due to storage in light*)

Chilling - where in fridge should items be stored? Reinforce refrigeration temperatures

Why canned foods should be decanted after opening, if not used immediately

Freezing - link in blanching to slow down enzymic browning, home freezing, large scale freezing (nitrogen). Reinforce freezing temperatures.

• Commodity: Milk, cheese and yoghurt

Food provenance:

Debate local versus nationally distributed and also imported
Bring in cost and impact on milk prices for farmers livelihood

Link in food miles, why consumers may chose organic

Food wastage and sustainability

How commodity is grown, reared and processed:

How animals are reared, fed and milked.

Animal sources of milk

Different methods of preserving milk (drying, UHT,

pasteurisation, etc.) -link to convenience foods

Importance of hygiene for effective food safety (heat treatment)

Connective tissue in meat and fish - how this should affect the cooking method

Maillard reaction

Investigational work:

Make a batch of meringues and explain the changes

that take place within the egg white protein.

• *Show how the setting of egg protein can be affected when making baked egg custard.*

• *Show and explain how egg white foaming is affected when other ingredients are added.*

• *Investigate the changes that take place in meat (or fish) during cooking.*

• *Conduct an experiment to show the best way to tenderise meat by breaking down the connective tissue.*

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

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

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)
Link secondary processing - 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 Value:

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

diced, frozen, canned foods as well as fresh foods)

- **Commodity: Soya, tofu, beans, nuts, seeds**

Food 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™) - 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.

Investigational work:

Investigate the best flour for bread making gluten ball experiment, or making small batches of rolls using different flours and then conduct sensory testing)

- Conduct an experiment to show the gelatinisation of a range of starches. What happens when these starches are frozen and then defrosted?*
- Conduct an experiment to find out the effect of other ingredients on the thickness of starch*
- What happens when you apply dry heat to starch?*

Food Hygiene and Safety

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

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

Investigational work:

Demonstrate and explain how an emulsion is formed when making butter.
• Explain the changes that take place in milk when it is heated.
• Make yoghurt and explain the food science behind it.
• Make cheese and explain the food science behind it.
• Why is UHT milk slightly less white? Compare the flavour of UHT milk with fresh milk and discuss.

Videos available online to show processing

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 Value:

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

		<p><u>Food Hygiene and Safety</u> Concept of high risk foods (<i>dairy being a category</i>) How bacteria multiplies How to avoid cross-contamination Why heat treating raw milk is important - link to food science How should dairy based products be stored? Temperatures?</p> <p><u>Storage</u> Link to dried, cartons, unopened and opened cans, fresh, frozen, etc. What are suitable conditions for storage? Why?</p>	<p><u>Investigational work:</u> Soya products and Quorn™ Beans (legumes), nuts and seeds • <i>How effective are ground nuts when used as a thickener?</i></p> <p><u>Food Hygiene and Safety</u> Soya products and Quorn™ 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</p> <p><u>Storage</u> Soya products and Quorn™ 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</p>
Related Concepts (that are revisited)	Nutrition, Special Diets, Staple Foods, Cakes, Sauces.	Fruit Salad , Macaroni Cheese, Pasta Bake, vegetable preparation	Chicken or Quorn stir fry, Macaroni cheese, Pizza Toast, pizza.
Skills being taught	Practical Skills, analytical skills , evaluative skills	Practical Skills, analytical skills , evaluative skills	Practical Skills, analytical skills , evaluative skills
Milestone assessments	End of topic assessments, AC tests, DIN, Extended exam questions in appropriate lessons.	End of topic assessments, AC tests, DIN, Extended exam questions in appropriate lessons.	End of topic assessments, AC tests, DIN, Extended exam questions in appropriate lessons.
Wider reading	News articles on food issues (Fairtrade, Air Miles, Welfare of animals, Genetic Modification). Developments and advances in Hygiene and Diet. Research and develop own	News articles on food issues (Fairtrade, Air Miles, Welfare of animals, Genetic Modification). Developments and advances in Hygiene and Diet. Research and develop own recipes to meet the needs of a large	News articles on food issues (Fairtrade, Air Miles, Welfare of animals, Genetic Modification). Developments and advances in Hygiene and Diet. Research and develop own recipes to meet the

	recipes to meet the needs of a large range of end users. Understand sequencing when following and dovetailing recipes.	range of end users. Understand sequencing when following and dovetailing recipes.	needs of a large range of end users. Understand sequencing when following and dovetailing recipes.
Literacy programme	Tier 3 language used with exam command words. Teacher use of tear 2 language to model answers to pupils Use of WAGOLL in short term planning, modelling tear 2 and 3 language.	Tier 3 language used with exam command words. Teacher use of tear 2 language to model answers to pupils Use of WAGOLL in short term planning, modelling tear 2 and 3 language.	Tier 3 language used with exam command words. Teacher use of tear 2 language to model answers to pupils Use of WAGOLL in short term planning, modelling tear 2 and 3 language.
Homework	Knowledge Organisers	Knowledge Organisers	Knowledge Organisers