

Shenfield High School **FOOD AND NUTRITION** AQA GCSE

Paper 1: Food preparation and nutrition

3.1 Food preparation skills

3.2 Food, nutrition and health

3.3 Food science

3.4 Food safety

3.5 Food choice

3.6 Food provenance

3.7 Food preparation and cooking techniques - assessed through the non-exam assessment (NEA)

Specification <https://www.aqa.org.uk/subjects/food-preparation-and-nutrition/gcse/food-preparation-and-nutrition-8585/specification>

BBC resource <https://www.bbc.co.uk/teach/class-clips-video/articles/zvjh8xs>

Skill 1: General practical skills		Basic K&U	General K&U	Thorough K&U	Exam ready
Weigh and measure	Accurate measurement of liquids and solids.				
Prepare ingredients and equipment	Grease/oil, line, flour, evenly and with attention to finished product.				
Select and adjust cooking times	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.				
Test for readiness	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.				
Judge and modify sensory properties	<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, caramelisation) and glazing, add crust, crisp and crumbs. Presentation and food styling. Use garnishes and decorative techniques to improve the aesthetic qualities, demonstrate portioning, presenting and finishing. 				

Skill 2: Knife skills		Basic K&U	General K&U	Thorough K&U	Exam ready
Fruit and vegetables	Bridge hold, claw grip, peel, slice, dice and cut into even size pieces (ie batons, julienne).				
Meat, fish or alternatives	Fillet a chicken breast, portion a chicken, remove fat and rind, fillet fish, slice evenly and accurately: raw and cooked meat and fish or alternatives (such as tofu and halloumi cheese).				
Skill 3: Preparing fruit and vegetables		Basic K&U	General K&U	Thorough K&U	Exam ready
Preparing fruit and vegetables	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, spoilage and preventing food poisoning (wash and dry where appropriate).				
Skill 4: Use of the cooker		Basic K&U	General K&U	Thorough K&U	Exam ready
Using the grill	Use a range of foods, such as vegetables, meat, fish or alternatives such as halloumi, seeds and nuts; char/grill or toast.				
Using the oven	Baking, roasting, casseroles and/or tagines, braising.				
Skill 5: Use of equipment		Basic K&U	General K&U	Thorough K&U	Exam ready
Using equipment	Use of blender, food processor, mixer, pasta machine, microwave oven.				
Skill 6: Cooking methods		Basic K&U	General K&U	Thorough K&U	Exam ready
Water based methods using the hob	Steaming, boiling and simmering; blanching; poaching.				
Dry heat and fat based methods using the hob	Dry frying, shallow frying, stir frying.				

Skill 7: Prepare, combine and shape		Basic K&U	General K&U	Thorough K&U	Exam ready
Prepare, combine and shape	Roll, wrap, skewer, mix, coat, layer meat, fish and alternatives. Shape and bind wet mixtures (such as falafels, burgers, fish cakes or meatballs) whilst demonstrating the technical skill of preventing cross contamination and handling high risk foods correctly.				
Skill 8: Sauce making		Basic K&U	General K&U	Thorough K&U	Exam ready
Starch based	Sauce demonstrating starch gelatinisation such as: roux, all in one, blended, infused velouté or béchamel. How starch/liquid ratios affect viscosity.				
Reduction	Reduction sauce to show how evaporation concentrates flavour. Eg tomato pasta sauce, curry sauce, gravy, meat sauce (including meat alternatives such as mycoprotein and textured vegetable protein) to show how evaporation concentrates flavour and changes the viscosity of the sauce.				
Emulsion	Make an emulsion sauce such as a salad dressing, demonstrating an understanding of how to stabilise an emulsion.				
Skill 9: Tenderise and marinate		Basic K&U	General K&U	Thorough K&U	Exam ready
Tenderise and marinate	<ul style="list-style-type: none"> • How acids denature protein. • Marinades add flavour and moisture when preparing vegetables, meat, fish and alternatives. 				
Skill 10: Dough		Basic K&U	General K&U	Thorough K&U	Exam ready
Making a dough (bread, pastry, pasta)	Use technical skills of shortening, gluten formation, fermentation (proving) for bread, pastry, pasta.				
Shaping and finishing	Roll out pastry, use a pasta machine, line a flan ring, create layers (palmiers) proving and resting, glazing and finishing, such as pipe choux pastry, bread rolls, pasta, flat breads, pinwheels, pizza and calzone.				

Skill 11: Raising agents		Basic K&U	General K&U	Thorough K&U	Exam ready
Eggs as a raising agent	Create a gas-in-liquid foam, whisking egg whites, whisked sponge.				
Chemical raising agents	The use of self raising flour, baking powder, bicarbonate of soda.				
Steam as a raising agent	Use of steam in a mixture (choux pastry, batter).				
Biological raising agent	Use of yeast in breadmaking.				
Skill 12: Setting mixtures		Basic K&U	General K&U	Thorough K&U	Exam ready
Removal of heat	Gelation: use a starch to set a mixture on chilling for layered desserts such as custard.				
Use protein	Set a mixture on heating such as denatured and/or coagulated protein in eggs.				

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BBC resource

(CCEA Course) <https://www.bbc.co.uk/bitesize/subjects/zdn9jhv>**3.2.1 Macronutrients**

- the functions
- main sources
- effects of deficiency and excess
- related dietary reference values

of:

**Basic
K&U****General
K&U****Thorough
K&U****Exam
ready****3.2.1.1 Protein**

- low and high biological value proteins
- protein complementation
- protein alternatives eg textured vegetable protein (TVP), soya, mycoprotein and tofu.

**3.2.1.2
Fats**

- saturated fats
- unsaturated fats (monounsaturated and polyunsaturated).

**3.2.1.3
Carbohydrates**

- starch (polysaccharides)
- sugars (monosaccharides/ disaccharides)
- dietary fibre.

3.2.2 Micronutrients					
<ul style="list-style-type: none"> the functions main sources effects of deficiency and excess related dietary reference values of:		Basic K&U	General K&U	Thorough K&U	Exam ready
3.2.2.1 Vitamins Fat Soluble	• vitamin A				
	• vitamin D				
	• vitamin E				
	• vitamin K				
<ul style="list-style-type: none"> the functions main sources effects of deficiency and excess related dietary reference values how preparation and cooking affects the nutritional properties of food of: 		Basic K&U	General K&U	Thorough K&U	Exam ready
Vitamins Water Soluble	• B group – B1 (thiamin), B2 (riboflavin), B3 (niacin), folic acid, B12				
	• vitamin C (ascorbic acid)				
	• loss of water soluble vitamins when cooking (B group and Vitamin C)				
The role of antioxidants in protecting body cells from damage:		Basic K&U	General K&U	Thorough K&U	Exam ready
Antioxidant functions of vitamins	• vitamin A				
	• vitamin C				
	• vitamin E				
<ul style="list-style-type: none"> the functions main sources effects of deficiency and excess related dietary reference values of:		Basic K&U	General K&U	Thorough K&U	Exam ready
3.2.2.2 Minerals	• calcium				
	• iron				
	• sodium (salt)				
	• fluoride				
	• iodine				
	• phosphorus.				

3.2.2.3 Water		Basic K&U	General K&U	Thorough K&U	Exam ready
The importance of hydration and the functions of water in the diet	• functions of water to eliminate waste from the body, cooling and for digestion.				
	• how water is lost from the body.				
	• how much water/fluid is needed each day.				
	• occasions when extra fluids are needed.				
3.2.3 Nutritional needs and health		Basic K&U	General K&U	Thorough K&U	Exam ready
3.2.3.1 Making informed choices for a varied and balanced diet	• the current guidelines for a healthy diet. eg eatwell plate.				
	• portion size and costing when meal planning.				
	• how peoples' nutritional needs change and how to plan a balanced diet for different life stages: young children, teenagers, adults and the elderly.				
	• how to plan a balanced meal for specific dietary groups: vegetarian and vegan, coeliac, lactose intolerant and high fibre diets.				
	• how to maintain a healthy body weight throughout life.				
3.2.3.2 Energy needs	• factors which affect the BMR, such as age, gender and PAL. Their importance in achieving energy balance.				
	The percentage of recommended energy sources from nutrients:				
	• protein 15%				
	• fat 35% or less				
	• carbohydrate 50% (of which 45% from starches, lactose in milk and fruit sugars and a maximum of 5% from free sugars).				
3.2.3.3 How to carry out nutritional analysis	how to plan and modify recipes, meals and diets to reflect the nutritional guidelines for a healthy diet.				
	how to use current nutritional information and data eg food tables, nutritional analysis software to calculate energy and nutritional value.				

3.2.3 Nutritional needs and health (continued)		Basic K&U	General K&U	Thorough K&U	Exam ready
3.2.3.4 Diet, nutrition and health	• the relationship between diet, nutrition and health				
	• the major diet related health risks.				
	How diet can affect health and how nutritional needs change in relation to:				
	• obesity				
	• cardiovascular health (coronary heart disease (CHD) and high blood pressure)				
	• bone health (rickets and osteoporosis)				
	• dental health				
	• iron deficiency anaemia				
• Type 2 diabetes.					



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Revision World

<https://revisionworld.com/gcse-revision/food-preparation-and-nutrition-gcse-revision>

3.3.1 Cooking of food and heat transfer

3.3.1.1 Why food is cooked and how heat is transferred to food

**Basic
K&U**

**General
K&U**

**Thorough
K&U**

**Exam
ready**

- the reasons why food is cooked
- the different methods of heat transfer.

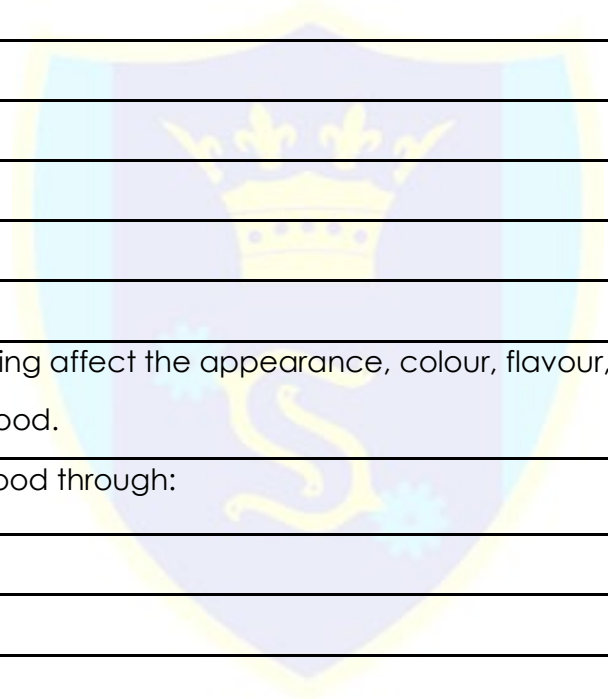
Food is cooked to:

- make food safe to eat
- develop flavours
- improve texture
- improve shelf life
- give variety in the diet.

How preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food.

How heat is transferred to food through:

- conduction
- convection
- radiation.



3.3.1.2 Selecting appropriate cooking methods		Basic K&U	General K&U	Thorough K&U	Exam ready
Selection of appropriate preparation, cooking methods and times to achieve desired characteristics.	<ul style="list-style-type: none"> • how the selection of appropriate preparation and cooking methods can conserve or modify nutritive value or improve palatability: 				
	<ul style="list-style-type: none"> • water based: steaming, boiling, simmering, blanching, poaching, braising 				
	<ul style="list-style-type: none"> • dry methods: baking, roasting, grilling, dry frying 				
	<ul style="list-style-type: none"> • fat based: shallow frying, stir fry 				
	<ul style="list-style-type: none"> • how preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food eg the use of marinades to denature protein. 				
3.3.2 Functional and chemical properties of food					
<ul style="list-style-type: none"> • the scientific principles underlying these processes when preparing and cooking food <ul style="list-style-type: none"> • the working characteristics, functional and chemical properties of: 		Basic K&U	General K&U	Thorough K&U	Exam ready
3.3.2.1 Proteins	<ul style="list-style-type: none"> • protein denaturation 				
	<ul style="list-style-type: none"> • protein coagulation 				
	<ul style="list-style-type: none"> • gluten formation 				
	<ul style="list-style-type: none"> • foam formation. 				
3.3.2.2 Carbohydrates	<ul style="list-style-type: none"> • gelatinisation 				
	<ul style="list-style-type: none"> • dextrinisation 				
	<ul style="list-style-type: none"> • caramelisation. 				
3.3.2.3 Fats and oils	<ul style="list-style-type: none"> • shortening 				
	<ul style="list-style-type: none"> • aeration 				
	<ul style="list-style-type: none"> • plasticity 				
	<ul style="list-style-type: none"> • emulsification. 				
3.3.2.4 Fruit and Vegetables	<ul style="list-style-type: none"> • enzymic browning 				
	<ul style="list-style-type: none"> • oxidation. 				

3.3.2 Functional and chemical properties of food (<i>continued</i>)		Basic K&U	General K&U	Thorough K&U	Exam ready
3.3.2.5 Raising agents	• chemical (baking powder, bicarbonate of soda, self- raising flours which produce carbon dioxide)				
	• mechanical (whisking, beating, folding, sieving, creaming and rubbing in – all incorporate air into the mixture)				
	• chemical (baking powder, bicarbonate of soda, self- raising flours which produce carbon dioxide)				
	• steam is produced when the water in any moist mixture reaches boiling point				
	• biological (yeast).				

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Save My Exams

<https://www.savemyexams.com/gcse/food-and-nutrition/>**3.4.1 Food spoilage and contamination****Basic
K&U****General
K&U****Thorough
K&U****Exam
ready****3.4.1.1
Microorganisms
and enzymes**

- bacteria, yeasts and moulds are microorganisms
- growth conditions for microorganisms: role of temperature, moisture, food and time
- control of microorganism growth: temperature control, pH, water availability
- high risk foods: ready to eat moist foods, usually high in protein that easily support the growth of pathogenic bacteria and do not require any further heat treatment or cooking
- control of enzymic action: blanching of vegetables before freezing, use of acids to prevent enzymic browning.

**3.4.1.2
The signs of
food spoilage**

- enzymic action: ripening of bananas, browning of some fruits
- mould growth: eg on bread and cheese. Recognise the signs of mould growth on foods
- yeast action on fruits eg grapes, strawberries and tomatoes.

**3.4.1.3
Microorganisms
in food
production**

- the use of microorganisms in food production.
- moulds in the production of blue cheese
- yeasts to raise bread
- bacteria in yoghurt and cheese production.

3.4.1 Food spoilage and contamination (continued)		Basic K&U	General K&U	Thorough K&U	Exam ready
3.4.1.4 Bacterial contamination	• the different sources of bacterial contamination				
	• the main types of bacteria which cause food poisoning				
	• the main sources and methods of control of different food poisoning bacteria types				
	• the general symptoms of food poisoning.				
	Contamination from:				
	• other contaminated foods including the following raw foods: meat, poultry, eggs, seafood and vegetables				
	• work surfaces and equipment				
	• the people cooking				
	• pests				
	• waste food and rubbish				
	• campylobacter				
	• e-coli				
	• salmonella				
	• listeria				
• staphylococcus aureus.					
3.4.2 Principles of food safety					
3.4.2.1 Buying and storing food		Basic K&U	General K&U	Thorough K&U	Exam ready
The food safety principles when buying and storing food.	• temperature control:				
	• freezing: -18°C				
	• chilling: 0 to below 5°C				
	• danger zone: 5 to 63°C				
	• cooking: 75°C				
	• reheating: 75°C				
	• ambient storage				
	• temperature danger zone				
• correct use of domestic fridges and freezers					

3.4.2.1 Buying and storing food (continued)		Basic K&U	General K&U	Thorough K&U	Exam ready
The food safety principles	• date marks				
	• 'best before' and 'use by' dates				
	• covering foods.				
3.4.2.2 Preparing, cooking and serving food		Basic K&U	General K&U	Thorough K&U	Exam ready
The food safety principles when preparing, cooking and serving food.	• personal hygiene				
	• clean work surfaces				
	• separate raw and cooked foods and use of separate utensils				
	• correct cooking times				
	• appropriate temperature control including: defrosting and reheating				
	• appropriate care with high risk foods				
	• correct use of food temperature probes.				

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Seneca

<https://senecalearning.com/en-GB/blog/gcse-food-preparation-nutrition-revision/>**3.5.1 Factors affecting food choice****3.5.1.1 Factors which influence food choice****Basic
K&U****General
K&U****Thorough
K&U****Exam
ready**

To know and understand factors which may influence food choice.

The following factors in relation to food choice:

- physical activity level (PAL)
- celebration/occasion
- cost of food
- preferences
- enjoyment
- food availability
- healthy eating
- income
- lifestyles
- seasonality
- time of day
- time available to prepare/ cook.

Students must be able to cost recipes and make modifications.

3.5.1.2 Food choices		Basic K&U	General K&U	Thorough K&U	Exam ready
Food choice related to religion, culture, ethical and moral beliefs and medical conditions.	• food choice linked to the following religions and cultures: Buddhism, Christianity, Hinduism, Islam, Judaism, Rastafarianism and Sikhism				
	• food choice linked to the following ethical and moral beliefs: animal welfare, fairtrade, local produce, organic, Genetically Modified (GM) foods				
	• food choice linked to food intolerances (gluten and lactose) and the following allergies: nuts, egg, milk, wheat, fish and shellfish.				
3.5.1.3 Food labelling and marketing influences		Basic K&U	General K&U	Thorough K&U	Exam ready
How information about food available to the consumer, including labelling and marketing, influences food choice.	• mandatory information included on food packaging in accordance with current European Union and Food Standards Agency (FSA) legislation				
	• non-mandatory information: provenance, serving suggestions				
	• how to interpret nutritional labelling				
	• how food marketing can influence food choice eg buy one get one free, special offers, meal deals, media influences, advertising, point of sales marketing.				
3.5.2 British and international cuisines		Basic K&U	General K&U	Thorough K&U	Exam ready
Food products from British tradition and different cuisines.	Cuisine is defined as: 'a style characteristic of a particular country or region where the cuisine has developed historically using distinctive ingredients, specific preparation and cooking methods or equipment, and presentation or serving techniques'.				
	• distinctive features and characteristics of cooking				
	• equipment and cooking methods used				
	• eating patterns				
	• presentation styles				
	• traditional and modern variations of recipes.				

3.5.3 Sensory evaluation		Basic K&U	General K&U	Thorough K&U	Exam ready
Sensory testing methods.	Importance of senses when making food choices: sight, taste, touch and aroma				
Taste receptors and olfactory systems work when tasting food.	<ul style="list-style-type: none"> • preference tests: paired preference, hedonic. 				
	<ul style="list-style-type: none"> • discrimination tests: triangle. 				
	<ul style="list-style-type: none"> • grading tests: ranking, rating and profiling 				
	<ul style="list-style-type: none"> • how to set up a taste panel 				
	<ul style="list-style-type: none"> • controlled conditions required for sensory testing 				
	<ul style="list-style-type: none"> • evaluating how senses guide 				
	<ul style="list-style-type: none"> • evaluating a wide range of ingredients and food from Britain and other countries 				
	<ul style="list-style-type: none"> • how to test sensory qualities of a wide range of foods and combinations. 				

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You Tube The Food tech Teacher https://www.youtube.com/playlist?list=PLPT_7CO_JIEossGmK6oWipN5b2pC7DWzo

3.6.1 Environmental impact and sustainability of food

3.6.1.1 Food Sources

		Basic K&U	General K&U	Thorough K&U	Exam ready
Where and how ingredients are grown, reared and caught.	<ul style="list-style-type: none"> grown ingredients: fruits, vegetables and cereals 				
	<ul style="list-style-type: none"> reared ingredients: meat and poultry 				
	<ul style="list-style-type: none"> caught ingredients: fish 				
	An understanding of:				
	<ul style="list-style-type: none"> organic and conventional farming 				
	<ul style="list-style-type: none"> free range production 				
	<ul style="list-style-type: none"> intensive farming 				
	<ul style="list-style-type: none"> sustainable fishing 				
<ul style="list-style-type: none"> advantages and disadvantages of local produced foods, seasonal foods and Genetically Modified (GM) foods 					

3.6.1.2 Food and the environment		Basic K&U	General K&U	Thorough K&U	Exam ready
Environmental issues associated with food.	• seasonal foods				
	• sustainability eg fish farming				
	• transportation				
	• organic foods				
	• the reasons for buying locally produced food				
	• food waste in the home/ food production/retailers				
	• environment issues related to packaging				
	• carbon footprint.				
3.6.1.3 Sustainability of food		Basic K&U	General K&U	Thorough K&U	Exam ready
The impact of food and food security on local and global markets and communities.	the challenges to provide the world's growing population with a sustainable, secure, supply of safe, nutritious and affordable high-quality food.				
	• climate change				
	• global warming				
	• sustainability of food sources				
	• insufficient land for growing food				
	• availability of food				
	• fairtrade				
	• problems of drought and flooding				
	• Genetically Modified (GM) foods				
• food waste.					

3.6.2 Food processing and production					
3.6.2.1 Food production		Basic K&U	General K&U	Thorough K&U	Exam ready
Processing and production.	<ul style="list-style-type: none"> primary processing related to the: rearing, fishing, growing, harvesting and cleaning of the raw food material (milling of wheat to flour, heat treatment of milk, pasteurised, UHT, sterilised and micro- filtered milk) 				
	<ul style="list-style-type: none"> secondary processing related to: how the raw primary processed ingredients are processed to produce a food product (flour into bread and/or pasta, milk into cheese and yoghurt, fruit into jams) 				
	<ul style="list-style-type: none"> how processing affects the sensory and nutritional properties of ingredients 				
	<ul style="list-style-type: none"> the effect of heating and drying on the sensory characteristics of milk. 				
	<ul style="list-style-type: none"> loss of vitamins through heating and drying 				
3.6.2.2 Technological developments associated with better health and food production		Basic K&U	General K&U	Thorough K&U	Exam ready
Technological developments	<ul style="list-style-type: none"> cholesterol lowering spreads 				
	<ul style="list-style-type: none"> health benefits of fortification 				
	<ul style="list-style-type: none"> fortified foods: thiamin, niacin, calcium and iron added to white flour 				
	<ul style="list-style-type: none"> folic acid and iron added to breakfast cereals 				
	<ul style="list-style-type: none"> vitamins A and D added to fats and low fat spreads 				
	<ul style="list-style-type: none"> the positive and negative aspects of the use of additives: colourings, emulsifiers and stabilisers, flavourings, and preservatives 				
	<ul style="list-style-type: none"> the positive and negative aspects of Genetically Modified (GM) foods. 				