GCSE Food Preparation and Nutrition- Revision list

There are 5 main sections with separate topics within them. You should produce a mind map or revision cards for each of the listed topics in the tables.

- Use your exercise books and the online textbook to help you with your revision. The textbook is split into the 5 main sections and the titles in this revision list are colour coded to fit with the colours used in the book.

- There are lots of very useful video clips on the Bitesize website: https://www.bbc.co.uk/education/subjects/z48jmp3
- This revision guide is a good one to buy: https://www.cgpbooks.co.uk/Student/books_gcse_food_prep_nutrition.book_FNAR41
- You can also buy a workbook with lots of questions and answers in it: https://www.cgpbooks.co.uk/Student/books_gcse_food_prep_nutrition.book_FNAQ41

What do you need to know and revise?

1) Food, nutrition and health

Macronutrients

- **Protein**

Content	What must you know?
•• low and high biological value proteins •• protein complementation •• protein alternatives e.g. textured vegetable protein (TVP), soya, mycoprotein and tofu.	•• the functions •• main sources •• effects of deficiency and excess •• related dietary reference values.

- **Fats**

Content	What must you know?
•• saturated fats •• unsaturated fats (monounsaturated and polyunsaturated).	•• the functions •• main sources •• effects of deficiency and excess •• related dietary reference values.

- **Carbohydrates**

Content	What must you know?
•• starch (polysaccharides) •• sugars (monosaccharides/disaccharides) •• dietary fibre.	•• the functions •• main sources •• effects of deficiency and excess •• related dietary reference values.

Micronutrients

- **Vitamins**

Content	What must you know?
Fat soluble •• vitamin A •• vitamin D •• vitamin E •• vitamin K.	•• the functions •• main sources •• effects of deficiency and excess •• related dietary reference values.
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 functions •• main sources •• effects of deficiency and excess •• related dietary reference values •• how preparation and cooking affects the nutritional properties of food.

Antioxidant functions of vitamins •• vitamin A •• vitamin C •• vitamin E.	The role of antioxidants in protecting body cells from damage.

- **Minerals**

Content	What must you know?
•• calcium •• iron •• sodium (salt) •• fluoride •• iodine •• phosphorus.	•• the functions •• main sources •• effects of deficiency and excess •• related dietary reference values.

Water

Content	What must you know?
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.

Making informed choices for a varied and balanced diet

Content	What must you know?
•• the current guidelines for a healthy diet •• portion size and costing when meal planning •• how peoples' nutritional needs change and how to plan a balanced diet for different life stages •• how to plan a balanced meal for specific dietary groups •• how to maintain a healthy body weight throughout life.	•• the current guidelines for a healthy diet eg eatwell guide •• nutritional needs for the following 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.

Energy needs

Content	What must you know?
•• the basal metabolic rate (BMR) and physical activity level (PAL) and their importance in determining energy requirements •• the recommended percentage of energy intake provided by protein, fat and carbohydrates (starch and sugar).	•• 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).

How to carry out nutritional analysis

Content	What must you know?
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 e.g. food tables, nutritional analysis software to calculate energy and nutritional value.

Diet, nutrition and health

Content	What must you know?
•• 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.

2) Food science

Why food is cooked and how heat is transferred to food

Content	What must you know?
•• 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.

Selecting appropriate cooking methods

Content	What must you know?
Selection of appropriate preparation, cooking methods and times to achieve desired characteristics.	•• how the selection of appropriate preparation and cooking methods can conserve or modify nutritive value or improve palatability: •• water based: steaming, boiling, simmering, blanching, poaching, braising •• dry methods: baking, roasting, grilling, dry frying •• fat based: shallow frying, stir fry •• how preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food eg the use of marinades to denature protein.

Functional and chemical properties of food

- **Protein**

Content	What must you know?
•• protein denaturation •• protein coagulation •• gluten formation •• foam formation.	•• the scientific principles underlying these processes when preparing and cooking food •• the working characteristics, functional and chemical properties of proteins.

- **Carbohydrates**

Content	What must you know?
•• gelatinisation	•• the scientific principles underlying these processes

•• dextrinisation •• caramelisation.	when preparing and cooking food •• the working characteristics, functional and chemical properties of carbohydrates.

- **Fats and oils**

Content	What must you know?
•• shortening •• aeration •• plasticity •• emulsification.	•• the scientific principles underlying these processes when preparing and cooking food •• the working characteristics, functional and chemical properties of fats and oils.

- **Fruit and Vegetables**

Content	What must you know?
•• enzymic browning •• oxidation.	The scientific principles underlying these processes when preparing and cooking food.

- **Raising agents**

Content	What must you know?
•• chemical (baking powder, bicarbonate of soda, selfraising flours which produce carbon dioxide) •• mechanical (whisking, beating, folding, sieving, creaming and rubbing in – all incorporate air into the mixture) •• steam is produced when the water in any moist mixture reaches boiling point •• biological (yeast).	•• the scientific principles underlying these processes when preparing and cooking food •• the working characteristics, functional and chemical properties of raising agents.

3) Food safety

Food spoilage and contamination

- **Microorganisms and enzymes**

Content	What must you know?
•• the growth conditions for microorganisms and enzymes and the control of food spoilage •• bacteria, yeasts and moulds are microorganisms •• high risk foods •• enzymes are biological catalysts usually made from protein.	•• 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.

- **The signs of food spoilage**

Content	What must you know?
•• enzymic action •• mould growth •• yeast action.	•• 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.

- **Microorganisms in food production**

Content	What must you know?
The use of microorganisms in food production.	•• moulds in the production of blue cheese •• yeasts to raise bread •• bacteria in yoghurt and cheese production.

- **Bacterial contamination**

Content	What must you know?
•• 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.

Principles of food safety

- **Buying and storing food**

Content	What must you know?
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 •• date marks •• 'best before' and 'use by' dates •• covering foods.

- **Preparing, cooking and serving food**

Content	What must you know?
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.

4) Food choice

Factors which influence food choice

Content	What must you know?

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.

Factors which influence food choice

Content	What must you know?
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.

Food labelling and marketing influences

Content	What must you know?
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.

British and international cuisines

Content	What must you know?
•• food products from British tradition and two 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.

Sensory evaluation

Content	What must you know?
•• sensory testing methods •• how taste receptors and olfactory systems work when tasting food.	importance of senses when making food choices: sight, taste, touch and aroma •• preference tests: paired preference, hedonic •• discrimination tests: triangle •• grading tests: ranking, rating and profiling •• how to set up a taste panel •• controlled conditions required for sensory testing •• evaluating how senses guide •• evaluating a wide range of ingredients and food from Britain and other countries •• how to test sensory qualities of a wide range of foods and combinations.

5)Food provenance

Environmental impact and sustainability of food

Food Sources

Content	What must you know?
Where and how ingredients are grown, reared and caught.	•• grown ingredients: fruits, vegetables and cereals •• reared ingredients: meat and poultry •• caught ingredients: fish an understanding of: •• organic and conventional farming •• free range production •• intensive farming •• sustainable fishing •• advantages and disadvantages of local produced foods, seasonal foods and Genetically Modified (GM) foods.

Food and the environment

Content	What must you know?
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.

Sustainability of food

Content	What must you know?
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. Students must have an awareness of: •• 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.

Food processing and production

Content	What must you know?
•• primary and secondary stages of processing and production •• how processing affects the sensory and nutritional properties of ingredients.	•• 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) •• 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) •• loss of vitamins through heating and drying •• the effect of heating and drying on the sensory characteristics of milk.

Technological developments associated with better health and food production

Content	What must you know?
Technological developments to support better health and food production including fortification and modified foods with health benefits and the efficacy of these.	•• cholesterol lowering spreads •• health benefits of fortification •• fortified foods: thiamin, niacin, calcium and iron added to white flour •• folic acid and iron added to breakfast cereals •• vitamins A and D added to fats and low fat spreads •• the positive and negative aspects of the use of additives: colourings, emulsifiers and stabilisers, flavourings, and preservatives •• the positive and negative aspects of Genetically Modified (GM) foods.