Department for Education

Food preparation and nutrition

GCSE subject content

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Contents

The content for food preparation and nutrition GCSE

Introduction

1. The GCSE subject content sets out the knowledge, understanding and skills common to all GCSE specifications in food preparation and nutrition to ensure progression from key stage 3 national curriculum requirements and the possibility of development to further study. It provides the framework within which awarding organisations create the detail of the subject specification. GCSE specifications in food preparation and nutrition must reflect the subject aims and learning outcomes.

Aims and learning outcomes

2. 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.

3. In studying food preparation and nutrition, students must:

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

Subject content

4. GCSE specifications in food preparation and nutrition must enable students to make the connections between theory and practice so that they are able to apply their understanding of food and nutrition to practical cooking.

5. This content relates to the study of both food and drinks. In this document, “food” should be taken to mean both food and drink, as appropriate.

6. Specifications must require students to demonstrate knowledge and understanding of:

A. Nutrition

- recommended guidelines for a healthy diet. How peoples’ nutritional needs change and how to plan a balanced diet for those life-stages, including for those with specific dietary needs
- the recommended energy provided by protein, fat and carbohydrates (starch, sugars, fibre) and the percentage of daily energy intake the nutrients should contribute. Basal metabolic rate (BMR) and physical activity level (PAL) and their importance in determining energy requirements. How to maintain a healthy body weight throughout life
- the specific functions, main sources, dietary reference values and consequences of malnutrition of macronutrients and micronutrients
- how to calculate energy and nutritional values and plan recipes, meals and diets accordingly
- major diet related health risks including obesity, cardiovascular, bone health, dental health, iron deficiency anaemia, diabetes
- the importance of hydration, the function of water in the diet

The range of foods and ingredients to be studied in sections B and C should come from major commodity groups and reflect the recommended guidelines for a healthy diet. Food groups include:

- bread, cereals, flour, oats, rice, potatoes, pasta
- fruit and vegetables (fresh, frozen, dried, canned and juiced)
- milk, cheese and yoghurt

- meat, fish, eggs, soya, tofu, beans, nuts, seeds
- butter, oil, margarine, sugar and syrup

B. Food

Food provenance

- where and how foods are grown, reared, or caught and the primary and secondary stages of processing and production
- how processing affects the sensory and nutritional properties of ingredients
- the impact of food and food security on the environment, local and global markets and communities
- technological developments that claim to support better health and food production, including fortification and modified foods with health benefits and the efficacy of these
- the development of culinary traditions in British and two international cuisines[1], their distinctive features and characteristics, traditional and modern variations of recipes, cooking methods, presentation and eating patterns

Food choice

- how sensory perception guides the choices that people make, how taste receptors and olfactory systems work
- the sensory qualities of a range of foods and combinations and understand how to set up tasting panels for preference testing
- the range of factors that influence food choices, including enjoyment, preferences, seasonality, costs, availability, time of day, activity, celebration, or occasion
- the choices that people make about certain foods according to religion, culture, ethical belief or medical reason
- how to make informed choices about food and drink to achieve a varied and balanced diet, including awareness of portion sizes and costs

[1] 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.

- how the information about food available to the consumer, including food labelling and marketing, influences food choice

C. Cooking and food preparation

The scientific principles underlying the preparation and cooking of food:

- why food is cooked
- how heat is transferred to food through conduction, convection and radiation
- appropriate cooking methods to conserve or modify nutritive value or improve palatability
- understanding of the working characteristics, functional and chemical properties of ingredients to achieve a particular result:
    - carbohydrates – gelatinisation, dextrinisation
    - fats/oils – shortening, aeration, plasticity and emulsification
    - protein – coagulation, foam formation, gluten formation, acid denature
    - fruit/vegetables - enzymic browning, oxidisation
- how preparation and cooking affects the sensory and nutritional properties of food
- food safety principles when buying, storing, preparing and cooking food:
    - how to store foods correctly and the importance of date-marks
    - the growth conditions and control for enzyme action, mould growth and yeast production
    - the signs of food spoilage, including enzymic action, mould growth, yeast production and bacteria. Some bacteria have helpful properties in food production
    - the factors which affect bacterial growth – time, temperature, moisture and food availability
    - the types of bacterial cross-contamination and their prevention

Preparation and cooking techniques:

- how and when the skills and techniques listed in the annex can be applied and combined to achieve specific outcomes
- how the the skills and techniques listed in the annex relate to the knowledge and understanding requirements set out above

Skills requirements: preparation and cooking techniques

7. Specifications must require students to demonstrate and apply skills when planning, preparing, cooking and presenting a selection of recipes, modifying recipes, or creating new recipes, to meet particular requirements. Students must be able to:

- consider the influence of lifestyle and consumer choice when developing meals and recipes
- consider the nutritional needs and food choices when selecting recipes, including when making decisions about the ingredients, processes, cooking methods, and portion sizes
- develop the ability to review and make improvements to recipes by amending them to include the most appropriate ingredients, process, cooking methods, and portion sizes
- manage the time and cost of recipes effectively
- use their testing and sensory evaluation skills, adjusting where needed, to improve the recipe during the preparation and cooking process
- explain, justify and present their ideas about their chosen recipes and cooking methods to others
- make decisions about which techniques are appropriate based on their understanding of nutrition, food, different culinary traditions and cooking and food preparation content in order to achieve their intended outcome. They must be able to carry out these techniques safely and combine them into appealing meals whilst evaluating the results

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: • 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: • 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: • 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: • 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: • grease/oil, line, flour, evenly and with attention to finished product
8	Use of equipment	Be able to demonstrate the following techniques: • use a blender, food processor, mixer, and microwave
9	Water based methods using the hob	Be able to demonstrate the following techniques: • steaming • boiling and simmering • blanching • poaching
10	Dry heat and fat based methods using the hob	Be able to demonstrate the following techniques: • 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: • char • grill or toast
12	Using the oven	Be able to demonstrate the following techniques: • baking • roasting • casseroles and/or tagines • braising

13	Make sauces	Be able to demonstrate the following techniques: • 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: • 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: • use protein to set a mixture on heating such as denatured protein in eggs for quiche, choux pastry
16	Use of raising agents	Be able to demonstrate the following techniques: • 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	Be able to demonstrate the following techniques: • use the technical skills of shortening, gluten formation, fermentation (proving) for bread, pastry, pasta

18	Shaping and finishing a dough	Be able to demonstrate the following techniques: • 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	Be able to demonstrate the following techniques: • 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	Be able to demonstrate the following techniques: • 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

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