

KS4 Module 1: Food Commodities	KS4 Module 2: The science of food	KS4 Module 3: Principles of nutrition
Knowledge <i>What pupils will know</i>	Knowledge <i>What pupils will know</i>	Knowledge <i>What pupils will know</i>
<p><b>Food commodities:</b></p> <ul style="list-style-type: none"> <li>bread, cereals, flour, oats, rice, potatoes, pasta</li> <li>fruit and vegetables (fresh, frozen, dried, canned and juiced)</li> <li>milk, cheese and yoghurt</li> <li>meat, fish, poultry, eggs</li> <li>soya, tofu, beans, nuts, seeds</li> <li>butter, oils, margarine, sugar and syrup</li> </ul> <p><b>For each food commodity pupils need to know and understand:</b></p> <ul style="list-style-type: none"> <li>the value of the commodity within in the diet</li> <li>features and characteristics of each commodity with reference to their correct storage to avoid food contamination</li> <li>the working characteristics of each commodity</li> <li>the origins of each commodity</li> </ul>	<p><b>Why food is cooked and how heat is transferred to food:</b></p> <ul style="list-style-type: none"> <li>make food safe to eat</li> <li>develop flavours</li> <li>improve texture</li> <li>improve shelf life</li> <li>give variety in the diet.</li> </ul> <p><b>How preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food</b></p> <p><b>How heat is transferred to food through:</b></p> <ul style="list-style-type: none"> <li>conduction</li> <li>convection</li> <li>radiation</li> </ul> <p><b>Functional and chemical properties:</b></p> <ul style="list-style-type: none"> <li>protein denaturation</li> <li>protein coagulation</li> <li>gluten formation</li> <li>foam formation</li> <li>the scientific principles underlying these processes when preparing and cooking food</li> <li>the working characteristics, functional and chemical properties of macronutrients/micronutrients</li> </ul> <p><b>Food spoilage and contamination</b></p> <p><b>Micro-organisms:</b></p> <ul style="list-style-type: none"> <li>the growth conditions for microorganisms and enzymes and the control of food spoilage</li> <li>bacteria, yeasts and moulds are microorganisms</li> <li>high risk foods</li> <li>enzymes are biological catalysts usually made from protein</li> </ul> <p><b>The signs of food spoilage:</b></p> <ul style="list-style-type: none"> <li>Enzymic action</li> <li>Mould growth</li> <li>Yeast action</li> </ul> <p><b>The principles of food safety when buying and storing food/preparing cooking and serving food:</b></p> <ul style="list-style-type: none"> <li>temperature control: <ul style="list-style-type: none"> <li>freezing: -18°C</li> </ul> </li> </ul>	<p><b>Macronutrients – Fat, Protein, Carbohydrates</b></p> <p><b>Micronutrients – Vitamins, minerals, water</b></p> <ul style="list-style-type: none"> <li>the functions</li> <li>main sources</li> <li>effects of deficiency and excess</li> <li>related dietary reference values.</li> </ul> <p><b>Making informed choices for a varied diet:</b></p> <ul style="list-style-type: none"> <li>The current guidelines for a healthy diet e.g., Eatwell plate.</li> <li>nutritional needs for the following life stages: young children, teenagers, adults and the elderly.</li> <li>how to plan a balanced meal for specific dietary groups: vegetarian and vegan, coeliac, lactose intolerant and high fibre diets</li> </ul> <p><b>Energy Needs: Know how to calculate energy and nutritional values of recipes, meals and diets</b></p> <ul style="list-style-type: none"> <li>how an understanding of energy balance can be used to maintain a healthy body weight throughout life</li> </ul> <p><b>Plan balanced diets:</b></p> <ul style="list-style-type: none"> <li>recommend guidelines for a healthy diet</li> <li>identify how nutritional needs change due to age, life style choices and state of health</li> <li>plan a balanced diet</li> </ul>

	<ul style="list-style-type: none"> <li>○ chilling: 0 to below 5°C</li> <li>○ danger zone: 5 to 63°C</li> <li>○ cooking: 75°C</li> <li>○ reheating: 75°C</li> <li>● ambient storage</li> <li>● temperature danger zone</li> <li>● correct use of domestic fridges and freezers</li> <li>● date marks</li> <li>● 'Best before' and 'use by' dates</li> <li>● covering foods</li> </ul>	
<b>Skill</b> <i>What pupils will be able to do</i>	<b>Skill</b> <i>What pupils will be able to do</i>	<b>Skill</b> <i>What pupils will be able to do</i>
<p><b>For each food commodity learners need to be able to:</b></p> <ul style="list-style-type: none"> <li>● experiment with the commodity to explore physical and chemical changes that occur as a result of given actions</li> <li>● consider complementary actions of a commodity in a recipe</li> <li>● prepare and cook dishes using the commodities</li> </ul>	<ul style="list-style-type: none"> <li>● Using the oven for baking, roasting, braising, casseroles.</li> <li>● Dry heat and fat based methods using the hob; dry frying, shallow frying and stir frying</li> <li>● Use of the microwave oven</li> <li>● General practical skills – judge and modify sensory properties – awareness of the effect of preparation and cooking on the sensory characteristics of food – appearance, colour, flavour, texture, taste and season adding herbs, spices etc.</li> <li>● Use browning and glazing to change texture and flavour. Improve aesthetic qualities of foods by garnishing and decorating</li> <li>● The use of marinades to tenderise and flavour meats and alternatives</li> <li>● The boiling of vegetables to alter texture</li> <li>● Preparing fruit and vegetables, for example in soup making – scissor snip, crush, grate, peel.</li> <li>● Water based methods using the hob – blanching of vegetables to demonstrate the destruction of enzymes in foods.</li> <li>● Oxidation – e.g., preventing water soluble vitamin loss when preparing and cooking vegetables.</li> <li>● Preparing fruit and vegetables – mash, shred, scoop, segment, juice and blanch fruits and vegetables to control enzymic browning.</li> <li>● Preparing fruit and vegetables which sustain yeast and mould growth, wash and chill to prevent their growth. Demonstrate the following techniques: de-seed, de-skin, knife skills to demonstrate different vegetable cuts.</li> </ul>	<ul style="list-style-type: none"> <li>● Modify recipes for vegetarian diets.</li> <li>● Knife skills – meat, fish or their alternatives.</li> <li>● How acids denature and coagulate protein</li> <li>● Make a lasagne sauce using meat or a meat alternative such as soya.</li> <li>● Make a pastry, shape and finish a pastry</li> <li>● Adapt methods of cooking to reduce fat, e.g., grilling instead of frying, baking instead of roasting</li> <li>● Demonstrate proving to make bread rolls using high fibre flour.</li> <li>● Adapt recipes to suit different dietary requirements</li> <li>● calculate the energy and main macronutrients and micronutrients in the following: <ul style="list-style-type: none"> <li>○ (i) a recipe</li> <li>○ (ii) a meal</li> <li>○ (iii) an individual's existing diet over a period of time</li> <li>○ use nutritional information/data to determine why, when and how to make changes to: <ul style="list-style-type: none"> <li>○ (i) a recipe, e.g., increase dietary fibre (NSP) content</li> <li>○ (ii) a menu, e.g., reduce saturated fat content</li> <li>○ (iii) a diet, e.g., to increase energy intake prior to a sporting activity or to meet the new recommendations for free sugars</li> </ul> </li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Make a bread dough, finish and shape a bread dough for use in flat breads and calzone</li> </ul>	
<b>KS4 Module 4: Food Choice</b>	<b>KS4 Module 5: Food Provenance</b>	<b>KS4 Module 6: Cooking and food preparation</b>
<b>Knowledge</b> <i>What pupils will know</i>	<b>Knowledge</b> <i>What pupils will know</i>	<b>Knowledge</b> <i>What pupils will know</i>
<p><b>Factors which influence food choice:</b></p> <ul style="list-style-type: none"> <li>• physical activity level (PAL)</li> <li>• celebration/occasion</li> <li>• cost of food</li> <li>• preferences</li> <li>• enjoyment</li> <li>• food availability</li> <li>• healthy eating</li> <li>• income</li> <li>• lifestyles</li> <li>• seasonality</li> <li>• time of day</li> <li>• time available to prepare/cook.</li> </ul> <p><b>Food labelling and marketing influences:</b></p> <ul style="list-style-type: none"> <li>• mandatory information included on food packaging in accordance with current legislation</li> <li>• non-mandatory information: provenance, serving suggestions</li> <li>• how to interpret nutritional labelling</li> <li>• how food marketing can influence food choice e.g., buy one get one free, special offer, meal deals, media influences, advertising, point of sales marketing.</li> </ul> <p><b>British and international cuisine:</b></p> <ul style="list-style-type: none"> <li>• distinctive features and characteristics of cooking</li> <li>• equipment and cooking methods used</li> <li>• eating patterns</li> <li>• presentation styles</li> <li>• traditional and modern variations of recipes.</li> </ul> <p><b>Sensory evaluation:</b></p> <ul style="list-style-type: none"> <li>• Importance of senses when making food choices: sight, taste, touch and aroma</li> <li>• preference tests: paired preference, hedonic.</li> <li>• discrimination tests: triangle.</li> <li>• grading tests: ranking, rating and profiling</li> </ul>	<p><b>Environmental impact and sustainability of food – Food Sources</b></p> <p><b>Where and how ingredients are grown, reared and caught:</b></p> <ul style="list-style-type: none"> <li>• grown ingredients: fruits, vegetables and cereals</li> <li>• reared ingredients: meat and poultry</li> <li>• caught ingredients: fish</li> <li>• an understanding of: <ul style="list-style-type: none"> <li>• organic and conventional farming</li> <li>• free range production</li> <li>• intensive farming</li> <li>• sustainable fishing</li> </ul> </li> <li>• advantages and disadvantages of local produced foods, seasonal foods and Genetically Modified (GM) foods.</li> </ul> <p><b>Environmental issues associated with food:</b></p> <ul style="list-style-type: none"> <li>• seasonal foods</li> <li>• sustainability e.g., fish farming</li> <li>• transportation</li> <li>• organic foods</li> <li>• the reasons for buying locally produced food</li> <li>• food waste in the home/food production/retailers</li> <li>• environment issues related to packaging</li> <li>• carbon footprint.</li> </ul> <p><b>Food Processing and production:</b></p> <ul style="list-style-type: none"> <li>• 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)</li> <li>• 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)</li> <li>• loss of vitamins through heating and drying</li> <li>• the effect of heating and drying on the sensory characteristics of milk.</li> </ul>	<p><b>Food preparation and cooking techniques</b></p> <p><b>Plan, prepare cook and serve a number of recipes:</b></p> <ul style="list-style-type: none"> <li>• planning for cooking:</li> <li>• preparation of ingredients to make a selection of recipes, e.g., weigh and measure liquids and solids, use knife skills, combine and shape, tenderise and marinate</li> <li>• cooking a selection of recipes, e.g., water-based methods, using the oven, set a mixture, select and adjust cooking times and temperatures, judge and manipulate sensory properties: seasoning, test for readiness</li> <li>• presenting a selection of recipes, e.g., shaping and finishing a dough, glazing and food styling, preparing fruits and vegetables as a garnish</li> <li>• select appropriate preparation, cooking and serving techniques when producing dishes</li> <li>• work safely: follow correct personal and food safety and hygiene practices and procedures</li> <li>• work independently: make own judgements, e.g., cooking methods, cooking time, manipulating taste, texture and appearance</li> <li>• use sensory descriptors appropriately and correctly</li> </ul>

<ul style="list-style-type: none"> <li>• how to set up a taste panel</li> <li>• controlled conditions required for sensory testing</li> <li>• evaluating how senses guide</li> <li>• evaluating a wide range of ingredients and food from Britain and other countries</li> <li>• how to test sensory qualities of a wide range of foods and combinations.</li> </ul>		
<p style="text-align: center;"><b>Skill</b> <i>What pupils will be able to do</i></p>	<p style="text-align: center;"><b>Skill</b> <i>What pupils will be able to do</i></p>	<p style="text-align: center;"><b>Skill</b> <i>What pupils will be able to do</i></p>
<ul style="list-style-type: none"> <li>• When selecting recipes students can explain and justify their reasons for choice.</li> <li>• When preparing recipes and meals students consider lifestyle, consumer choice etc.</li> <li>• When planning recipes and dishes students carry out costing of the dishes.</li> </ul>	<ul style="list-style-type: none"> <li>• Consider the seasons when selecting ingredients for recipes using fruits and vegetables.</li> <li>• Using left over food to avoid wastage, whilst considering food waste.</li> <li>• Make dough for pasta, shape and finish dough using a pasta machine, shape and finish pasta.</li> <li>• Water based cooking methods using the hob to boil the pasta.</li> </ul>	<ul style="list-style-type: none"> <li>• Accurate measurement of liquids and solids.</li> <li>• 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.</li> <li>• Bridge hold, claw grip, peel, slice, dice and cut into even size pieces (i.e., batons, julienne).</li> <li>• Portion a whole chicken</li> <li>• 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</li> <li>• Roll, wrap, skewer, mix, coat, layer meat, fish and alternatives. Shape and bind wet mixtures such as burgers and koftas. whilst demonstrating the technical skill of preventing cross contamination and handling high risk foods correctly.</li> <li>• Sauce demonstrating starch gelatinisation: bechamel for lasagne. How starch/liquid ratios affect viscosity.</li> <li>• Gelation: use a starch to set a mixture on chilling for layered desserts, Panna Cotta</li> </ul>