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**Knowledge Rich Curriculum Plan**

**Year 13 Food Science and Nutriton**



| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Tiered Vocabulary** | **Prior Knowledge:**  *In order to know this students, need to already know that…* | **Assessment** |
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| Lesson 1-2  T - Explain How Food Properties Can Be Changed  P - Practical Understanding of How Food Properties Can Be Changed | * Students will know how food properties can be changed; to include a theoretical and practical understanding of denaturation and gelatinisation. * Students will know how food properties can be changed; to include a theoretical and practical understanding of Caramelisation, Emulsification, Sols-gels- Meringue and Honeycomb | Denaturation- To change (a protein) by chemical or physical means, such as the action of acid or heat, to cause loss of solubility, biological activity, etc. to render (something, such as ethanol) unfit for consumption by adding nauseous substances.  Gelatinisation- To change or be changed from a liquid into a soft, semisolid, or solid mass: clot, coagulate, congeal, curdle, jell, jelly, set.  Caramelisation- To cook (food), often with sugar, until a brown syrup is formed:  Emulsification- The process of making an emulsion, allowing fat and water to mix.  Sols-Gels- A colloidal dispersion in which a solid is the dispersed phase and liquid is the continuous phase. Gravy, stirred custard and other thick sauces are some of the examples of sols. When a jelly is made, gelatine is dispersed into a liquid and heated to form a sol. | * Students need to already know that when food items are manipulated, this will cause changes in their appearance/texture e.g. frying an egg. * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 3-4  T - Variables That Affect Physical Properties of Food  P - Practical Understanding of the Variables That Affect the Physical Properties of Food | * Students will know how the physical properties of food can be affected by temperature, chemical reactions and manipulation. | Temperature- The degree or intensity of heat present in a substance or object, especially as expressed according to a comparative scale and shown by a thermometer or perceived by touch.  Chemical Reactions- A process that involves rearrangement of the molecular or ionic structure of a substance, as distinct from a change in physical form or a nuclear reaction.  Manipulation- The action of manipulating something in a skilful manner.  Stirring- Move a spoon or other implement round in (a liquid or other substance) in order to mix it thoroughly.  Beating- Stir (cooking ingredients) vigorously to make a smooth or frothy mixture.  Whisking- Beat or stir (a substance, especially cream or eggs) with a light, rapid movement. | * Students need to already know some of the variables that affect the physical properties of food e.g. temperature. * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 5-16  T & P - Scientifically Investigate Changes to Food to Solve Food Production Problems | * Students will know how to set success criteria for scientific investigations * Students will know how to obtain outcomes from scientific investigations * Students will know how to obtain outcomes from scientific investigations * Students will know how to record outcomes of investigative work * Students will know how to process data * Students will know how to review the suitability of the investigative methods used * Students will know how to analyse food production situations * Students will know how to propose practical options to solve food production problems * Students will know how to scientifically justify proposed options | Appearance- The way that someone or something looks  Texture- The feel, appearance, or consistency of a surface or substance.  Aroma- A distinctive, typically pleasant smell.  Flavour- The distinctive taste of a food or drink.  Valid- Having a sound basis in logic or fact; reasonable or cogent.  Reliable-Consistently good in quality or performance; able to be trusted.  Statistical methods- A method of analysing or representing statistical data; a procedure for calculating a statistic. statistical procedure. method - a way of doing something, especially a systematic way; implies an orderly logical arrangement (usually in steps)  Consistency- The quality of achieving a level of performance which does not vary greatly in quality over time.  Bias- Inclination or prejudice for or against one person or group, especially in a way considered to be unfair.  Validity- The quality of being logically or factually sound; soundness or cogency.  Merits- A good feature or point.  Limitations- A limiting rule or circumstance; a restriction. | * Students need to already know how food properties can be changed; to include a theoretical and practical understanding of denaturation and gelatinisation. * Students need to already know how the physical properties of food can be affected by temperature, chemical reactions and manipulation. * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 17-20  Unit 2: Understand How Microorganisms Affect Food Safety  P - Practical Research into External Assessment Brief | * Students will know how to describe properties of microorganisms * Students will know how changing conditions affect growth of microorganisms in different environments * Students will know how microorganisms affect food quality * Students will know how preservation methods prevent the growth of microorganisms | Bacteria- A member of a large group of unicellular microorganisms which have cell walls but lack organelles and an organized nucleus, including some that can cause disease.  Fungi- Any of a group of spore-producing organisms feeding on organic matter, including moulds, yeast, mushrooms, and toadstools.  Viruses- An infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and is able to multiply only within the living cells of a host.  pH- A figure expressing the acidity or alkalinity of a solution on a logarithmic scale on which 7 is neutral, lower values are more acid and higher values more alkaline.  Oxygen- A colourless, odourless reactive gas, the chemical element of atomic number 8 and the life-supporting component of the air.  Nutrients- A substance that provides nourishment essential for the maintenance of life and for growth.  Appearance- The way that someone or something looks  Texture- The feel, appearance, or consistency of a surface or substance.  Freezing- Store (something) at a very low temperature in order to preserve it- below 0°C.  Jamming- A sweet spread or conserve made from fruit and sugar boiled to a thick consistency.  Pickling- Preserve (food or other perishable items) in vinegar or brine.  Drying- Preserve by allowing or encouraging evaporation of moisture from. | * Students need to already know how bacteria grow and multiply given the correct conditions. * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 21-23  Unit 2: Understand How Food Can Cause Ill Health  P - Practical Research into External Assessment Brief | * Students will know how to explain the physiology of food intolerances * Students will know how to explain the physiological basis of food allergies * Students will know how to explain the physiological basis of food poisoning * Students will know how to describe the symptoms of food induced ill health | Lactose intolerance- The inability to digest lactose, resulting from deficiency of the enzyme lactase and sometimes causing diarrhoea or other gastrointestinal symptoms.  Wheat intolerance- Coeliac disease, an autoimmune disease, is the main form of wheat intolerance, caused by an allergic reaction to gluten.  Crustaceans- An arthropod of the large, mainly aquatic group Crustacea, such as a crab, lobster, shrimp, or barnacle.  Physiological effects- Relating to the way in which the bodies of living things work:  Visible symptoms- That can be seen; perceptible to the eye:  Non -visible symptoms- Not visible; not perceptible by the eye: | * Students need to already know how microorganisms affect food safety * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 24-25  Unit 2: Understand How Food Safety Is Managed in Different Situations  P - Practical Research into External Assessment Brief | * Students will know how to describe food safety hazards in different environments * Students will know how to assess risk to food safety in different environments * Students will know how to explain control measures used to minimise food safety risks * Students will know how to justify proposals for control measures in different environments | Preparation- A proceeding, measure, or provision by which one prepares for something:  Cooking- The art or practice of preparing food;  Serving- For use in distributing food to or at the table:  Store- To supply or stock with something, as for future use.  Transporting- To carry, move, or convey from one place to another.  Outdoors- In or into the open air; outside a building or shelter.  Temporary- Lasting for only a limited period of time; not permanent.  Cross Contamination- The process by which bacteria or other microorganisms are unintentionally transferred from one substance or object to another, with harmful effect.  Cleaning- The action of making something clean, especially the inside of a house.  Storage- The action or method of storing something for future use.  Proposal- A plan or suggestion, especially a formal or written one, put forward for consideration by others. | * Students need to already know how microorganisms affect food safety * Students need to already know how food can cause ill health * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |
| Lesson 26-31  Unit 2: Practice External Exam/Final External Exam | * Students will know how to correctly answer the examination brief using key command words. | Preparation- A proceeding, measure, or provision by which one prepares for something:  Cooking- The art or practice of preparing food;  Serving- For use in distributing food to or at the table:  Store- To supply or stock with something, as for future use.  Transporting- To carry, move, or convey from one place to another.  Outdoors- In or into the open air; outside a building or shelter.  Temporary- Lasting for only a limited period of time; not permanent.  Cross Contamination- The process by which bacteria or other microorganisms are unintentionally transferred from one substance or object to another, with harmful effect.  Cleaning- The action of making something clean, especially the inside of a house.  Storage- The action or method of storing something for future use.  Proposal- A plan or suggestion, especially a formal or written one, put forward for consideration by others. | * Students need to already know how microorganisms affect food safety * Students need to already know how food can cause ill health * Students need to already know how food safety is managed in different situations |  |
| Practical Sessions (On-going) | * P- Students will know how to cook a range of predominantly savoury dishes in order to upskill themselves. | Preparation- A proceeding, measure, or provision by which one prepares for something:  Cooking- The art or practice of preparing food;  Serving- For use in distributing food to or at the table:  Store- To supply or stock with something, as for future use.  Cross Contamination- The process by which bacteria or other microorganisms are unintentionally transferred from one substance or object to another, with harmful effect.  Cleaning- The action of making something clean, especially the inside of a house.  Storage- The action or method of storing something for future use. | * Students need to already know the Food Department routines and expectations including; removing blazers, handwashing, tying hair back, putting an apron on, filling sinks with hot water/washing up liquid, storing bags appropriately and meeting their class teacher at the front of the room. * Students need to already know how to appropriately prepare themselves and the environment for a practical lesson using the acronym HATTIE. * Students need to already know how to turn on the oven. * Students need to already know how to weigh ingredients. * Students need to already know how to safely use a range of equipment. * Students need to already know to place their product in the oven/ use the hob. * Students need to already know to safely remove their product from the oven/ hob * Students need to already know how to wash up- using the departmental washing up procedures. |  |