Home-School Learning Collaboration – Food Preparation and Nutrition

Topics in this cycle: Culture and Cuisine & The Science of Cooking	Taught: Rotation (10 weeks)	Year Group: 9

Key knowledge/concepts to be learnt ('Tell me about….')	Websites/blogs/YouTube links and further reading to deepen and consolidate learning
• **How does culture influence cuisines?** World cuisines are influenced by factors such as the terrain and climate of land, the history and culture of its people. Food across the world develop and change all the time. Technology, together with improved transports and communication links have made a great impact on how ingredients are grown and distributed across the world. • **The different types of cuisine available throughout the world:** benefits of dealing with different cultures is the opportunity to explore the tastes of foreign lands and other people. Food and drink are as much representations of culture as are the arts, architecture, attire, or human behaviour • **Why do we cook food?** To kill pathogenic bacteria, enhance the taste and texture and to make digestion easier. • **The Science of cooking:** Cooking food is the transfer of heat energy from one item to another, such as boiling water to carrots. The heat energy changes the molecule structure of the different nutrients. • **Heat transfer** **Conduction:** the transfer of heat by direct contact from the hot surface. Heat is conducted through solid objects. For example: *frying an egg*. The metal frying pan heats up because the molecules in the metal vibrate from the heat. **Radiation: T**ransfer of heat by waves which travel through space. If something gets between the heat source and the food, the heat is stopped – it will not get through or round the object. Two examples of radiation are infrared (the grill) and microwave. **Convection**: Heat moves through liquids and gases by convection currents. For example: *boiling food or cooking in the oven. When liquids or gases are heated, the part closest to the heat source warms first and rises. This is replaced by cooler parts of gas or liquid. This is then heated until the water reaches boiling point.* • **The different methods of cooking:** **Moist methods:** cooking food in liquid **Frying methods:** cooking food in oil **Dry methods:** cooking food without any form of liquid or oil. • **Physical and chemical changes in food production.** Explain the different changes that happens to protein, carbohydrates, fats, minerals and vitamins, different raising agents during the preparation and cooking of foods.	Culture and Cuisine https://theculturemastery.com/2016/03/30/how-culture-affects-cuisine/ Food Chains and Food Webs https://www.eufic.org/en/food-safety/article/the-why-how-and-consequences-of-cooking-our-food Ways of heat transfer https://www.scienceofcooking.com/how-is-heat-transferred-in-cooking.html Method of cooking: https://www.studential.com/university/student-cooking/cooking-methods https://www.scienceofcooking.com/how-is-heat-transferred-in-cooking.html https://www.youtube.com/watch?v=Lh91QeRcVFQ Changes during Food production. https://www.slideshare.net/SunilKumar148/effect-of-heat-on-food https://www.youtube.com/watch?v=1FMkjKg

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Key Vocabulary and Definitions To Be Learnt	
Conduction	Conduction is the transfer of heat between substances that are in direct contact with each other. The better the conductor, the more rapidly heat will be transferred
Hydration	Hydration is simply the process of adding water to the ingredient.
Radiation	Transfer of heat by waves which travel through space. If something gets between the heat source and the food, the heat is stopped – it will not get through or round the object.
Convection	Convection occurs when warmer areas of a liquid or gas rise to cooler areas in the liquid or gas. Cooler liquid or gas then takes the place of the warmer areas which have risen higher
Oxidation	Oxidation, a chain reaction that occurs in the presence of oxygen, is responsible for the deterioration in the quality of food products, including off-flavours and off-odours.
Preservation	Food preservation includes processes that make food more resistant to microorganism growth and slow the oxidation of fats.
Perishable	Perishable foods are those likely to spoil, decay or become unsafe to consume if not kept refrigerated at 40 °F or below, or frozen at 0 °F or below.
Denaturing	Denaturation ("changing the nature") happens when protein molecules unravel from their naturally coiled state.
Sauté	A French word used to describe a method for cooking foods in a shallow pan using high heat.
Caramelisation	Caramelization happens when sugar is introduced to heat. Compounds are released that alter the flavour and the colour of the sugar.
Unsaturated fatty acid	liquid at room temperature, are considered beneficial fats because they can improve blood cholesterol levels, ease inflammation, stabilize heart rhythms, and play several other beneficial roles.
Coagulation	Coagulation is defined as the change in the structure of protein (from a liquid form to solid or a thicker liquid) brought about by heat, mechanical action or acids.
Dextrinization	The heating process where the starches within the food are broken down (by a chemical reaction) into sugars called dextrin.
Gelatinisation	Gelatinisation occurs when starch granules are heated in a liquid, causing them to swell and burst, which results in the liquid thickening

What Will The Assessment Look Like?

Extended writing – Explain the physical and chemical changes that occurs to protein when preparing and cooking,

End of Unit test: 30 minutes

- Short answer questions
- Multiple choice
- Extended writing

Family Learning Opportunities

Experimenting the Millard reaction of Carbohydrates.

Research how does the nutrient in steak is affected when cooking to cause the Millard effect (browning changes).

https://www.youtube.com/watch?v=rs1JLYXROVU

Devise a quiz on the changes that happens during food production.
