Curriculum Purpose Statement – Food and Nutrition

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation. As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

With increasing concerns in society about food issues, including hygiene, safety, sustainability and the nutritional quality of food. Students need to explore food-related issues through a range of practical experiences, allowing them to make informed and appropriate choices with regards to food.

The study of Food Technology provides students with a broad knowledge and understanding of food properties, processing, preparation, nutritional considerations and consumption. It addresses the importance of hygiene and safe working practices along with legislation in the production of food. It also provides students with a context through which to explore the richness, pleasure and variety food adds to life.

Integral to this Food technology teaching is the ability to design, produce and evaluate solutions to situations involving food. These form part of a broad set of skills that are transferable to other study, work and life contexts that students may encounter.

It is our aim to develop independent, competent learners who progressively increase their basic food preparation and cooking skills, encouraging them to think like chefs, nutritionists, food scientists and food product developers.

By the end of Key Stage 3 students will:

- understand and apply the principles of nutrition and health
- cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet
- become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]
- understand the source, seasonality and characteristics of a broad range of ingredients
- Provide an introduction for GCSE Food preparation and nutrition.

By the end of Key Stage 4 students will:

- Have studied the topics including food, nutrition and health, food science, food safety, food choice and food provenance
- Developed their ability of the 12 key food preparation practical skills and can apply them and combine them to achieve specific outcomes.
- Have had a positive experience and built confidence and professional relationships with staff which enables them to communicate with adults in a confident manner
- Be able to make insightful judgments when planning menus for people with different dietary conditions, lifestyles and nutritional needs.
- To critically analyse the nutritional and sensory properties, cost and level of technical skills demonstrated when producing dishes.
- Have the knowledge of key processes before applying them in practical lessons.

Topics

- In relation to Food, nutrition and health, students must know and understand
    - the functions of the macronutrients, micronutrients and water
    - main sources of the macronutrients, micronutrients and water
    - effects of deficiency and excess of the macronutrients, micronutrients and water
    - related dietary reference values of the macronutrients, micronutrients and water
    - The role of antioxidants in protecting body cells from damage.
    - the current guidelines for a healthy diet eg eatwell plate.
    - 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.
    - 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
    - how to use current nutritional information and data eg food tables, nutritional analysis software to calculate energy and nutritional value.
    - how diet can affect health and how nutritional needs change in relation to a range of diet related illnesses (obesity, cardiovascular health - coronary heart disease (CHD) and high blood pressure, bone health - rickets and osteoporosis, dental health, iron deficiency anaemia and Type 2 diabetes)

- In relation to Food science, students must know and understand
    - Why food is cooked
    - How preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food.
    - How heat is transferred
    - How the selection of appropriate preparation and cooking methods can conserve or modify nutritive value or improve palatability
    - how preparation and cooking affect the appearance, colour, flavour, texture, smell and overall palatability of food.
    - the working characteristics, functional and chemical properties of proteins, carbohydrates, fats and oils.
    - the scientific principles underlying the following processes when preparing and cooking food – (protein denaturation, protein coagulation, gluten formation, foam formation, gelatinization, dextrinization, caramelization, Shortening, aeration, plasticity, emulsification, enzymic browning and oxidation.
    - the working characteristics, functional and chemical properties of raising agents and the underlying scientific principles of these when preparing and cooking food.

- In relation to Food safety, students must know and understand
    - 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.
    - 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.
    - moulds in the production of blue cheese
    - yeasts to raise bread
    - bacteria in yoghurt and cheese production.
    - 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.
    - The food safety principles
    - when buying and storing food.
    - The food safety principles when preparing, cooking and serving food.

- In relation to Food choice, students must know and understand
    - to know and understand factors which may influence food choice.
    - Food choice related to religion, culture, ethical and moral beliefs and medical conditions.
    - how information about food available to the consumer, including labelling and marketing, influences food choice.
    - distinctive features and characteristics of cooking British and international cuisine including equipment, cooking methods used, eating patterns, presentation styles, traditional and modern variations of recipes.
    - sensory testing methods, how taste receptors and olfactory systems work when tasting food.

- In relation to Food provenance, students must know and understand
    - Food choice related to religion, culture, ethical and moral beliefs and medical conditions.
    - environmental issues associated with food.
    - the impact of food and food security on local and global markets and communities.
    - primary and secondary stages of processing and production. how processing affects the sensory and nutritional properties of ingredients
    - technological developments to support better health and food production including fortification and modified foods with health benefits and the efficacy of these.
- In relation to Food preparation and cooking techniques, students will know how to
    - Students must know how and when the 12 key food preparation skills can be applied and combined to achieve specific outcomes.
    - consider the influence of lifestyle and consumer choice when developing meals and recipes
    - consider 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, processes, 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 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 should be able to carry out these techniques safely and combine them into appealing meals whilst evaluating the results.