Design and Technology Medium Term Plan

Year 4 DT	Autumn	Spring	Summer
Concepts	Cooking and nutrition	Mechanical systems	Electrical systems
Overview	Children work together to make their very own bolognese sauces, following their own recipe methods and designing packaging that promotes it as a healthy and ethical choice	Children will make nets to form their car bodies based on their own designs, adding the graphics and tabs that will attach to the chassis.	Pupils create a torch design, building on their understanding from and incorporating features they have identified in previous lessons. They then build the circuit and housing for their torches, closely following their own designs.
What we need to know	To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients.	To understand that all moving things have kinetic energy. To understand that kinetic energy is the energy that something (object/person) has by being in motion.	To understand that electrical conductors are materials which electricity can pass through. To understand that electrical insulators are materials which electricity cannot pass through.

	To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.	To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance.	To know that a battery contains stored electricity that can be used to power products. To know that an electrical circuit must be complete for electricity to flow. To know that a switch can be used to complete and break an electrical circuit.
Sequence of learning	From farm to fork. What does healthy food look like? Adapting and improving a recipe. Mama mia! What a tasty, healthy bolognaise!	Chassis and launch mechanism. Designing the car body. Making the car body. Assembly and testing.	Electrical products. Evaluating torches. Torch design. Torch assembly.
Building on what we know	To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. To know that nutrients are substances in food that all living things need to make energy, grow and develop.	To know that different materials have different properties and are therefore suitable for different uses. To know the features of a Ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder. To know that it is important to test my design as I go along so that I can solve any problems that may occur.	See science progression document.

	To know that 'ingredients' means the items in a mixture or recipe. To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.		
Vocabulary	Beef, reared, processed, ethical, diet, ingredients, supermarket, farm, balanced	Chassis, energy, kinetic, mechanism, air resistance, design, structure, graphics, research, model, template	Battery, bulb, buzzer, conductor, circuit, circuit diagram, electricity, insulator, series, circuit, switch, component, design, design criteria, diagram, evaluation, LED, model, shape, target audience, input, recyclable, theme, aesthetics, assemble, equipment, ingredients, packaging, properties
Disciplinary Knowledge	Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. Writing an amended method for a recipe to incorporate the relevant changes to ingredients. Designing appealing packaging to reflect a recipe. Cutting and preparing recipes safely.	Designing a shape that reduces air resistance. Drawing a net to create a structure from. Choosing shapes that increase or decrease speed as a result of air resistance. Personalising a design. Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design.	Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. Making a torch with a working electrical circuit and switch. Using appropriate equipment to cut and attach materials. Assembling a torch according to the design and success criteria. Evaluating electrical products.

	Using equipment safely, including knives, hot pans and hobs. Knowing how to avoid cross-contamination. Following a step-by-step method carefully to make a recipe. Identifying the nutritional differences between different products and recipes. Identifying and describing healthy benefits of food groups.	Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	Testing and evaluating the success of a final product.