



# D.T.: Long Term Plan

	<b>Big Question One</b> Essential Knowledge	<b>Big Question Two</b> Essential Knowledge
<b>FS2</b>	<b>Throughout the year</b> <ul style="list-style-type: none"> <li>→ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.</li> <li>→ Develops their own ideas through experimentation with diverse materials.</li> <li>→ Uses their increasing knowledge and understanding of tools and materials to explore their interests and enquiries and develop their thinking.</li> <li>→ Ideas can be developed through diverse materials, e.g. light, projected image, loose parts, watercolours, powder paint</li> <li>→ Use a range of small tools, including scissors, paint brushes and cutlery.</li> <li>→ Know which tools to use which for which purpose.</li> <li>→ Share their creations, explaining the process they have used.</li> <li>→ Expresses and communicates working theories, feelings and understandings using a range of art forms</li> <li>→ Explanation of processes used to create</li> <li>→ Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</li> </ul>	
<b>Y1</b>	<b>Autumn Two: What do I need to make the best moon buggy?</b> <ul style="list-style-type: none"> <li>→ Different materials are suitable for different purposes, depending on their specific properties. For example, glass is transparent, so it is suitable to be used for windows.</li> <li>→ Design criteria are the explicit goals that a project must achieve.</li> <li>→ Computer-aided design is when computers are used to help design products</li> <li>→ Select the appropriate tool for a simple practical task</li> <li>→ An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.</li> <li>→ Rules are made to keep people safe from danger.</li> <li>→ Different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper. Plastic is light and can float. Clay is heavy and will sink.</li> <li>→ A strength is a good quality of a piece of work. A weakness is an area that could be improved</li> </ul>	<b>Autumn Two: How can I make a healthy salad?</b> <ul style="list-style-type: none"> <li>→ Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables,</li> <li>→ Describe the similarities and differences between two products.</li> <li>→ Measure and weigh food items using non-standard measures, such as spoons and cups.</li> <li>→ Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day</li> <li>→ The importance of a product may be that it fulfils its goals and performs a useful purpose.</li> </ul>
<b>Y2</b>	<b>Autumn Two: What makes a healthy lunch?</b> <ul style="list-style-type: none"> <li>→ A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.</li> <li>→ Food comes from two main sources: animals and plants.</li> <li>→ Generate and communicate their ideas through a range of methods.</li> <li>→ Select the appropriate tool for a task and explain their choice.</li> <li>→ There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.</li> <li>→ Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.</li> </ul>	<b>Autumn Two: How can we make the best toy castle?</b> <ul style="list-style-type: none"> <li>→ Products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose.</li> <li>→ Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive</li> <li>→ Computer software can be used to help design or plan a product. Advantages include identifying and solving problems before the product is made and experimenting with different materials and colours.</li> <li>→ Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares. A broader base will also make a structure more stable.</li> <li>→ Lillian Miller Gilbreth is an important inventor because she invented things to make kitchens more hygienic and easier to work in, including the pedal bin and putting shelves in the fridge.</li> </ul>
<b>Y3</b>	<b>Summer Two: What local ingredients make the best savoury dish?</b> <ul style="list-style-type: none"> <li>→ There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and vegetables; carbohydrates (potatoes, bread, rice and pasta); proteins (beans, pulses, fish, eggs and meat); dairy and alternatives (milk, cheese and yoghurt) and fats (oils and spreads). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet.</li> </ul>	<b>Summer Two: How can we transport food effectively?</b> <ul style="list-style-type: none"> <li>→ The coolbox is an insulated box used to keep food or drink cool. Its invention shaped the world because it allowed people to transport food to different places without it going off.</li> <li>→ Work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.</li> </ul>



# D.T.: Long Term Plan

	<ul style="list-style-type: none"> <li>→ The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate and soil type.</li> <li>→ Plan which materials will be needed for a task and explain why.</li> <li>→ Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user.</li> <li>→ Prepare and cook a simple savoury dish.</li> <li>→ Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.</li> <li>→ Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.</li> </ul>	<ul style="list-style-type: none"> <li>→ Richard C. Laramy invented the first coolbox. It was made of heavy duty metal and used ice to keep food cold. In the 1970s, Coleman began designing coolers that were made of soft plastics. These are less durable but much easier to clean.</li> <li>→ Use tools safely for cutting and joining materials and components.</li> <li>→ Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the structure shape and support. Diagonal struts can strengthen the structure.</li> <li>→ Levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion</li> <li>→ An electric circuit can be used in a model, such as a lighthouse. It can be controlled using a switch.</li> <li>→ Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord.</li> </ul>
<p><b>Y4</b></p>	<p><b>Autumn Two: How did the design of the Roman shield help make the Roman army so powerful?</b></p> <ul style="list-style-type: none"> <li>→ The designer of the Roman shield helped to shape the world because their design helped the Roman Army become the most powerful in the world. The curved shape of their design meant soldiers could overlap their shields so there were no gaps and meant it was easier to deflect missiles. They also added extra strips of wood for strength.</li> <li>→ A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored.</li> <li>→ Choose from a range of materials, showing an understanding of their different characteristics.</li> <li>→ Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.</li> <li>→ A prototype is a mock-up of a design that will look like the finished product but may not be full size or made of the same materials. Shell and frame structures can be strengthened by gluing several layers of card together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them).</li> <li>→ Select, name and use tools with adult supervision.</li> <li>→ Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.</li> </ul>	<p><b>Autumn Two: What makes a great Christmas snack?</b></p> <ul style="list-style-type: none"> <li>→ Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru, citrus fruits in California in the United States of America and apples in the United Kingdom.</li> <li>→ Design a healthy snack or packed lunch and explain why it is healthy.</li> <li>→ Identify and use a range of cooking techniques to prepare a simple dish.</li> <li>→ Chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken.</li> </ul>
<p><b>Y5</b></p>	<p><b>Summer Two: What makes the best rocket launcher?</b></p> <ul style="list-style-type: none"> <li>→ Many new designs and inventions influenced society. For example, Gladys West helped to invent Global Positioning System (GPS). This invention has influenced society as people now use mapping technology on their phones to find routes and places.</li> <li>→ Mechanisms can be used to add functionality to a model. For example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning</li> </ul>	<p><b>Summer Two: How does seasonality effect the taste of food?</b></p> <ul style="list-style-type: none"> <li>→ Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons: the food tastes better; it is fresher because it hasn't been transported thousands of miles; the nutritional value is higher; the carbon footprint is lower, due to reduced transport; it supports local growers and is usually cheaper.</li> </ul>



# D.T.: Long Term Plan

	<p>toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures.</p> <ul style="list-style-type: none"> <li>→ A pattern piece is a drawing or shape used to guide how to make something.</li> <li>→ Select and combine materials with precision.</li> <li>→ Various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes.</li> <li>→ There are many rules for using tools safely and these may vary depending on the tools being used. For example, someone using a chisel should chip or cut with the cutting edge pointing away from their body. All tools should be cleaned and put away after use, and should not be used if they are loose or cracked.</li> <li>→ Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture.</li> <li>→ Incorporate circuits that use a variety of components into models or products.</li> <li>→ Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave.</li> </ul>	<ul style="list-style-type: none"> <li>→ A balanced diet gives your body all the nutrients it needs to function correctly. This means eating a wide variety of foods in the correct proportions.</li> <li>→ Sweet dishes are usually desserts, such as cakes, fruit pies and trifles. Savoury dishes usually have a salty or spicy flavour rather than a sweet one.</li> <li>→ A focus group is a small group of people whose reactions and opinions about a product are taken and studied. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria</li> </ul>
<p><b>Y6</b></p>	<p><b>Spring Two: How can effective design contribute to survival in the Arctic?</b></p> <ul style="list-style-type: none"> <li>→ The aeroplane, invented by the Wright Brothers in 1903, has made international travel far quicker than using the boat and therefore made it easier for ordinary people to explore the world.</li> <li>→ The Wright brothers invented and built the world's first-ever successful heavier-than-air aeroplane. They are significant inventors because their work has benefited society through the improvement in transport.</li> <li>→ Create a detailed comparative report about two or more products or inventions.</li> <li>→ Computer monitoring uses sensors as a scientific tool to record information about environmental changes over time.</li> <li>→ It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.</li> <li>→ Design criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li> <li>→ Select appropriate tools for a task and use them safely and precisely.</li> <li>→ Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it.</li> <li>→ Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams.</li> <li>→ Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.</li> <li>→ Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives.</li> </ul>	