

D&T Curriculum Progression

Vision

At Burhill Primary School the Design and Technology curriculum intends to empower children so that they become responsible for their own learning through:

- Being curious
- Using their imagination
- Co-operating with others
- Developing resilience
- Evaluating, comparing and improving their work

Primary D&T forms an important foundation for learning about the world and our relationship to objects within it. From reception to year six, our children are given plentiful opportunities to find out how things work and develop skills, knowledge and understanding of designing and making functional products. Through our D&T curriculum, children are taught the importance of health and safety and encouraged to think about significant issues. Children build on a range of skills through collaborative working and problem-solving. D&T brings learning to life and is a motivating context for discovering literacy, mathematics, science, art, PSHE and ICT.

Our D&T projects provide opportunities for children to develop their capability by combining design and making skills with knowledge and understanding learnt, to create quality products. Children should be given the chance to create products they can see, touch and taste for themselves and experience a feeling of pride in doing so. Each year group will have one memorable D&T experience throughout the year and **projects will consist of children designing something for somebody for some purpose**. We feel it is vital to nurture children's creativity; encouraging them to innovate, take risks and learn from mistakes. This will support them in becoming resourceful, enterprising and capable citizens.

Year 1

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas - Design criteria are the explicit goals that a project must achieve. • Structures - 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. • Investigation - Specific tools are used for particular purposes. For example, scissors are used for cutting and glue is used for sticking. • Evaluation - A strength is a good quality of a piece of work. A weakness is an area that could be improved. • Food preparation and cooking - Using non-standard measures is a way of measuring that does not involve reading scales. For example, weight may be measured using a balance scale and lumps of plasticine. Length may be measured in the number of handspans or pencils laid end to end. • Nutrition - 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. • Origins of food - Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit and vegetables, grains, beans and nuts. • Materials for purpose - 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. • Mechanisms and movement - An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels. • Everyday products - Everyday products are objects that are used routinely at home and school, such as a toothbrush, cup or pencil. All products are designed for a specific purpose. 	<ul style="list-style-type: none"> • Generation of ideas - Create a design to meet simple design criteria. • Structures - Construct simple structures, models or other products using a range of materials. • Investigation – Select the appropriate tool for a simple practical task. • Evaluation - Talk about their own and each other's work, identifying strengths or weaknesses with support. • Food preparation and cooking - Measure and weigh food items using non-standard measures, such as spoons and cups. • Nutrition - Select healthy ingredients for a fruit or vegetable salad. • Origins of food – Sort foods into groups by whether they are from an animal or plant source. • Materials for purpose - Select and use a range of materials, beginning to explain their choices. • Mechanisms and movement - Use wheels and axles to make a simple moving model. • Everyday products - Name and explore a range of everyday products and describe how they are used.
Key Vocabulary	Reading, Writing and Maths Opportunities
Design criteria, purpose, property, material, tools, strengthen, strength, weakness, measure, length, weight, diet, products, axle, spindle, wheel, meat, dairy, grains, food source, cutting, joining, evaluate	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
Potential barriers to learning	Potential for going deeper
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.
Prior knowledge requirements	Assessment opportunities
See 'Key Knowledge' from prior year group	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas - Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. • Structures - 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. • Investigation – Different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials. • Evaluation - Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned. • Food preparation and cooking - Some ingredients need to be prepared before they can be cooked or eaten. 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. • Nutrition - 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. • Origins of food – Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish. Milk comes mainly from cows but also from goats and sheep. Most eggs come from chickens. Honey is made by bees. Fruit and vegetables come from plants. Oils are made from parts of plants. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts. • Materials for purpose – Properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint. • Electricity - A series circuit is made up of an energy source, such as a battery or cell, wires and a bulb. The circuit must be complete for the electricity to flow. • Mechanisms and movement - A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, linkages, gears, pulleys and cams. • Everyday products – Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. • Staying safe – Hygiene rules include washing hands before handling food, cleaning surfaces, tying long 	<ul style="list-style-type: none"> • Generation of ideas - Generate and communicate their ideas through a range of different methods. • Structures - Explore how a structure can be made stronger, stiffer and more stable. • Investigation – Select the appropriate tool for a task and explain their choice. • Evaluation - Explain how closely their finished products meet their design criteria and say what they could do better in the future. • Food preparation and cooking - Prepare ingredients by peeling, grating, chopping and slicing. • Nutrition - Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal. • Origins of food – Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables). • Materials for purpose - Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect. • Electricity - Create an operational, simple series circuit. • Mechanisms and movement - Use a range of mechanisms (levers, sliders, wheels and axles) in models or products. • Everyday products - Explain how an everyday product could be improved. • Staying safe - Work safely and hygienically in construction and cooking activities. • Significant people - Explain why a designer or inventor is important.

<p>hair back, storing food appropriately and wiping up spills.</p> <ul style="list-style-type: none"> • Significant people - Many key individuals have helped to shape the world. These include Isambard Kingdom Brunel (1806—1859), an English engineer who designed the Clifton Suspension Bridge and the Great Western Railway; Archimedes (287—212 BC) an ancient Greek who first described levers and pulleys and Michael Faraday (1791—1867), an English scientist who invented the electric motor and dynamo. 	
<p style="text-align: center;">Key Vocabulary</p>	<p style="text-align: center;">Reading, Writing and Maths Opportunities</p>
<p>Diagram, modelling, stronger, stiffer, more stable, broader, compare, improve, ingredients, prepare, grating, chopping, peeling, starchy foods, fats, beef, lamb, mutton, pork, poultry, components, series circuit, energy source, battery, cell, wires, bulb, electricity, mechanism, motion, force, sliders, levers, linkages, gears, pulleys, cams, hardwearing, attractive, hygiene</p>	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again. Advertising their product and inviting others to come and view/test it.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
<p style="text-align: center;">Potential barriers to learning</p>	<p style="text-align: center;">Potential for going deeper</p>
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	<p>Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.</p>
<p style="text-align: center;">Prior knowledge requirements</p>	<p style="text-align: center;">Assessment opportunities</p>
<p>See 'Key Knowledge' from prior year group.</p>	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas - 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. • Structures - 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. • Investigation – Specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples or a combination. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision. • Evaluation - Asking questions can help others to evaluate their product, such as asking them whether the selected materials achieved the purpose of the model. • Food preparation and cooking - Preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. • Nutrition - 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. • Origins of food – 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. For example, many crops, such as potatoes and sugar beet, are grown in the south-east of England. Wheat, barley and vegetables grow well in the east of England. • Materials for purpose - Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. • Electricity - An electric circuit can be used in a model, such as a lighthouse. It can be controlled using a switch. • Mechanisms and movement - 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. 	<ul style="list-style-type: none"> • Generation of ideas - Develop design criteria to inform a design. • Structures - Create shell or frame structures using diagonal struts to strengthen them. • Investigation – Use tools safely for cutting and joining materials and components. • Evaluation - Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. • Food preparation and cooking - Prepare and cook a simple savoury dish. • Nutrition - Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars). • Origins of food – Identify and name foods that are produced in different places. • Materials for purpose – Plan which materials will be needed for a task and explain why. • Electricity - Incorporate a simple series circuit into a model. • Mechanisms and movement - Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products. • Everyday products – Explain how an existing product benefits the user. • Staying safe - Use appliances safely with adult supervision.

<ul style="list-style-type: none"> • Everyday products - Particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. • Staying safe - 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. 	
Key Vocabulary	Reading, Writing and Maths Opportunities
<p>Use, appearance, cost, target, structure, hollow, shell structure, frame structure, rigid, diagonal struts, bench hook, junior hacksaw, pistol grip, deseeding, slicing, dicing, grating, mixing, skinning, food group, balanced diet, carbohydrates, proteins, climate, physical properties, circuit, lever, rotate, fixed point, fulcum, electrical outlet, appliance</p>	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again. Advertising their product and inviting others to come and view/test it.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
Potential barriers to learning	Potential for going deeper
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	<p>Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.</p>
Prior knowledge requirements	Assessment opportunities
<p>See 'Key Knowledge' from prior year group.</p>	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school

Year 4

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas – Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way. • Use of ICT - Remote control is controlling a machine or activity from a distance. Computers can be used to remotely control a device, such as a light, speaker or buzzer. • Structures - 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). • Investigation – Useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed. • Evaluation - 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. • Food preparation and cooking - Cooking techniques include baking, boiling, frying, grilling and roasting. • Nutrition - Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk. • Origins of food – Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America. • Materials for purpose – Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season. • Electricity - Components can be added to circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms 	<ul style="list-style-type: none"> • Generation of ideas - Use annotated sketches and exploded diagrams to test and communicate their ideas. • Use of ICT - Write a program to control a physical device, such as a light, speaker or buzzer. • Structures - Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. • Investigation – Select, name and use tools with adult supervision. • Evaluation - Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements. • Food preparation and cooking - Identify and use a range of cooking techniques to prepare a simple meal. • Nutrition - Design a healthy snack or packed lunch and explain why it is healthy. • Origins of food – Identify and name foods that are produced in different places in the UK and beyond. • Materials for purpose – Choose from a range of materials, showing an understanding of their different characteristics. • Electricity - Incorporate circuits that use a variety of components into models or products. • Mechanisms and movement - Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products. • Compare and contrast - Create and complete a comparison table to compare two or more products. • Everyday products – Investigate and identify the design features of a familiar product. • Staying safe - Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray. • Significant people - Explain how and why a significant designer or inventor shaped the world.

<p>and electronic games, motors for fairground rides and motorised vehicles and switches for burglar alarms and games.</p> <ul style="list-style-type: none"> • Mechanisms and movement – 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 toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures. • Compare and contrast - A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. • Everyday products – Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. • Staying safe – 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. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. 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. • Significant people - Significant designers and inventors include Leonardo da Vinci (1452–1519), who designed a helicopter and tank; Thomas Edison (1847–1931), who invented the phonograph and electric lightbulb and Tim Berners-Lee (1955–), who invented the World Wide Web. 	
<p style="text-align: center;">Key Vocabulary</p>	<p style="text-align: center;">Reading, Writing and Maths Opportunities</p>
<p>Annotated sketch, exploded diagram, remote control, buzzer, speaker, motor, prototype, jinks corners, baking, boiling, frying, grilling, roasting, linkages, comparison table, chemicals, hazard, ventilated</p>	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again. Advertising their product and inviting others to come and view/test it.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
<p style="text-align: center;">Potential barriers to learning</p>	<p style="text-align: center;">Potential for going deeper</p>
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	<p>Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.</p>
<p style="text-align: center;">Prior knowledge requirements</p>	<p style="text-align: center;">Assessment opportunities</p>
<p>See 'Key Knowledge' from prior year group.</p>	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school

Year 5

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas - A pattern piece is a drawing or shape used to guide how to make something. There are many different computer-aided design packages for designing products. • Use of ICT - Equipment and devices can be controlled by pressing buttons on a control panel, such as on a washing machine or microwave. • Structures - 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. • Investigation – 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. • Evaluation - Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. • Food preparation and cooking - 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. • Nutrition - 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. • Origins of food – 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. • Materials for purpose – Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques. • Electricity - Electrical circuits can be controlled by a simple on/off switch, or by a variable resistor that can adjust the size of the current in the circuit. Real-life examples are a dimmer switch for lights or volume control on a stereo. • Mechanisms and movement - Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. Hydraulic mechanisms work in a similar way, but instead of 	<ul style="list-style-type: none"> • Generation of ideas - Use pattern pieces and computer-aided design packages to design a product. • Use of ICT - Link a physical device to a computer or tablet so that it can be controlled (such as changing motor speed or turning an LED on and off) by a program. • Structures - Build a framework using a range of materials to support mechanisms. • Investigation – Name and select increasingly appropriate tools for a task and use them safely. • Evaluation - Test and evaluate products against a detailed design specification and make adaptations as they develop the product. • Food preparation and cooking - Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish. • Nutrition - Evaluate meals and consider if they contribute towards a balanced diet. • Origins of food – Describe what seasonality means and explain some of the reasons why it is beneficial. • Materials for purpose – Select and combine materials with precision. • Electricity - Use electrical circuits of increasing complexity in their models or products, showing an understanding of control. • Mechanisms and movement - Use mechanical systems in their products, such as pneumatics and hydraulics. • Everyday products – Explain how the design of a product has been influenced by the culture or society in which it was designed or made. • Staying safe - Explain the functionality and purpose of safety features on a range of products. • Significant people - Describe the social influence of a significant designer or inventor.

<p>air, the system is filled with a liquid, usually water. It is important that the system is air or watertight.</p> <ul style="list-style-type: none"> • Everyday products – Culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. • Staying safe - Safety features are often incorporated into products that might cause harm. Some examples include the child-safety caps on medicine bottles, seatbelts in cars, covers for electrical sockets and finger guards on doors. • Significant people - Many new designs and inventions influenced society. For example, labour-saving devices in the home reduced the amount of housework, which was traditionally done by women. This enabled them to have jobs. 	
<p style="text-align: center;">Key Vocabulary</p>	<p style="text-align: center;">Reading, Writing and Maths Opportunities</p>
<p>Pattern piece, computer aided design, control panel, cross braces, guy ropes, framework, redesign, manufacture, nutrients, proportions, seasonality, harvest, precision, variable resistor, pneumatic systems, syringe, hydraulic, culture, society, target audience</p>	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again. Advertising their product and inviting others to come and view/test it.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
<p style="text-align: center;">Potential barriers to learning</p>	<p style="text-align: center;">Potential for going deeper</p>
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	<p>Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.</p>
<p style="text-align: center;">Prior knowledge requirements</p>	<p style="text-align: center;">Assessment opportunities</p>
<p>See 'Key Knowledge' from prior year group.</p>	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school

Key Knowledge	Key Skills
<ul style="list-style-type: none"> • Generation of ideas - 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. • Use of ICT - Computer monitoring uses sensors as a scientific tool to record information about environmental changes over time. Computer monitoring can also log data from sensors and record the resulting information in a table or graph. • Structures - Strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover. • Investigation – Precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. • Evaluation - 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. • Food preparation and cooking - Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses. • Nutrition – 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. • Origins of food – Organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control. • Materials for purpose – It is important to understand the characteristics of different materials to select the most appropriate for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability. • Electricity – Computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors. • Compare and contrast - Products and inventions can be compared using a range of criteria, such as the 	<ul style="list-style-type: none"> • Generation of ideas - Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways. • Use of ICT - Use a sensor to monitor an environmental variable, such as temperature, sound or light. • Structures - Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. • Investigation – Select appropriate tools for a task and use them safely and precisely. • Evaluation - Demonstrate modifications made to a product, as a result of ongoing evaluation by themselves and others. • Food preparation and cooking - Follow a recipe that requires a variety of techniques and source the necessary ingredients independently. • Nutrition – Plan a healthy weekly diet, justifying why each meal contributes towards a balanced diet. • Origins of food – Explain how organic produce is grown. • Materials for purpose – Choose the best materials for a task, showing an understanding of their working characteristics. • Electricity - Understand and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products. • Mechanisms and movement - Explain and use mechanical systems in their products to meet a design brief. • Compare and contrast - Create a detailed comparative report about two or more products or inventions. • Everyday products – Analyse how an invention or product has significantly changed or improved people's lives. • Staying safe - Demonstrate how their products take into account the safety of the user. • Significant people - Present a detailed account of the significance of a favourite designer or inventor.

<p>impact on society, ease of use, appearance and value for money.</p> <ul style="list-style-type: none"> • Mechanisms and movement – Mechanical systems can include sliders, levers, linkages, gears, pulleys and cams. Other mechanisms include pneumatics and hydraulics. • Everyday products – People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. • Staying safe - The safety of the user has to be taken into account when designing a new product. Methods to help keep users safe include providing clear instructions for use, clear indication of the age range for which it is designed, safety features (such as child-resistant packaging), warning symbols and electrical safety checks. • Significant people - The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology. It may enhance culture in different areas, such as fashion, ceramics or computer games. 	
<p style="text-align: center;">Key Vocabulary</p>	<p style="text-align: center;">Reading, Writing and Maths Opportunities</p>
<p>Cross sectional diagrams, sensors, table, graph, iterative process, refine, green grocers, butchers, fishmongers, delicatessen, positive lifestyle choice, sustained, organic produce, fertilisers, pesticides, growth regulators, additives, crop rotation, biological pest control, characteristics, invention, impact</p>	<p>Writing - Evaluations of what they liked about their product and what they would change if they were to make it again. Advertising their product and inviting others to come and view/test it.</p> <p>Reading – Instructions/advertisements for or reviews of similar products.</p> <p>Maths – Link with shape and measure.</p>
<p style="text-align: center;">Potential barriers to learning</p>	<p style="text-align: center;">Potential for going deeper</p>
<ul style="list-style-type: none"> • Fine motor skills • Visual impairments • Resilience 	<p>Children should be given the opportunity to deepen their understanding by evaluating their work using key questions and comparing their work to that of their peers, as well as listening to feedback from peers regarding their product and suggesting improvements or things they would have done differently based on this.</p>
<p style="text-align: center;">Prior knowledge requirements</p>	<p style="text-align: center;">Assessment opportunities</p>
<p>See 'Key Knowledge' from prior year group.</p>	<ul style="list-style-type: none"> • Observation of the learning process and verbal feedback • Photos of the learning process evidenced in Curriculum Books • Presentation of final pieces to peers in their class and across the school