







## Challenge, Equality & Opportunity

### Design and Technology

#### Whole School Curriculum Intent:

<i>We can build knowledge and skills</i>	<i>We are creative</i>	<i>We are resilient</i>	<i>We understand ourselves and each Other</i>
<p>We strive for all of our children to have competency in the basic skills of reading, writing, maths and communication to underpin their learning, give them access to the broader curriculum and build their confidence as learners.</p> <p>We want our children to know more, remember more and be able to do more as a result of every learning experience across the curriculum.</p> 	<p>We want our children to be creative in their thinking so that they use their knowledge and skills to solve problems and create new knowledge, skills, thoughts and objects which give them enjoyment and inspire them to take their learning further.</p> 	<p>We need our children to develop independence and resilience so that they are able to grow as thinkers and learners.</p> 	<p>We aim for our children to develop empathy, awareness, respect and tolerance in-keeping with the school's No Outsiders values.</p> <p>We also want all of our children to understand themselves and be ready for the next steps in their education and the wider world.</p> 
<i>What does this look like?</i>			
<p>Achieve well in reading, writing and communication, including being at the age related expectation in early reading and phonics.</p> <p>Can build on previous learning.</p> <p>Can access new learning experiences.</p> <p>Value and enjoy success in the core subjects.</p> <p>Choose reading and use reading effectively.</p> <p>Apply maths, reading, writing and communication across the curriculum.</p>	<p>Reflect, adapt and develop ideas.</p> <p>Explore concepts.</p> <p>Make links across the curriculum.</p> <p>Ask questions and are curious.</p> <p>Use initiative.</p> <p>Hypothesise and generate ideas</p> <p>Communicate learning.</p> <p>Direct own learning through range of skills.</p> <p>Can argue and use evidence.</p>	<p>Bounce back and try again.</p> <p>Try new things and take risks.</p> <p>Manage their own things, time and learning as appropriate.</p> <p>Engage with extra-curricular activities.</p> <p>Solve problems through perseverance.</p> <p>Work towards a goal.</p>	<p>Listen to others.</p> <p>Can work in a group and cooperate with others.</p> <p>Assess own success and learning.</p> <p>Take turns and are patient.</p> <p>Use manners and are polite in interactions with everyone.</p> <p>Can manage emotions and support others.</p> <p>Show respect.</p> <p>Are kind and begin to show compassion.</p> <p>Can follow the Golden Rules.</p> <p>Can express themselves.</p>

## Design and Technology Intent

### *We can build knowledge and skills*

Provide a Design and Technology curriculum that shares the skills to develop a progressive knowledge and understanding of the importance of this subject in creating functional products.

Develop an appreciation for product design cycle through ideation, creation and evaluation.

Develop an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.

### *We are Creative*

Design and make things!

Inspire pupils to be innovative and creative thinkers, sharing their ideas to help design and create working products.

Be confident learners keen to try new ideas and techniques, combining materials using a range of techniques to create a purposeful product.

### *We are Resilient*

Develop the confidence to take risks through drafting design concepts, modelling and testing.

Ask questions and challenge their own views and thinking.

Foster a 'can do' attitude where children are innovators and inventors.

Make suggestions of how to create new objects and become increasingly independent in their selection and use of tools and resources.

Be able to refine their work on the advice of others.

### *We Understand Ourselves and Each Other*

Be reflective learners who evaluate their work and the work of others, sharing their thoughts as well as making constructive judgements.

Give children the language, experience and knowledge to evaluate their own work and the work of others

Be proud and recognise our own achievements, sharing and celebrating the products we have created.

Work collaboratively to develop research skills, develop communication and critical thinking skills.

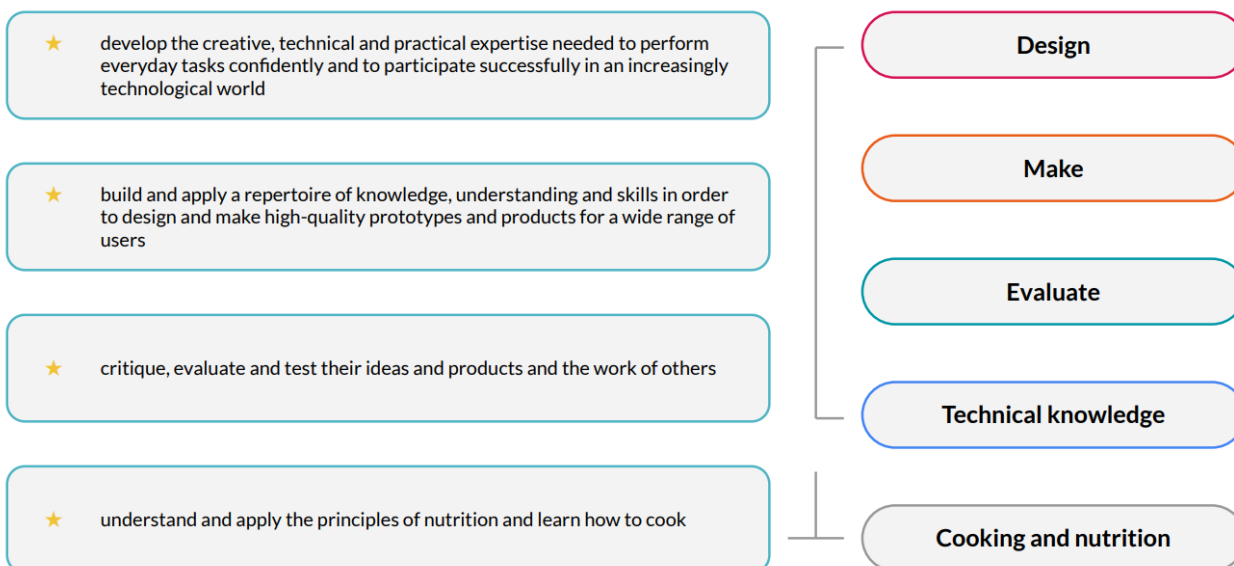
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## Design and Technology Implementation

We follow the online Kapow scheme which is continuously updated and developed primary design and technology specialists. Videos for each lesson support non-specialists and ensure consistency between classes. All of the lessons can be easily adapted so that the same skills and knowledge can be built in different contexts.

Our scheme of work fulfils the statutory requirements outlined in the **national curriculum (2014)**. The national curriculum Programme of study for Design and technology aims to ensure that all pupils:

We have identified five key strands which run throughout our scheme of work:



## Progression in Design and Technology for Each Strand

### A spiral curriculum

The scheme of work has been designed as a spiral curriculum with the following key principles in mind:

- ✓ **Cyclical:** Pupils return to the key strands again and again during their time in primary school.
- ✓ **Increasing depth:** Each time the key strand is revisited it is covered with greater complexity.
- ✓ **Prior knowledge:** Upon returning to each key strand, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.



	R	Year 1	Year 2	Year 3	Year 4
Structures					
<b>Design</b>	Verbally plan a model using junk modelling.	<ul style="list-style-type: none"> <li>Learning the importance of a clear design criteria</li> <li>Including individual preferences and requirements in a design</li> </ul>	<ul style="list-style-type: none"> <li>Generating and communicating ideas using sketching and modelling.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a castle with key features to appeal to a specific person/purpose.</li> <li>Drawing and labelling a castle design using 2D</li> </ul>	<ul style="list-style-type: none"> <li>Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</li> </ul>

				<p>shapes, labelling: - the 3D shapes that will create the features - materials needed and colours.</p> <ul style="list-style-type: none"> <li>• Designing and/or decorating a castle tower on CAD software.</li> </ul>	<ul style="list-style-type: none"> <li>• Building frame structures designed to support weight.</li> </ul>
<b>Make</b>	Select the correct resources and make a junk model.	<ul style="list-style-type: none"> <li>• Making stable structures from card, tape and glue</li> <li>• Learning how to turn 2D nets into 3D structures</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill</li> <li>• Making functioning turbines and axles which are assembled into a main supporting structure.</li> </ul>	<ul style="list-style-type: none"> <li>• Making a structure according to design criteria.</li> <li>• Creating joints and structures from paper/card and tape.</li> <li>• Building a strong and stiff structure by folding paper.</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a range of 3D geometric shapes using nets .</li> <li>• Creating special features for individual designs.</li> <li>• Making facades from a range of recycled materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a range of different shaped frame structures.</li> <li>• Making a variety of free standing frame structures of different shapes and sizes.</li> <li>• Selecting appropriate materials to build a strong structure and cladding.</li> <li>• Reinforcing corners to strengthen a structure.</li> <li>• Creating a design in accordance with a plan.</li> <li>• Learning to create different textural effects with materials.</li> </ul>
<b>Evaluate</b>			<ul style="list-style-type: none"> <li>• Testing the strength of own structure.</li> <li>• Identifying the weakest part of a structure.</li> <li>• Evaluating the strength, stiffness and stability of own structure.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design.</li> <li>• Suggesting points for modification of the individual designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating structures made by the class.</li> <li>• Describing what characteristics of a design and construction made it the most effective.</li> <li>• Considering effective and ineffective designs.</li> </ul>

<b>Technical</b>		<ul style="list-style-type: none"> <li>• To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>• To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> <li>• To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>• To begin to understand that different structures are used for different purposes.</li> <li>• To know that a structure is something that has been made and put together.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that materials can be manipulated to improve strength and stiffness.</li> <li>• To know that a structure is something which has been formed or made from parts.</li> <li>• To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</li> <li>• To know that a 'strong' structure is one which does not break easily.</li> <li>• To know that a 'stiff' structure or material is one which does not bend easily</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that wide and flat based objects are more stable.</li> <li>• To understand the importance of strength and stiffness in structures.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand what a frame structure is.</li> <li>• To know that a 'free-standing' structure is one which can stand on its own.</li> </ul>
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## Mechanisms and Mechanical Systems.

<b>Design</b>		<ul style="list-style-type: none"> <li>• Explaining how to adapt mechanisms, using bridges or guides to control the movement.</li> <li>• Designing a moving story book for a given audience.</li> <li>• Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move.</li> <li>• Creating clearly labelled drawings that illustrate movement.</li> </ul>	<ul style="list-style-type: none"> <li>• Selecting a suitable linkage system to produce the desired motion.</li> <li>• Designing a wheel.</li> <li>• Creating a class design criteria for a moving monster.</li> <li>• Designing a moving monster for a specific audience in accordance with a design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a toy which uses a pneumatic system.</li> <li>• Developing design criteria from a design brief.</li> <li>• Generating ideas using thumbnail sketches and exploded diagrams.</li> <li>• Learning that different types of drawings are used in design to explain ideas clearly.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a shape that reduces air resistance.</li> <li>• Drawing a net to create a structure from.</li> <li>• Choosing shapes that increase or decrease speed as a result of air resistance.</li> <li>• Personalising a design.</li> </ul>
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<b>Make</b>		<ul style="list-style-type: none"> <li>• Following a design to create moving models that use levers and sliders.</li> </ul> <p>Adapting mechanisms, when:</p> <ul style="list-style-type: none"> <li>• they do not work as they should.</li> <li>• to fit their vehicle design.</li> <li>• to improve how they work after testing their vehicle.</li> </ul>	<ul style="list-style-type: none"> <li>• Selecting materials according to their characteristics.</li> <li>• Following a design brief.</li> <li>• Making linkages using card for levers and split pins for pivots.</li> <li>• Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.</li> <li>• Cutting and assembling components neatly.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a pneumatic system to create a desired motion.</li> <li>• Building secure housing for a pneumatic system.</li> <li>• Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy.</li> <li>• Selecting materials due to their functional and aesthetic characteristics.</li> <li>• Manipulating materials to create different effects by cutting, creasing, folding and weaving.</li> </ul>	<ul style="list-style-type: none"> <li>• Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>• Making a model based on a chosen design.</li> </ul>
<b>Evaluate</b>		<ul style="list-style-type: none"> <li>• Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</li> <li>• Reviewing the success of a product by testing it with its intended audience.</li> <li>• Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating different designs.</li> <li>• Testing and adapting a design.</li> <li>• Evaluating own designs against design criteria.</li> <li>• Using peer feedback to modify a final design.</li> </ul>	<ul style="list-style-type: none"> <li>• Using the views of others to improve designs.</li> <li>• Testing and modifying the outcome, suggesting improvements.</li> <li>• Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> </ul>
<b>Technical</b>		<ul style="list-style-type: none"> <li>• To know that a mechanism is the parts of an object that move together.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that different materials have different properties and are therefore suitable for different uses.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand how pneumatic systems work.</li> <li>• To understand that pneumatic systems can be</li> </ul>	<ul style="list-style-type: none"> <li>• To know that air resistance is the level of drag on an object as it is forced through the air.</li> </ul>

		<ul style="list-style-type: none"> <li>• To know that a slider mechanism moves an object from side to side.</li> <li>• To know that a slider mechanism has a slider, slots, guides and an object.</li> <li>• To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.</li> <li>• To know that wheels need to be round to rotate and move.</li> <li>• To understand that for a wheel to move it must be attached to a rotating axle.</li> <li>• To know that an axle moves within an axle holder which is fixed to the vehicle or toy.</li> <li>• To know that the frame of a vehicle (chassis) needs to be balanced.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</li> <li>• To know that there is always an input and output in a mechanism.</li> <li>• To know that an input is the energy that is used to start something working.</li> <li>• To know that an output is the movement that happens as a result of the input.</li> <li>• To know that a lever is something that turns on a pivot.</li> <li>• To know that a linkage mechanism is made up of a series of levers.</li> </ul>	<p>used as part of a mechanism.</p> <ul style="list-style-type: none"> <li>• To know that pneumatic systems operate by drawing in, releasing and compressing air.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that the shape of a moving object will affect how it moves due to air resistance.</li> </ul>
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## Cooking and Nutrition

<b>Design</b>	Develop a class based vegetable soup.	<ul style="list-style-type: none"> <li>• Designing smoothie carton packaging by-hand or on ICT software.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a healthy wrap based on a food combination which works well together.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.</li> </ul>
<b>Make</b>	Working together make a vegetable soup.	<ul style="list-style-type: none"> <li>• Chopping fruit and vegetables safely to make a smoothie.</li> <li>• Identifying if a food is a fruit or a vegetable.</li> </ul>	<ul style="list-style-type: none"> <li>• Slicing food safely using the bridge or claw grip.</li> <li>• Constructing a wrap that meets a design brief.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a baking recipe, from start to finish, including the preparation of ingredients.</li> </ul>

		<ul style="list-style-type: none"> <li>• Learning where and how fruits and vegetables grow.</li> </ul>		<ul style="list-style-type: none"> <li>• Following the instructions within a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Cooking safely, following basic hygiene rules.</li> <li>• Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).</li> </ul>
<b>Evaluate</b>	Discuss their likes / dislikes.	<ul style="list-style-type: none"> <li>• Tasting and evaluating different food combinations.</li> <li>• Describing appearance, smell and taste.</li> <li>• Suggesting information to be included on packaging.</li> </ul>	<ul style="list-style-type: none"> <li>• Describing the taste, texture and smell of fruit and vegetables.</li> <li>• Taste testing food combinations and final products.</li> <li>• Describing the information that should be included on a label.</li> <li>• Evaluating which grip was most effective.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing and using design criteria to help test and review dishes.</li> <li>• Describing the benefits of seasonal fruits and vegetables and the impact on the environment.</li> <li>• Suggesting points for improvement when making a seasonal tart.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a recipe, considering: taste, smell, texture and appearance.</li> <li>• Describing the impact of the budget on the selection of ingredients.</li> <li>• Evaluating and comparing a range of food products.</li> <li>• Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).</li> </ul>
<b>Knowledge: Cooking and Nutrition</b>	Explore the differences between fruit and vegetables using their senses.	<ul style="list-style-type: none"> <li>• Understanding the difference between fruits and vegetables.</li> <li>• To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).</li> <li>• To know that a blender is a machine which mixes ingredients together into a smooth liquid.</li> <li>• To know that a fruit has seeds and a vegetable does not.</li> <li>• To know that fruits grow on trees or vines.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that 'diet' means the food and drink that a person or animal usually eats.</li> <li>• To understand what makes a balanced diet.</li> <li>• To know where to find the nutritional information on packaging.</li> <li>• To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</li> <li>• To understand that I should eat a</li> </ul>	<ul style="list-style-type: none"> <li>• To know that not all fruits and vegetables can be grown in the UK.</li> <li>• To know that climate affects food growth.</li> <li>• To know that vegetables and fruit grow in certain seasons.</li> <li>• To know that cooking instructions are known as a 'recipe'.</li> <li>• To know that imported food is food which has been brought into the country.</li> <li>• To know that exported food is food which has been sent to another country..</li> </ul>	<ul style="list-style-type: none"> <li>• To know that the amount of an ingredient in a recipe is known as the 'quantity.'</li> <li>• To know that it is important to use oven gloves when removing hot food from an oven.</li> <li>• To know the following cooking techniques: sieving, creaming, rubbing method, cooling.</li> <li>• To understand the importance of budgeting while planning ingredients for biscuits.</li> </ul>



		<ul style="list-style-type: none"> <li>• To know that vegetables can grow either above or below ground.</li> <li>• To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).</li> </ul>	<p>range of different foods from each food group, and roughly how much of each food group.</p> <ul style="list-style-type: none"> <li>• To know that nutrients are substances in food that all living things need to make energy, grow and develop.</li> <li>• To know that 'ingredients' means the items in a mixture or recipe.</li> <li>• To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</li> <li>• To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that imported foods travel from far away and this can negatively impact the environment.</li> <li>• To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.</li> <li>• To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health.</li> <li>• To know safety rules for using, storing and cleaning a knife safely.</li> <li>• To know that similar coloured fruits and vegetables often have similar nutritional benefits.</li> </ul>	
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## Textiles

<b>Design</b>		<ul style="list-style-type: none"> <li>• Using a template to create a design for a puppet.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a pouch.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing and making a template from an existing cushion and applying individual design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing design criteria for a product, articulating decisions made.</li> <li>• Designing a personalised book sleeve.</li> </ul>
<b>Make</b>		<ul style="list-style-type: none"> <li>• Cutting fabric neatly with scissors.</li> <li>• Using joining methods to decorate a puppet.</li> <li>• Sequencing the steps taken during construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Selecting and cutting fabrics for sewing.</li> <li>• Decorating a pouch using fabric glue or running stitch.</li> <li>• Threading a needle.</li> <li>• Sewing running stitch, with evenly spaced, neat, even stitches to join fabric.</li> </ul>	<ul style="list-style-type: none"> <li>• Following design criteria to create a cushion or Egyptian collar.</li> <li>• Selecting and cutting fabrics with ease using fabric scissors.</li> <li>• Threading needles with greater independence.</li> <li>• Tying knots with greater independence.</li> </ul>	<ul style="list-style-type: none"> <li>• Making and testing a paper template with accuracy and in keeping with the design criteria.</li> <li>• Measuring, marking and cutting fabric using a paper template.</li> <li>• Selecting a stitch style to join fabric, working neatly by sewing small, straight stitches.</li> </ul>

			<ul style="list-style-type: none"> <li>• Neatly pinning and cutting fabric using a template.</li> </ul>	<ul style="list-style-type: none"> <li>• Sewing cross stitch to join fabric.</li> <li>• Decorating fabric using appliqué.</li> <li>• Completing design ideas with stuffing and sewing the edges (Cushions).</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporating fastening to a design.</li> </ul>
<b>Evaluate</b>		<ul style="list-style-type: none"> <li>• Reflecting on a finished product, explaining likes and dislikes.</li> </ul>	<ul style="list-style-type: none"> <li>• Troubleshooting scenarios posed by teacher.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating an end product and thinking of other ways in which to create similar items.</li> </ul>	<ul style="list-style-type: none"> <li>• Testing and evaluating an end product against the original design criteria.</li> <li>• Deciding how many of the criteria should be met for the product to be considered successful.</li> <li>• Suggesting modifications for improvement.</li> <li>• Articulating the advantages and disadvantages of different fastening types.</li> </ul>
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>• To know that 'joining technique' means connecting two pieces of material together.</li> <li>• To know that there are various temporary methods of joining fabric by using staples, glue or pins.</li> <li>• To understand that different techniques for joining materials can be used for different purposes.</li> <li>• To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</li> <li>• To know that drawing a design idea is useful to see</li> </ul>	<ul style="list-style-type: none"> <li>• To know that sewing is a method of joining fabric.</li> <li>• To know that different stitches can be used when sewing.</li> <li>• To understand the importance of tying a knot after sewing the final stitch.</li> <li>• To know that a thimble can be used to protect my fingers when sewing.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.</li> <li>• To know that when two edges of fabric have been joined together it is called a seam.</li> <li>• To know that it is important to leave space on the fabric for the seam.</li> <li>• To understand that some products are turned inside out after sewing so the stitching is hidden.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro.</li> <li>• To know that different fastening types are useful for different purposes.</li> <li>• To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.</li> </ul>

		how an idea will look.			
<b>Digital World (Year 3 only)</b>					
<b>Design</b>				<ul style="list-style-type: none"> <li>• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas.</li> <li>• Developing design ideas for a technology pouch.</li> <li>• Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.</li> </ul>	
<b>Make</b>				<ul style="list-style-type: none"> <li>• Using a template when cutting and assembling the pouch.</li> <li>• Following a list of design requirements.</li> <li>• Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch.</li> <li>• Applying functional features such as using foam to create soft buttons.</li> </ul>	
<b>Evaluate</b>				<ul style="list-style-type: none"> <li>• Analysing and evaluating an existing product.</li> <li>• Identifying the key features of a pouch.</li> </ul>	
<b>Technical</b>				<ul style="list-style-type: none"> <li>• To understand that, in programming, a 'loop' is code that repeats something again and again until stopped.</li> <li>• To know that a Micro:bit is a pocket-sized,</li> </ul>	

				codeable computer.	
<b>Electrical Systems (Year 4 only)</b>					
<b>Design</b>					<ul style="list-style-type: none"> <li>• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.</li> </ul>
<b>Make</b>					<ul style="list-style-type: none"> <li>• Making a torch with a working electrical circuit and switch.</li> <li>• Using appropriate equipment to cut and attach materials.</li> <li>• Assembling a torch according to the design and success criteria.</li> </ul>
<b>Evaluate</b>					<ul style="list-style-type: none"> <li>• Evaluating electrical products.</li> <li>• Testing and evaluating the success of a final product.</li> </ul>
<b>Technical</b>					<ul style="list-style-type: none"> <li>• To know that an electrical circuit must be complete for electricity to flow.</li> <li>• To know that a switch can be used to complete and break an electrical circuit.</li> </ul>

Design and Technology is taught as part of the continuous provision and as discrete lessons in Reception. In KS 1 and 2, there are five units for each year group, each unit consists of 3 or 4 lessons which are usually taught discretely. It can be taught weekly across three half terms or some units can be delivered on a Design and Technology focus day or across several afternoons. We have built in flexibility to ensure that art is not 'squeezed' out of the busy curriculum.

Please see Long Term Plan for Design and Technology for more information.

Design and Technology is not usually planned to match other topics in the curriculum but the units can be adapted, Teachers meet with the Design and Technology lead to discuss this and ensure that any adaptations still include coverage of the five strands.

## **A Typical Design and Technology Lesson at Havannah First School**

**Each KS1 and 2 lesson typically follows the following format:**

1. Fast recall of the previous lesson's content (skills, techniques, knowledge)
2. Attention Grabber:  
This can be introducing a problem or a discussion point to the children, where key questions are used, or an introduction to the lesson sharing images of real life examples.
3. Teacher demonstration or video of the skill/technique being taught in the lesson.
4. Children practising and exploring as they apply their learning to make their own product or feature of one.
5. Evaluation and celebration of work, sharing and discussing what they have achieved in the lesson, what would they do differently / next.

Lesson structures can vary to suit the content and the objective.

Children will work mainly indoors.

Children access and select their own resources when possible.

Vocabulary is built upon and used in each lesson.

## **Sources of support, information and guidance.**

[www.data.org.uk](http://www.data.org.uk) (Primary D and T Association)

[www.stem.org.uk/primary](http://www.stem.org.uk/primary)

[www.kapowprimary.com](http://www.kapowprimary.com)