

## St John's Highbury Vale CE Primary School Design Technology Curriculum Map 2021-22

	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Reception	See eyfs curriculum					

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

### **Key Stage 1 Attainment Targets**

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

#### **Design**

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

#### **Make**

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

#### **Evaluate**

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

#### **Technical knowledge**

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

<b>Year 1</b>	<b>Food Preparing Fruits and Vegetables</b> <i>Food processing equipment, food processing skills. Explore textures and use senses to evaluate</i>			<b>Structures Freestanding Structures Playground Design</b> <i>Explore free standing structures around the world. Understand base, stability, edge and surface.</i>		<b>Mechanisms – Sliders and Levers</b> <i>Movement and pivots. Pushing and pulling.</i>
<b>Year 2</b>			<b>Food Preparing Fruit and Vegetables Sweet and Savoury Salad</b> <i>Identify colour texture and tastes. Journey from farm to shop. Climate and countries for growth of crops.</i>		<b>Mechanisms – Wheels and Axis Make an Ambulance (link to Marvellous Medics theme)</b> <i>Cutting and joining to allow movement and finish. Use a range of materials according to characteristics.</i>	<b>Textiles – Templates and Joining Techniques Puppets</b> <i>Know a range of joining techniques. Marking out, cutting, joining and finishing.</i>

### Key Stage 1 Attainment Targets

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

#### Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

#### Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

#### Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

#### Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

<p><b>Year 3</b></p>	<p><b>Mechanical Systems – Leavers and linkages Moving Poster (links to stone age inventions)</b> Use annotated sketches and prototypes to develop, model and communicate. Understand oscillating, reciprocating, linkage, loose pivot and fixed pivot.</p>		<p><b>Food – Healthy and Varied Diet</b> <b>Food Origins (grown, caught, processed, reared -trying and grouping foods)</b> Understand taste, texture and aroma for an appealing product. Know the claw hold and the bridge hold.</p>	<p><b>Structures – Shell Structures (Links to Roman Amphitheatre/Homes)</b> Stiffening and strengthening sheet materials. Use annotated sketched for design ideas.</p>		
<p><b>Year 4</b></p>		<p><b>Food – Healthy and varied diet – apply knowledge to make processed foods – make dips for a Viking feast.</b> Know where and how a variety of ingredients are grown, reared, caught and processed</p>	<p><b>Electrical Systems – Simple Circuits and Switches Night Light (links to Belonging text)</b> Select electrical components according to their functional properties and aesthetic qualities.</p>			<p><b>Textiles – 2D and 3D Product</b> <b>Make a Purse (linked to One Plastic Bag)</b> Know a range of joining techniques for sewing. Know a range of fabrics and fastenings.</p>
<p><b>Year 5</b></p>		<p><b>Textiles – Combining Different Fabric Shapes Make a Cushion (Links to PSHE Celebrating Difference)</b> Know a range of stitches. Understand the process of tie dye and the range of fasteners</p>	<p><b>Food Celebrating Culture and Seasonality Langer Kitchen (Links to Sikhism)</b> Understand seasonality, know about kneading, and Understand lactose intolerance.</p>	<p><b>Mechanical Systems – Pulley and Gears Moon Buggies (Links to Earth and Space)</b> Understand drivers and followers in pulleys. Know how the cogs work in gears.</p>		
<p><b>Year 6</b></p>			<p><b>Food Celebrating Cultures and Seasonality (Links to Keeping Corner)</b> Know a range of foods from different cultures. Know diets and food habits of different cultures.</p>	<p><b>Structures – Frame Structures Artist: Benjamin Baker (Links to Seeds of Splenda – Diwali Story Bridge from India to Sri Lanka)</b> Understand compression, strut, and triangulation and form structures. Know a range of joining techniques.</p>		<p><b>Electrical Systems – More Complex Switches and Circuits</b> Understand a series circuit, input and output flowcharts and parallel circuits.</p>

## Knowledge, Skills and Understanding for DT

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Developing, planning and communicating ideas</b>	<p><b>Children will work confidently across a range of contexts. They will :</b></p> <ul style="list-style-type: none"> <li>• state what products they are designing and making</li> <li>• describe what their products are for</li> <li>• say how their products will work</li> <li>• use simple design criteria to help develop their ideas</li> <li>• develop and communicate ideas by talking and drawing</li> <li>• model ideas by exploring materials, components and construction kits</li> </ul>	<p><b>Children will work confidently within a range of contexts. They will:</b></p> <ul style="list-style-type: none"> <li>• state what products they are designing and making</li> <li>• say whether their products are for themselves or other users</li> <li>• describe what their products are for</li> <li>• say how their products will work</li> <li>• say how they will make their products suitable for their intended users</li> <li>• use simple design criteria to help develop their ideas generate ideas by drawing on their own experiences</li> <li>• use knowledge of existing products to help come up with ideas</li> <li>• model ideas by exploring materials, components and construction kits and by making templates and mock ups</li> <li>• use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul>	<p><b>In Year 3 children will :</b></p> <ul style="list-style-type: none"> <li>• describe the purpose of their products</li> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• explain how particular parts of their products work</li> </ul> <p><b>In year 3 children will :</b></p> <ul style="list-style-type: none"> <li>• develop their own design criteria and use these to inform their ideas</li> </ul> <p><b>Children will :</b></p> <ul style="list-style-type: none"> <li>• share and clarify ideas through discussion</li> <li>• use computer-aided design to develop and communicate their ideas</li> <li>• use annotated sketches, cross-sectional drawings</li> </ul>	<p><b>In Year 4 children will :</b></p> <ul style="list-style-type: none"> <li>• gather information about the needs and wants of particular individuals and groups</li> <li>• develop their own design criteria and use these to inform their ideas</li> </ul> <p><b>In year 4 children will:</b></p> <ul style="list-style-type: none"> <li>• generate realistic ideas, focusing on the needs of the user</li> <li>• make design decisions that take account of the availability of resources</li> </ul> <p><b>Children will :</b></p> <ul style="list-style-type: none"> <li>• share and clarify ideas through discussion</li> <li>• model their ideas using prototypes and pattern pieces</li> <li>• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>• use computer-aided design to develop and communicate their ideas</li> </ul>	<p><b>In Year 5 children will:</b></p> <ul style="list-style-type: none"> <li>• carry out research,</li> <li>• develop a simple design specification to guide their thinking</li> </ul> <p><b>In Year 5 :</b></p> <ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> </ul>	<p><b>In Year 6 children will :</b></p> <ul style="list-style-type: none"> <li>• carry out research,</li> <li>• identify the needs, wants, preferences and values of particular individuals and groups</li> <li>• develop a simple design specification to guide their thinking</li> </ul> <p><b>In Year 6 children will :</b></p> <ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> <li>• make design decisions, taking account of constraints such as time, resources and cost</li> </ul>

<p><b>Working with tools, equipment, materials and components to make quality products (including food)</b></p>	<p><b>In Year 1 children will :</b></p> <ul style="list-style-type: none"> <li>• select from a range of tools and equipment,</li> <li>• select from a range of materials and components according to their characteristics</li> </ul> <p><b>In Year 1 children will :</b></p> <ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design</li> </ul> <p><b>In Year 1 children will learn:</b></p> <ul style="list-style-type: none"> <li>about the simple working characteristics of materials and components</li> <li>• about the movement of simple mechanisms such as levers, sliders, wheels and axles</li> </ul>	<p><b>In Year 2 children will :</b></p> <ul style="list-style-type: none"> <li>• plan by suggesting what to do next</li> <li>• select from a range of tools and equipment, explaining their choices</li> <li>• select from a range of materials and components according to their characteristics about the simple working characteristics of materials and components</li> </ul> <p><b>In Year 2 children will :</b></p> <ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a range of materials and components, including construction materials and kits ,textiles and food ingredients.</li> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design</li> </ul> <p><b>In Year 2 children will :</b></p> <p>Learn about the simple working characteristics of materials and components</p> <ul style="list-style-type: none"> <li>• how freestanding structures can be made stronger, stiffer and more stable</li> </ul>	<p><b>In Year 3 children will:</b></p> <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• apply a range of finishing techniques, including those from art and design -how mechanical systems such as levers and linkages create movement</li> </ul> <p><b>The children will know :</b></p> <ul style="list-style-type: none"> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>	<p><b>In Year 4 children will:</b></p> <ul style="list-style-type: none"> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> </ul> <p><b>In Year 4 children will:</b></p> <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul> <p><b>In Year 4 children will know how :</b></p> <ul style="list-style-type: none"> <li>how mechanical systems such as cams or pulleys or gears create movement</li> <li>• how to make strong, stiff shell structures</li> <li>• that a single fabric shape can be used to make a 3D textiles product</li> </ul>	<p><b>In Year 5 children will:</b></p> <ul style="list-style-type: none"> <li>select tools and equipment suitable for the task</li> <li>• explain their choice of tools and equipment in relation to the skills and techniques they will be using</li> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> </ul> <p><b>In Year 5 children will:</b></p> <ul style="list-style-type: none"> <li>• accurately measure, mark out, cut and shape materials and components</li> <li>• accurately assemble, join and combine materials and components</li> <li>• accurately apply a range of finishing techniques, including those from art and design.</li> </ul> <p><b>In Year 5 children will know:</b></p> <ul style="list-style-type: none"> <li>• how to reinforce and strengthen a 3D framework</li> <li>• that a 3D textiles product can be made from a combination of fabric shapes</li> </ul>	<p><b>In Year 6 children will:</b></p> <ul style="list-style-type: none"> <li>select tools and equipment suitable for the task</li> <li>• explain their choice of tools and equipment in relation to the skills and techniques they will be using</li> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> </ul> <p><b>In Year 6 children will:</b></p> <ul style="list-style-type: none"> <li>• accurately measure, mark out, cut and shape materials and components</li> <li>• accurately assemble, join and combine materials and components</li> <li>• accurately apply a range of finishing techniques, including those from art and design</li> <li>• use techniques that involve a number of steps</li> <li>• demonstrate resourcefulness when tackling practical problems</li> </ul> <p><b>In Year 6 children will know:</b></p> <ul style="list-style-type: none"> <li>• how mechanical systems such as cams or</li> </ul>
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		<ul style="list-style-type: none"> <li>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>				<ul style="list-style-type: none"> <li>• pulleys or gears create movement</li> <li>• how more complex electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to monitor changes in the environment and control their products</li> <li>• how to reinforce and strengthen a 3D framework</li> </ul>
<b>Testing and evaluating processes and products.</b>	<p><b>In Year 1 children will:</b> talk about their design ideas and what they are making</p> <ul style="list-style-type: none"> <li>• make simple judgements about their products and ideas against design criteria</li> </ul> <p><b>In Year1 children will explore :</b></p> <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> <li>• what materials products are made from</li> </ul>	<p><b>In Year 2 children will:</b> talk about their design ideas and what they are making</p> <ul style="list-style-type: none"> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• suggest how their products could be improved</li> </ul> <p><b>In Year 2 children will explore:</b></p> <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>	<p><b>In Year 3 the children will:</b> identify the strengths and areas for development in their ideas and product</p> <p><b>In Year 3 children will:</b></p> <ul style="list-style-type: none"> <li>• refer to their design criteria as they design and make</li> <li>• use their design criteria to evaluate their completed products</li> </ul> <p><b>In Year 3 children will investigate :</b></p> <ul style="list-style-type: none"> <li>• how well products have been designed</li> <li>• how well products have been made</li> <li>• why materials have been chosen</li> <li>• what methods of construction have been used</li> </ul> <p><b>In Year 3 children will also investigate and analyse:</b></p>	<p><b>In Year 4 children will :</b> identify the strengths and areas for development in their ideas and products</p> <ul style="list-style-type: none"> <li>• consider the views of others, including intended users, to improve their work</li> </ul> <p><b>In Year 4 children will:</b></p> <ul style="list-style-type: none"> <li>• refer to their design criteria as they design and make</li> <li>• use their design criteria to evaluate their completed products</li> </ul> <p><b>In Year 4 children will investigate :</b></p> <ul style="list-style-type: none"> <li>• how well products have been designed</li> <li>• how well products have been made</li> <li>• why materials have been chosen</li> <li>• what methods of construction have been used</li> </ul>	<p><b>In Year 5 children will :</b></p> <ul style="list-style-type: none"> <li>• evaluate the quality of the design, manufacture and fitness for purpose of their</li> </ul> <p><b>In Year 5 children will also investigate and analyse:</b></p> <ul style="list-style-type: none"> <li>• how much products cost to make</li> <li>• how innovative products are</li> <li>• how sustainable the materials in products are</li> <li>• what impact products have beyond their intended purpose</li> </ul>	<p><b>In Year 6 children will :</b></p> <ul style="list-style-type: none"> <li>• critically evaluate the quality of the design, manufacture and fitness for purpose of their</li> </ul> <p><b>In Year 6 children will also investigate and analyse:</b></p> <ul style="list-style-type: none"> <li>• how much products cost to make</li> <li>• how innovative products are</li> <li>• how sustainable the materials in products are</li> <li>• what impact products have beyond their intended purpose</li> </ul> <p><b>Across KS2 pupils should know:</b></p> <ul style="list-style-type: none"> <li>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</li> </ul>

			<ul style="list-style-type: none"> <li>• who designed and made the products</li> <li>• where products were designed and made</li> <li>• when products were designed and made</li> </ul> <p>Technical knowledge Key</p>	<ul style="list-style-type: none"> <li>• how well products work</li> <li>• how well products achieve their purposes</li> <li>• how well products meet user needs and wants</li> </ul> <p><b>In Year 4 children will also investigate and analyse:</b></p> <ul style="list-style-type: none"> <li>• who designed and made the products</li> <li>• where products were designed and made</li> <li>• when products were designed and made</li> <li>• whether products can be recycled or reused</li> </ul>		
<b>Understand nutrition and basic cooking skills</b>	<p><b>In Year 1 children will:</b></p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that everyone should eat at least five portions of fruit and vegetables every day</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> </ul>	<p><b>In Year 2 children will:</b></p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> <li>• how to name and sort foods into the five groups</li> <li>• how to prepare simple dishes safely and hygienically,</li> <li>• how to use techniques such as measuring and mixing</li> </ul>	<p><b>In Year 3 children know :</b></p> <ul style="list-style-type: none"> <li>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> </ul> <p><b>In Year 3 children will learn:</b></p> <ul style="list-style-type: none"> <li>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically</li> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul> <p><b>In Year 3 children will know :</b></p>	<p><b>In Year 4 children will learn:</b></p> <ul style="list-style-type: none"> <li>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> </ul> <p><b>In Year 4 children will learn</b></p> <ul style="list-style-type: none"> <li>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically</li> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	<p><b>In Year 5 children will know:</b></p> <ul style="list-style-type: none"> <li>• that seasons may affect the food available</li> <li>• how food is processed into ingredients that can be eaten or used in cooking</li> </ul> <p><b>In Year 5 children will learn</b> how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</p> <ul style="list-style-type: none"> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>	<p><b>In Year 6 children will learn:</b></p> <p>how to prepare and cook a variety of predominantly savoury dishes safely and hygienically</p> <ul style="list-style-type: none"> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> <li>• that recipes can be adapted to change the appearance, taste, texture and aroma</li> <li>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>

			<ul style="list-style-type: none"><li>• that a healthy diet is made up from a variety and balance of different food and drink</li><li>• that to be active and healthy, food and drink are needed to provide energy for the body</li></ul>			
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