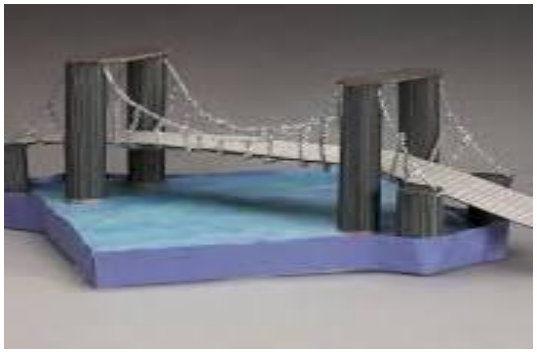
THE STOKE POGES SCHOOL

Design and Technology Learning Journey

Design and Technology prepares children to deal with tomorrow's rapidly changing world. It encourages children to become independent, creative problem solvers and thinkers as individuals and part of a team. It enables them to identify needs and opportunities and to respond to them by developing a range of ideas to make products and systems. Through the study of DT, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industry. This allows them to reflect on and evaluate past and present technology, its uses and impacts.



Design and Technology Progression						
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Autumn Term	**Food** **Preparing Fruit and Vegetables** **Fruit Salad**	**Mechanisms** **Wheels and Axles** **Making Vehicles**	**Structures** **Shell Structures** **Gift Box**	**Electrical Systems** **Simple Circuits and Switches** **Light up Cards**	**Mechanisms** **Cams** **Moving solar system**	**Structures** **Framed Structures** **Anderson Shelters**
Spring Term	**Structures** **Freestanding Structures** **Hot Air Balloon**	**Textiles** **Templates and Joining Techniques** **Decorative Bunting**	**Textiles** **2D and 3D Product** **Cushion**	**Mechanical Systems** **Pneumatics** **Rainforest Animal**	**Food** **Celebrating Culture** **Bread making**	**Mechanical Systems** **Pulleys and Gears** **Suspension Bridge**
Summer Term	**Mechanisms** **Sliders and Levers** **Card Reveal Slider**	**Food** **Healthy and Varied Diet** **Flapjacks**	**Mechanical Systems** **Levers and Linkages** **Moving Mythical Creature**	**Food** **Making a Healthy and Varied Diet** **Making a Healthy Wrap**	**Textiles** **Combining Different Fabric Shapes** **Bags**	**Electrical Systems** **More Complex Switches and Circuits** **Toy linked to The Viewer**

Progression of knowledge: Substantive concepts

Progression through Key Stage 1 and 2

Design and Technology Progression			
Design	**Key Stage 1**	**Lower Key Stage 2**	**Upper Key Stage 2**
	KS1 DT National Curriculum Pupils should design purposeful, functional, appealing products for themselves and other users based on design criteria. Pupils should generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.	**KS2 DT National Curriculum** Pupils should 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. Pupils should generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	
	Understanding users and purposes: • Understand and follow simple design criteria • Design products that have a purpose and are aimed at an intended user	**Understanding users and purposes:** • Develop and follow simple design criteria • Design innovative and appealing products that have a clear purpose and are aimed at a specific user • Begin to identify the design features of their products that will appeal to intended customers	**Understanding users and purposes:** • Use research to inform and develop detailed design criteria • Design innovative, functional and appealing products that are fit for purpose and aimed at a target market • Identify the design features of their products that will appeal to the intended user
	Generating, developing, modelling and communicating ideas: • Use their knowledge of existing products and their own experiences to help generate their ideas • Begin to explain how their products will look and work through talking and simple annotated drawings • Where appropriate, design models using simple computing software • Plan and test ideas using templates and mock-ups	**Generating, developing, modelling and communicating ideas:** • Use their knowledge of a range of existing products to help generate their ideas • Explain how particular parts of their products work • Use annotated sketches and cross-sectional drawings to develop and communicate their ideas • When designing, explore different initial ideas before coming up with a final design • When planning, start to explain their choice of materials and components including function and aesthetics • Test ideas out through using prototypes • Where appropriate, use computer-aided design to develop and communicate their ideas	**Generating, developing, modelling and communicating ideas:** • Use their knowledge of a broad range of existing products to help generate their ideas • Give detailed explanations of how particular parts of their products work • Use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas • Generate a range of design ideas and clearly communicate final designs • Consider the availability and costings of resources when planning out designs • Test ideas out through using prototypes

Design and Technology Progression

Make	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
	KS1 DT National Curriculum 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 wider range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	**KS1 DT National Curriculum** 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	
	Planning: • With support, follow a simple plan or recipe • Begin to select hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer • Select materials, textiles and components according to their characteristics	**Planning:** • Place the main stages of making in a systematic order • With growing confidence, select from a range of tools and equipment, explaining their choices • Select from a range of materials and components according to their functional properties and aesthetic qualities	**Planning:** • Independently plan by suggesting what to do next • Create step-by-step plans as a guide to making • Confidently and carefully select from a wider range of tools and equipment, explaining their choices • Select from a wide range of materials and components according to their functional properties and aesthetic qualities
	Practical skills and techniques: • Learn to use some hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures • Use some materials and components, including textiles and food ingredients • With help, measure and mark out • Cut, shape and score materials with help • Assemble, join and combine materials, components or ingredients • Demonstrate how to cut, shape and join fabric to make a simple product • Manipulate fabrics in simple ways to create the desired effect • Use a basic running stitch • Cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups • Begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations	**Practical skills and techniques:** • Learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures • Use a range of materials and components, including construction materials and kits, textiles and mechanical and electrical components • With growing independence, measure and mark out to the nearest cm and mm • Cut, shape and score materials with some degree of accuracy • Demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product • Join textiles with an appropriate sewing technique • Begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics	**Practical skills and techniques:** • Learn to use a wider range of tools and equipment safely and appropriately and learn to follow hygiene procedures • Independently take exact measurements and mark out, to within 1mm • Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components • Cut a range of materials with precision and accuracy • Shape and score materials precision and accuracy • Assemble, join and combine materials and components with accuracy • Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product • Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch • Refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape

Design and Technology Progression			
Evaluate	**Key Stage 1**	**Lower Key Stage 2**	**Upper Key Stage 2**
	KS1 DT National Curriculum Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria	**KS2 DT National Curriculum** 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	
	Evaluating – Existing products: • Explore what products are and who or what they are for • Explore how products work and how or where they might be used • Explore what materials products are made from • Explore what they like and dislike about products	**Evaluating – Existing products:** • Investigate and analyse how well products have been designed and made • Investigate and analyse why materials have been chosen and begin to suggest reasons for this • Investigate and analyse the methods of construction used and begin to suggest reasons for this • Investigate and analyse how well products work to achieve their purposes	**Evaluating – Existing products:** • Investigate and analyse how well products have been designed and made • Investigate and analyse why materials have been chosen and give reasons for this • Investigate and analyse the methods of construction used and give reasons for this • Investigate and analyse how well products meet user needs and wants
	Evaluating – Own ideas and products: • Talk about their design ideas and what they are making • Make simple judgements about their products and ideas against design criteria • Suggest how their products could be improved	**Evaluating – Own ideas and products:** • Identify the strengths and areas for development in their ideas and products • Consider the views of others, including intended users, to improve their work • Refer to their design criteria as they design and make • Use their design criteria to evaluate their completed products	**Evaluating – Own ideas and products:** • Identify the strengths and areas for development in their ideas and products • Consider the views of others, including intended users, to improve their work • Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • Evaluate their ideas and products against their original design specification
		Evaluating – Key events and individuals: • Know about the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world	**Evaluating – Key events and individuals:** • Know about and evaluate key events, including technological developments, and designs of individuals in design and technology that have helped shape the world

Design and Technology Progression			
Technical Knowledge	**Key Stage 1**	**Lower Key Stage 2**	**Upper Key Stage 2**
	KS1 DT National Curriculum 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	**KS2 DT National Curriculum** 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	
	• Talk about and begin to understand the simple working characteristics of materials and components • Build simple structures, exploring how they can be made stronger, stiffer and more stable • Explore and create products using simple mechanisms, such as levers, sliders and wheels • Understand that 3-D textile products can be assembled from 2 identical fabric shapes • Explore food ingredients and begin to understand that ingredients should be combined according to their sensory characteristics • Begin to use the correct technical vocabulary for the projects they are undertaking	• Understand that materials have both functional properties and aesthetic qualities • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products • Explain how mechanical systems such as levers and linkages create movement and use mechanical systems in their products • Understand and demonstrate how mechanical and electrical systems have an input and output process • Make and represent simple electrical circuits, such as a series and parallel, and components to create functional products • Understand that a single fabric shape can be used to make a 3D textiles product • Use the correct technical vocabulary for the projects they are undertaking	• Understand that materials have both functional properties and aesthetics qualities • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products • Explain how mechanical systems, such as cams, create movement and use mechanical systems in their products • Understand and demonstrate that mechanical and electrical systems have an input, process and output • Understand how more complex electrical circuits and components can be used to create functional products • Understand that a 3D textile product can be made from a combination of fabric shapes • Apply their understanding of computing to program, monitor and control a product • Confidently use the correct technical vocabulary for the projects they are undertaking

Design and Technology Progression			
Cooking and Nutrition	**Key Stage 1**	**Lower Key Stage 2**	**Upper Key Stage 2**
	KS1 DT National Curriculum Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from	**KS2 DT National Curriculum** Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	
	Where food comes from: • Understand that all food comes from plants or animals • Understand that food has to be farmed, grown elsewhere (e.g. home) or caught	**Where food comes from:** • Understand that food ingredients can be fresh, pre-cooked and processed • Start to know when, where and how 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 • Start to understand seasonality and know where and how a variety of ingredients are grown	**Where food comes from:** • Understand that food is processed into ingredients that can be eaten or used in cooking • Know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world • Understand about seasonality, how this may affect the food availability and plan recipes according to seasonality
	Food preparation, cooking and nutrition: • Name and sort foods into the five groups in the Eatwell Guide • Understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why • Use what they know about the Eatwell Guide to design and prepare dishes • Follow a simple recipe with support • Prepare simple dishes safely and hygienically • Use simple cooking techniques such as cutting, peeling and grating	**Food preparation, cooking and nutrition:** • Explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes • Understand to be active and healthy, food and drink are needed to provide energy for the body • Start to independently follow a recipe • Prepare and cook a variety of predominately savoury dishes safely and hygienically • Use a heat source to cook ingredients with support, showing awareness of the need to control the temperature of the hob and/or oven • Measure and weigh ingredients to the nearest gram and millilitre • Use a range of cooking techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	**Food preparation, cooking and nutrition:** • Explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes • Accurately and independently follow each step of a recipe • Demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • Alter methods, cooking times and/or temperatures as necessary • Understand the importance of storing, handling and heating food correctly • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe • Use a wider range of cooking techniques such as demonstrate how to use a range of cooking techniques, such as dicing, shredding, griddling, grilling, frying and boiling