DESIGN TECHNOLOGY OVERVIEW

	AUTUMN	SPRING	SUMMER
YEAR R	*Design* Draw on a touch screen. *Make* Represent their own ideas and thoughts. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	*Design* Design a product for themselves or someone close to them. Generate ideas through discussion. Draw sketches. Draw on a touch screen. *Make* Represent their own ideas and thoughts. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Explore how to make a product work by using different materials. *Evaluate* Describe what they like and dislike about their product. Look at objects and talk about likes and dislikes.	*Design* Design a product for themselves or someone close to them. Generate ideas through discussion. Draw on a touch screen. *Make* Represent their own ideas and thoughts. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Explore how to make a product work by using different materials. *Evaluate* Describe what they like and dislike about their product. Look at objects and talk about likes and dislikes.

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YEAR 1	**Mechanisms** *Design* Design functional products for themselves that have a clear purpose. Using simple criteria, generate their own ideas using their own experiences. Draw sketches and templates. *Make* Cut materials safely using tools provided. Measure using non-standard units and mark out to the nearest centimetre. Demonstrate a range of joining techniques (e.g. gluing, hinges, or combining materials to strengthen) Understand about the simple working characteristics of materials and components. Understand about the movement of simple mechanisms including levers and sliders. *Evaluate* Talk about own and pre-existing products, saying what is good or bad about them. Say whether their product does what it is meant to (fits the design brief) and how it could be improved.	**Food and nutrition** Understand that fruit and vegetables are grown from the ground and that some food products come from animals. Know that it is recommended that everyone should eat at least 5 portions of fruit and vegetables a day. Use basic food handling, hygienic practices and personal hygiene. Know how to peel, cut, grate, mix and mould foods (with close supervision). Measure or weigh using measuring cups or electronic scales. Follow a simple recipe read by an adult.	**Structures** *Design* Design functional products for themselves that have a clear purpose. Using simple criteria, generate their own ideas using their own experiences. Begin to use Microsoft Paint (bitmap). Use a mouse to free draw shapes and fill with colour. *Make* Measure using non-standard units and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (e.g. tearing, cutting, folding, curling) Explore how structures can be made stronger, stiffer and more stable. *Evaluate* Explore objects and designs to identify who they are made for and what they are made of. Say whether their product does what it is meant to (fits the design brief) and how it could be improved.

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YEAR 2	**Food and nutrition** Understand that some fruit and vegetables grow on trees or plants above the earth and some under the earth. Name and sort foods into the five groups of the 'eat well' plate. Follow safe procedures and food safety and hygiene. Know how to peel, cut, grate, mix and mould foods (with supervision). Measure or weigh using measuring cups or electronic scales. Follow a recipe supported by an adult.	**Structures** *Design* Design appealing products for others that have a clear purpose. Using more complex criteria, generate their own ideas, from their own experiences and experiences from reading. Draw labelled sketches. Use Microsoft Paint and other Office packages to free draw and fill with colour. Edit shapes by resizing, manipulating and layering. *Make* Cut materials safely using tools provided. Measure using non-standard units and mark out to the nearest centimetre or metre. Refine a range of cutting and shaping techniques (e.g. tearing, cutting, folding, curling) Demonstrate a range of joining techniques (e.g. gluing, hinges, or combining materials to strengthen) Explore how structures can be made stronger, stiffer and more stable. *Evaluate* Describe how their own and pre-existing products work, evaluating what went well and what could be done differently.	**Mechanisms** *Design* Design appealing products for others that have a clear purpose. Using more complex criteria, generate their own ideas, from their own experiences and experiences from reading. Draw labelled sketches and templates and produce mock-ups. *Make* Cut materials safely using tools provided. Measure using non-standard units and mark out to the nearest centimetre or metre. Refine a range of cutting and shaping techniques (e.g. tearing, cutting, folding, curling) Demonstrate a range of joining techniques (e.g. gluing, hinges, or combining materials to strengthen) Understand about the simple working characteristics of materials and components. Understand about the movement of simple mechanisms including levers, sliders, wheels and axles *Evaluate* Describe how their own and pre-existing products work, evaluating what went well and what could be done differently. Evaluate components used. Explore objects and designs to identify how they work. Use ideas from existing designs to create their own product.

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YEAR 3	**Structures and electrical circuits** *Design* Design products that fulfil the desires of particular individuals and groups. Generate and develop ideas through group discussion, with ideas based on prior knowledge. *Make* Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. Develop cutting and shaping techniques to include cuts within a perimeter. Select appropriate joining techniques. Understand how simple electrical circuits and components can be used to create functional products. *Evaluate* Identify the strengths and weaknesses of their ideas and products, in terms of usability and appearance.	**Food and nutrition** Understand that fruit, vegetables and herbs can only grow at particular times of the year. Know that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in the 'eat well' plate. Demonstrate hygienic food preparation and storage. Prepare ingredients and begin to cook foods, controlling the temperature of the oven or hob. Measure using grams. Follow a recipe as a group. **Structures** *Make* Know how to make strong, stiff shell structures. *Evaluate* Evaluate why materials have been chosen and what methods of constructions have been used in existing products.	**Mechanisms** *Design* Design products that fulfil the desires of particular individuals and groups. Generate and develop ideas through group discussion, with ideas based on prior knowledge. Describe a design using an accurately labelled diagram, a written explanation and mock-up. *Make* Cut materials accurately and safely by selecting appropriate tools. Understand how levers and linkages create movement. Develop cutting and shaping techniques to include cuts within a perimeter. Select appropriate joining techniques. *Evaluate* Identify the strengths and weaknesses of their ideas and products, in terms of usability and appearance. Suggest what could be changed to improve a design, beginning to link this to the design brief. Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Disassemble products to understand how they work.

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YEAR 4	**Structures and pneumatic systems** *Design* Design products for the needs of particular individuals or groups, developing their own design criteria. Produce a detailed plan with labelled diagrams, a written explanation, pattern pieces and mock-ups. *Make* Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques, including cuts within a perimeter. Select appropriate joining techniques. Adapt structures to make them stronger and stiffer. Understand how pneumatic systems create movement. *Evaluate* Evaluate the appearance and usability of own and pre-existing products, taking into consideration others' views, including the end users. Explain how the original design could be improved, considering the appearance and usability and linking this to the design brief. Describe the characteristics of work by some of the great designers.	**Food and nutrition** Know where and how a variety of ingredients are grown. Know that food ingredients can be fresh, pre-cooked and processed. Know the impact of diet on the body, in particular teeth and know how food is digested. Demonstrate hygienic food preparation and storage. Prepare ingredients and begin to cook foods, controlling the temperature of the oven or hob. Measure accurately using grams. Follow a recipe and take into timings.	**Mechanisms** *Design* Design products for the needs of particular individuals or groups, developing their own design criteria. Generate more than one idea through discussion, after gathering information about the needs and wants of particular individuals and groups. Develop their own design criteria and use these to inform their ideas Use SketchUp to create 3D designs: Create designs that are elevated from the ground e.g. robots and cars. *Make* Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques, including cuts within a perimeter. Select appropriate joining techniques. Adapt structures to make them stronger and stiffer. Understand how to program a computer to control their products, including with simple electrical circuits. *Evaluate* Explain how the original design could be improved, considering the appearance and usability and linking this to the design brief.

			Disassemble and reassemble products to understand how they work. Evaluate how well products have been designed and made so as to suggest improvements to the product. Improve upon existing designs, giving reasons for choices
YEAR 5	**Structures** *Design* Develop ideas with a simple design specification to guide thinking. Produce a detailed plan, with step-by-step instructions, cross-sectional diagrams and prototypes. *Make* Cut materials with precision and refine the finish with appropriate tools (e.g. sanding wood, a more precise scissor cut, sharper scissors). Base their tool choice on understanding of material quality. Measure accurately to a suitable degree of measurement using standard or non-standard units. Know how to reinforce/strengthen a 3D framework. *Evaluate* Evaluate the appearance, function and fitness for purpose of a product (own and pre-existing) against the original criteria.	**Mechanisms** *Design* Design functional and appealing products taking into account the values of our local community. Generate ideas through discussion, drawing on research using questionnaires and interviews in the community. Develop ideas with a simple design specification to guide thinking. Use SketchUp to create 3D designs: Create 3D designs with curved faces. Print designs using a 3D printer. *Make* Understand how cams and pulleys create movement. Understand how more complex electrical circuits and components can be used to create functional products. *Evaluate*	**Food and nutrition** Know where and how a variety of ingredients are processed. Know that different foods contain different substances - nutrients, water and fibre - that are needed for health. Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of hazards. Begin to use a range of baking and cooking techniques. Measure accurately and calculate simple ratios of ingredients to scale up or down from a recipe. Refine a recipe including ingredients and methods.

	Suggest improvements that could be made, considering materials and methods that have been used. Compare the characteristics of work by some of the great designers.	Evaluate the appearance, function and fitness for purpose of a product (own and pre-existing) against the original criteria. Take into consideration others' views, including the end users. Evaluate how well products achieve their purposes. Create innovative designs that improve upon existing products. Use research of designers to influence work.	
YEAR 6	**Food and nutrition** Know where and how ingredients are reared or caught. Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of hazards. Demonstrate a range of baking and cooking techniques and decide the most appropriate. Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Create a recipe, including ingredients, methods, cooking times and temperatures. **Textiles** Cut materials with precision and refine the finish with appropriate tools (e.g. sanding wood, a more precise	**Mechanisms** *Design* Generate innovative ideas through discussion, drawing on research using web-based surveys. Make design decisions, taking account of constraints such as time, resources and cost. Produce a detailed plan, with cross-sectional and exploded diagrams. Develop prototypes in a variety of ways. Use SketchUp to create 3D designs: Create more detailed 3D designs with curved and flat surfaces to show rendering (light, shadow and reflection). *Make* Cut materials with precision and refine the finish with appropriate tools (e.g. sanding wood, a more precise	**Structures** *Design* Design functional and appealing products to have an impact in the wider world. Generate innovative ideas through discussion, drawing on research using web-based surveys. Produce a detailed plan, with cross-sectional and exploded diagrams. Develop prototypes in a variety of ways. *Make* Cut materials with precision and refine the finish with appropriate tools (e.g. sanding wood, a more precise scissor cut, sharper scissors). Base their tool choice on understanding of material quality.

	scissor cut, sharper scissors). Base their tool choice on understanding of material quality. Measure accurately to a suitable degree of measurement, selecting and understanding when to use standard or non-standard units. Select fabrics to combine to make a 3D textile product. *Evaluate* Evaluate how well products meet user needs and wants.	scissor cut, sharper scissors). Base their tool choice on understanding of material quality. Measure accurately to a suitable degree of measurement, selecting and understanding when to use standard or non-standard units. Understand how cams, pulleys and gears create movement. *Evaluate* Evaluate the appearance and test the function of a product (own and pre-existing) against the original criteria. Take into consideration others' views, including the end users. Evaluate how well products meet user needs and wants. Evaluate how materials can be combined and mixed to create more useful properties.	Measure accurately to a suitable degree of measurement, selecting and understanding when to use standard or non-standard units. Select how to reinforce/strengthen a 3D framework. Understand how to program a computer to monitor changes in the environment / control their products. *Evaluate* Evaluate the appearance and test the function of a product (own and pre-existing) against the original criteria. Suggest improvements that could be made, considering materials, methods, sustainability of the product and how much a product costs to make. Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.