

Whole School Design Technology Overview 2020 - 2021

Subject	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	<ul style="list-style-type: none"> Safely uses and explores a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ELG Uses what they have learned about materials in original ways, thinking about uses and purposes. They can represent their own ideas, thoughts and feelings through design and technology. ELG 					

Year 1			
	Autumn	Spring	Summer
Year 1	<u>Cooking and Nutrition</u> Making gingerbread <u>Design and Make</u> Worry dolls <u>Mechanisms</u> Christmas Card –whole school project	<u>Cooking and nutrition</u> Understanding where food comes from <u>Design and Make</u> Products linked to the weather – chimes/kites <u>Textiles</u> <u>Sewing – whole school project</u>	<u>Cooking and Nutrition</u> Principles of a varied and health diet – <u>Design and Make</u> Pop-up puppets <u>Cooking and Nutrition</u> Health week – whole school project
Key Knowledge and Skills	<p>DESIGN</p> <ul style="list-style-type: none"> design purposeful, functional, appealing products for themselves and other users based on design criteria (Autumn, Spring, Summer) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology (Spring/ Summer) <p>MAKE</p> <ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] (Spring/ Summer) select from and use a range of materials and components, including construction materials, textiles and ingredients, according to their characteristics (Spring/ Summer) <p>EVALUATE</p> <ul style="list-style-type: none"> explore and evaluate a range of existing products (Spring/ Summer) evaluate their ideas and products against design criteria (Summer) <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> build structures, exploring how they can be made stronger, stiffer and more stable (Spring/ Summer) explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. (Spring / Summer) <p>COOKING AND NUTRITION</p> <ul style="list-style-type: none"> use the basic principles of a healthy and varied diet to prepare dishes (Summer) 		

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- understand where food comes from. (Autumn Spring / Summer)

Year 2			
	Autumn	Spring	Summer
Year 2	<u>Design and Make</u> Building structures – linked to Saltaire <u>Mechanisms</u> Christmas Card –whole school project	<u>Design and Make</u> Exploring and using mechanisms – links with traditional tales <u>Textiles</u> Sewing – whole school project	<u>Design and make</u> Model boats – science links <u>Cooking and Nutrition</u> Health week – whole school project
Key Knowledge and Skills	<p>DESIGN</p> <ul style="list-style-type: none"> design purposeful, functional, appealing products for themselves and other users based on design criteria (Spring/Summer) generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology (Autumn/Spring) <p>MAKE</p> <ul style="list-style-type: none"> select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] (Autumn) (Spring) (Summer) select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics (Autumn/Spring/Summer) <p>EVALUATE</p> <ul style="list-style-type: none"> explore and evaluate a range of existing products (Spring/Summer) evaluate their ideas and products against design criteria (Autumn/Spring/Summer) <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"> build structures, exploring how they can be made stronger, stiffer and more stable (Autumn/Summer) explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. (Spring) <p>COOKING AND NUTRITION</p> <ul style="list-style-type: none"> use the basic principles of a healthy and varied diet to prepare dishes (Summer) understand where food comes from. (Summer) 		

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Year 3			
	Autumn	Spring	Summer
Year 3	<u>Design and Make</u> Clay modelling – dinosaur eyes Puppets – English link <u>Mechanisms</u> Christmas Card –whole school project	<u>Design and Make</u> Textiles – Sewing <u>Cooking and Nutrition</u> Sandwiches <u>Textiles</u> Sewing – whole school project	<u>Cooking and Nutrition</u> Health week – whole school project
Key Knowledge and Skills	KS2 Design <ul style="list-style-type: none"> 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 (Spring) generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design (Autumn) Make <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately (Autumn) (Summer) 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 (Spring) Evaluate <ul style="list-style-type: none"> investigate and analyse a range of existing products (Spring) (Summer) evaluate their ideas and products against their own design criteria and consider the views of others to improve their work (Autumn) (Spring) understand how key events and individuals in design and technology have helped shape the world Technical knowledge <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Autumn) (Spring) 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. (carousel) 		
Curriculum Carousel Project based learning	MAKING BREAD COOKING AND NUTRITION (taught as a project as part of LKS2 Curriculum Carousel throughout the academic year) Key knowledge and skills <ul style="list-style-type: none"> To learn how bread products are an important part of a balanced diet. Select from a range of ingredients according to their functional properties and aesthetic qualities 		COMPUTING SCIENCE (taught as a project as part of LKS2 Curriculum Carousel throughout the academic year) <ul style="list-style-type: none"> apply their understanding of computing to program, monitor and control their products

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	<ul style="list-style-type: none"> • Generate, develop and communicate ideas through discussion • Evaluate own ideas and products against the views of others and the design criteria <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <ul style="list-style-type: none"> • Know that some materials change state when they are heated or cooled • ask relevant questions • setting up simple practical enquiries, • make systematic and careful observations • use simple scientific language, drawings, labelled diagrams, • identify differences, similarities or changes related to simple scientific ideas and processes 	<ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals • solve problems by decomposing them into smaller parts • use repetition in programs • use logical reasoning to explain how some simple algorithms work and detect and correct errors
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Year 4			
	Autumn	Spring	Summer
Year 4	<u>Design and Make</u> Circuits, Textiles and decorations <u>Mechanisms</u> Christmas Card –whole school project	<u>Textiles</u> Sewing – whole school project	<u>Design and Make</u> Puppets – English link <u>Cooking and Nutrition</u> Health week – whole school project
	<p>Design</p> <ul style="list-style-type: none"> • 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 (autumn) (Summer) • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design (Summer) <p>Make</p> <ul style="list-style-type: none"> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately (Autumn)(Summer) • 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 (Autumn) (Summer) <p>Evaluate</p> <ul style="list-style-type: none"> • investigate and analyse a range of existing products (Autumn)(Summer) • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work (Autumn) (Summer) • understand how key events and individuals in design and technology have helped shape the world (Autumn) <p>Technical knowledge</p> <ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Summer) • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] (Summer) • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] (Autumn) • apply their understanding of computing to program, monitor and control their products. (autumn) (Carousel) 		
Curriculum Carousel – project based learning	MAKING BREAD COOKING AND NUTRITION (taught as a project as part of LKS2 Curriculum Carousel throughout the academic year) Key knowledge and skills		COMPUTING SCIENCE (taught as a project as part of LKS2 Curriculum Carousel throughout the academic year)

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	<ul style="list-style-type: none">• To learn how bread products are an important part of a balanced diet.• understand and apply the principles of a healthy and varied diet• prepare and cook bread products using a range of cooking techniques• know where and how a variety of ingredients are grown• Select from a range of ingredients according to their functional properties and aesthetic qualities• Generate, develop and communicate ideas through discussion• Evaluate own ideas and products against the views of others and the design criteria• Identify differences, similarities or changes related to simple scientific ideas and processes• Know that some materials change state when they are heated or cooled• ask relevant questions• setting up simple practical enquiries,• make systematic and careful observations• use simple scientific language, drawings, labelled diagrams,• identify differences, similarities or changes related to simple scientific ideas and processes	<ul style="list-style-type: none">• apply their understanding of computing to program, monitor and control their products• design, write and debug programs that accomplish specific goals• solve problems by decomposing them into smaller parts• use repetition in programs• use logical reasoning to explain how some simple algorithms work and detect and correct errors	
Year 5			
	Autumn	Spring	Summer
Year 5	<u>Mechanisms</u> Christmas Card –whole school project	<u>Cooking and Nutrition</u> Changing state – links to Science <u>Textiles</u> Sewing – whole school project	<u>Design and Make</u> Levers and linkages <u>Cooking and Nutrition</u> Health week – whole school project
Key Knowledge and Skills	<p>Design</p> <ul style="list-style-type: none">• 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 (Summer) (carousel)• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design (Summer) (carousel) <p>Make</p> <ul style="list-style-type: none">• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately (Summer) (Carousel)• 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 (Summer/ Carousel/ Spring) <p>Evaluate</p> <ul style="list-style-type: none">• investigate and analyse a range of existing products (Summer) (Carousel) (Spring)• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work (Summer/ Carousel)• understand how key events and individuals in design and technology have helped shape the world (Summer) <p>Technical knowledge</p> <ul style="list-style-type: none">• apply their understanding of how to strengthen, stiffen and reinforce more complex structures (Summer/ Carousel)• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] (Summer/ Carousel)• 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. (Summer)		

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Curriculum Carousel – project based learning	COOKING AND NUTRITION (taught as a project as part of UKS2 Curriculum Carousel throughout the academic year) <ul style="list-style-type: none">• Understand seasonally where things are grown• Understand the principles of a varied diet• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques• locate the world’s countries and regions using maps• understand aspects of human geography eg. Types of settlement and land use, economic activity and the distribution of natural resources		
	MOVING TOYS (taught as a project as part of UKS2 Curriculum Carousel throughout the academic year) <ul style="list-style-type: none">• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.• use research and develop design criteria to inform the design of functional, appealing products that are fit for purpose• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, and pattern pieces• ask relevant questions and using different types of scientific enquiries to answer them• set up simple practical enquiries• use results to draw simple conclusions, make predictions , suggest improvements and raise further questions		
Year 6			
	Autumn	Spring	Summer
Year 6	<u>Design and Make</u> Textiles <u>Mechanisms</u> Christmas Card –whole school project	<u>Textiles</u> Sewing – whole school project	<u>Design and Make</u> Shelters <u>Cooking and Nutrition</u> Health week – whole school project
Key Knowledge and Skills	Design <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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.		

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<p>Curriculum Carousel – project based learning</p>	<p>COOKING AND NUTRITION <u>(taught as a project as part of UKS2 Curriculum Carousel throughout the academic year)</u></p> <ul style="list-style-type: none"> • Understand seasonally where things are grown • Understand the principles of a varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • locate the world's countries and regions using maps • understand aspects of human geography eg. Types of settlement and land use, economic activity and the distribution of natural resources <p>MOVING TOYS <u>(taught as a project as part of UKS2 Curriculum Carousel throughout the academic year)</u></p> <ul style="list-style-type: none"> • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. • use research and develop design criteria to inform the design of functional, appealing products that are fit for purpose • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, and pattern pieces • ask relevant questions and using different types of scientific enquiries to answer them • set up simple practical enquiries • use results to draw simple conclusions, make predictions , suggest improvements and raise further questions <p>TEXTILES <u>taught as a project as part of UKS2 Curriculum Carousel throughout the academic year)</u></p> <ul style="list-style-type: none"> • develop design criteria to inform the design of 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 and pattern pieces • evaluate products against their own design criteria and consider the views of others to improve their work
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KS1

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.

COOKING AND NUTRITION

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

KS2

Design

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- 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.

Cooking and Nutrition

- 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.