



Long Term Plan for DT (Topics taught for half a term within each term)

Year	Autumn	Spring	Summer
1	<p>Main Topic: Mechanisms: (Story Book)</p> <ul style="list-style-type: none"> 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 Explore and evaluate a range of existing products Explore and use mechanisms [for example, levers, sliders, wheels and axles] Select and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) Explore and evaluate a range of existing products Evaluate their ideas against design criteria <p>Additional skills: Food (Fruit and vegetables)</p> <p>Design</p> <ul style="list-style-type: none"> generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <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] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> evaluate their ideas and products against design criteria <p>Cooking and nutrition</p> <ul style="list-style-type: none"> understand where food comes from <p>Science</p> <p><u>KS1 Programme of Study – Years 1 and 2</u></p> <p>Working scientifically:</p> <ul style="list-style-type: none"> identifying and classifying Using their observations and ideas to suggest answers to questions explore and evaluate a range of existing products <p>Cooking and nutrition</p> <ul style="list-style-type: none"> use the basic principles of a healthy and varied diet to prepare dishes 	<p>Main Topic: Structures (Constructing a Windmill)</p> <ul style="list-style-type: none"> 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 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, according to their characteristics Evaluate their ideas and products against design criteria Build structures, exploring how they can be made stronger, stiffer and more stable 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 Explore and evaluate a range of existing products Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products Explore and evaluate a range of existing products <p>Mathematics</p> <p>Recognise and name common two-dimensional and three-dimensional shapes</p> <p>Additional Skills: Puppets</p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products Design purposeful, functional, appealing products for themselves or other users based on design criteria. <p>English</p> <ul style="list-style-type: none"> Become familiar with key stories, fairy stories and traditional tales, retelling them and considering their particular characteristics 	<p>Main Topic: Mechanisms (Wheels and Axles)</p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology Explore and use mechanisms in their product 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 technology <p>Mathematics</p> <ul style="list-style-type: none"> Measure and begin to record lengths and heights



Year	Autumn	Spring	Summer
2	<p>Main Topic: Structures (Baby Bear's chair)</p> <p>Technical knowledge</p> <ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable <p>Make</p> <ul style="list-style-type: none"> Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Design</p> <ul style="list-style-type: none"> 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 <p>Evaluate</p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria <p><u>Mathematics</u></p> <p><u>Geometry - Properties of shapes</u></p> <ul style="list-style-type: none"> Identify and describe the properties of three-dimensional shapes, including the number of edges, vertices and faces Identify two-dimensional shapes on the surface of three-dimensional shapes [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common two-dimensional and three-dimensional shapes and everyday objects <p><u>Measurement</u></p> <ul style="list-style-type: none"> Compare and order lengths <p>Additional skills: Food (A balanced diet)</p> <p><u>Cooking and Nutrition</u></p> <ul style="list-style-type: none"> Understand where food comes from Use the basic principles of a healthy and varied diet to prepare dishes <p>Design</p> <ul style="list-style-type: none"> 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 Use the basic principles of a healthy and varied diet to prepare dishes <p>Evaluate</p>	<p>Main Topic: Textiles (Pouches)</p> <ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks Design purposeful, functional, appealing products for themselves and other users Select from and use a wide range of materials and components, including construction materials, textiles and ingredients according to their characteristics Evaluate their ideas and products against a design criteria <p>Additional skills: Mechanisms (Making a moving Monster)</p> <ul style="list-style-type: none"> Design purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking and drawing, templates, mock-ups and, where appropriate, information and communication technology 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 range of materials and components, including construction materials, according to their characteristics <p>Technical knowledge</p> <ul style="list-style-type: none"> 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. <p>Evaluate</p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products 	<p>Main Topic: Mechanisms (Fairground Wheel)</p> <p><u>Design and Technology</u></p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products Generate, develop and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Explore and use mechanisms in their products Design purposeful, functional, appealing products for themselves and other users based on design criteria Explore and use mechanisms in their products Evaluate their own ideas and products against a design criteria Build structures exploring how they can be made stronger, stiffer, and more stable Explore and use mechanisms in their products Select from and use a range of tools and equipment to perform practical tasks <p><u>Mathematics</u></p> <ul style="list-style-type: none"> Identify and describe the properties of 2D shapes, including the number of sides and the line of symmetry in a vertical line <p><u>Science</u></p> <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock paper and cardboard for particular use

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| <ul style="list-style-type: none">● explore and evaluate a range of existing products● Use the basic principles of a healthy and varied diet to prepare dishes● evaluate their ideas and products against design criteria <p><u>Maths Year 2</u></p> <ul style="list-style-type: none">● Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ | | |
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Year	Autumn	Spring	Summer
3	<p>Main Topic: Electrical Systems (Static Electricity)</p> <ul style="list-style-type: none"> Investigate and analyse a range of existing products Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] 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 Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 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 <p>Additional skills: Food (Eating Seasonally) <u>Cooking and nutrition</u></p> <ul style="list-style-type: none"> 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 <p><u>KS2: Geography - Human and physical geography</u></p> <ul style="list-style-type: none"> Physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle Human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water <p><u>KS2: Geography - Human and physical geography</u></p> <ul style="list-style-type: none"> Physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle Human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water 	<p>Main Topic: Textiles (Cushions)</p> <ul style="list-style-type: none"> Select from and use a range of tools and equipment to perform practical tasks Design purposeful, functional, appealing products for themselves and other users based on design criteria <p>Additional skills: Structures (Constructing a castle) 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 <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 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 <p>Evaluate</p> <ul style="list-style-type: none"> Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <p>Technical knowledge</p> <ul style="list-style-type: none"> Apply their understanding of how to strengthen, stiffen and reinforce more complex structures <p><u>Maths > Year 3: Geometry - Properties of Shapes</u></p> <ul style="list-style-type: none"> Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them 	<p>Main Topic: Mechanical systems (Pneumatic Toys)</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 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Investigate and analyse a range of existing products Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 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 Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Apply their understanding of computing to program, monitor and control their products 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 Select from and use a wider range of tools and equipment to perform practical tasks 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. Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately Understand how key events and individuals in design and technology have helped shape the world



Year	Autumn	Spring	Summer
4	<p>Main Topic: Structures (Pavilions)</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. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes and CAD Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics Investigate and analyse a range of existing products Select from and use a wider range of tools and equipment to perform practical tasks Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics Apply their understanding of how to strengthen, stiffen and reinforce more complex structures <p><u>Maths</u></p> <ul style="list-style-type: none"> Year 3 – Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them Year 4 – Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes 	<p>Main Topic: Textiles (fastenings)</p> <ul style="list-style-type: none"> Explore and evaluate a range of existing products Evaluate their ideas and products against a design criteria Build structures, exploring how they can be made stronger, stiffer or more stable 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 	<p>Main Topic: Mechanical systems (Making a slingshot car)</p> <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 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 <p>Evaluate</p> <ul style="list-style-type: none"> Investigate and analyse a range of existing products Understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <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] <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 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Evaluate</p> <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 <p>Design</p> <ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

**Additional skills: Food
(Adapting a recipe)**

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

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

**Additional skills: Electrical systems
(Torches)**

- Investigate and analyse a range of existing products
- Understand electrical systems in products
- Understand how key events and individuals in design and technology have helped shape the world
- 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

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Science

- Identify common appliances that run on electricity
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Recognise some common conductors and insulators, and associate metals with being good conductors



Year	Autumn	Spring	Summer
5	<p>Main Topic: Mechanical systems (making a pop up book)</p> <ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <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 generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 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 <p>Evaluate</p> <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 <p>Technical knowledge</p> <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] 	<p>Main Topic: Textiles (Making a stuffed toy)</p> <ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussions, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer aided design Select from and use a wider range of tools and equipment to perform practical tasks Apply their understanding of how to strengthen, stiffen, and reinforce more complex structures Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<p>Main Topic: Structures (Bridges)</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 Generate, develop, model and communicate their ideas through discussion and prototypes Select from and use a wider range of tools and equipment to perform practical tasks Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics Investigate and analyse a range of existing products Evaluate their ideas and products against design criteria and consider the views of others to improve their work Apply their understanding of how to strengthen, stiffen and reinforce more complex structures 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 and prototypes select from and use a wider range of tools and equipment to perform practical tasks Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

**Additional skills: Food
(What could be healthier)**

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.

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

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 computing to program, monitor and control their products

Computing

- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

Maths - Year 5 Programme of Study - Measurement

- Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)

**Additional skills: Electrical systems
(Electronic greeting cards)**

- 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 and prototypes
- Select from and use a wider range of tools and equipment to perform practical tasks
- Select from and use a wider range of materials, components and construction materials according to their functional properties and aesthetics
- Investigate and analyse a range of existing products
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures



Year	Autumn	Spring	Summer
6	<p>Main Topic: Mechanical Structures (Automata Toys)</p> <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 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 <p>Evaluate</p> <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 <p>Technical knowledge</p> <ul style="list-style-type: none"> Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] <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 Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 	<p>Main Topic: Structure (Playgrounds)</p> <ul style="list-style-type: none"> Use research to develop and inform the design of innovative, functional and appealing products that are fit for purpose and aimed at particular groups Generate, develop, model and communicate ideas through discussion and annotated sketches 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 Select from and use a wide range of tools and equipment to perform practical tasks Select from and use a wider range of materials and components including construction materials, according to their functional properties and aesthetic qualities Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Apply understanding of how to strengthen, stiffen and reinforce complex structures 	<p>Main Topic: Textiles (Waistcoats)</p> <ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, patterns pieces and computer aided design Select from and use a wider range of tools and equipment to perform practical tasks Understand how key events and individuals in design and technology have helped shape the world Evaluate their ideas and products against their own design criteria and consider the views of others.

**Additional skills: Food
(Come Dine with me)**

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

Technical knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

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

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
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Additional skills: Electrical Systems (Steady Hand Game)

- Understand and use electrical systems in their products
- 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 and communicate their ideas through discussion and annotated sketches
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work
- Understand and use electrical systems in their products

Design and technology

- Model ideas through prototypes
- Select from and use a wide range of tools and equipment to perform practical tasks
- Evaluate their ideas and products against design criteria and consider the views of others to improve their work
- Understand and use electronics in their products
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Science

- Use recognised symbols when representing a simple circuit in a diagram
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches