

Bushbury Hill Primary School

Design and Technology Progression by Year

EYFS			
22-36 months	30 – 50 months	40 – 60 months	Early Learning Goals
Design	<u>Exploring and using media and materials</u> Understands that different media can be combined to create new effects Constructs with a purpose in mind, using a variety of resources. <u>Being Imaginative</u> They represent their own ideas, thoughts and feelings through design and technology		
Make	<u>Exploring and using media and materials</u> Experiments with blocks Uses various construction materials. Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces Selects tools and techniques needed to shape, assemble and join materials they are using. Manipulates materials to achieve a planned effect. They safely use and explore a variety of materials, tools and techniques experimenting with colour, design, texture, form and function Create simple representations of events, people and objects Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. <u>Moving and Handling</u> Uses one handed tools and equipment. Uses simple tools to effect changes to materials. Handles tools, objects, construction and malleable materials safely and with increasing control. They handle equipment and tools effectively. <u>Shape, Space and Measure</u> Uses familiar objects and common shapes to create and recreate patterns and build models		
Evaluate	<u>Exploring and using media and materials</u> Selects appropriate resources and adapts work where necessary They safely use and explore a variety of materials, tools and techniques experimenting with colour, design, texture, form and function <u>Being Imaginative</u> Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.		
Technical Knowledge	<u>Health and self-care</u> Understands that equipment and tools have to be used safely. Shows understanding of the need for safety when tackling new challenges, and considers and manages some risks. Shows understanding of how to transport and store equipment safely. Practices some appropriate safety measures without direct supervision. <u>Exploring and using media and materials</u> Joins construction pieces together to build and balance Uses simple tools and techniques competently and appropriately.		

	They safely use and explore a variety of materials, tools and techniques
Cooking and Nutrition	<u>Health and self-care</u> Eats a healthy range of foodstuffs and understands the need for variety in food. Children know the importance of a healthy diet and talk about ways to keep healthy.
Year 1	
Curriculum Objectives	
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.	When designing, children will begin to think about what their products are for and how they will work. Children will begin to think about who their products are intended for. This could include themselves, imaginary or story-based characters. Children will begin to think about what their product must do to be successful. Children will develop their ideas through talking and drawing. This should be appropriate to the needs of the individual pupil and the product they are designing and making. Use information and communicate technology to support their designing and communicate their ideas. (e.g. children could use Paint program to draw a coat for Barnaby Bear.)
Make Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	When making design decisions, children should begin to select from a range of tools, equipment and materials provided by their teacher appropriate to the tasks they are performing. Children should begin to select and use a range of materials and components (or ingredients) appropriate to the task.
Evaluate Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.	Children should explore a range of existing products linked to their product and begin to ask questions such as who the products are for, what they are for and how they work. Children will begin to evaluate their ideas and products against a given design criteria.
Technical Knowledge Build structures, exploring how they can be made stronger, stiffer and more stable.	Children will begin to build structures that are predominantly free standing, including walls, towers and frameworks. Through exploring and assembling they will begin to learn how to make structures

<p>Explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products.</p>	<p>stronger, stiffer and more stable. ((e.g. using modelling clay to create prototypes for toys.)</p> <p>Children will use wheels and axles, and levers and sliders and begin to understand how they work.</p>
<p>Cooking and Nutrition</p> <p>Use the basic principles of a healthy and varied diet to prepare dishes.</p> <p>Understand where a wider variety of food comes from.</p>	<p>Children should begin to name and sort foods in to five groups from <i>The eatwell plate</i> model. They will understand that everyone should eat at least five portions of fruit and vegetables every day. (Designing and making fruit kebabs)</p> <p>Children will make a range of simple dishes without a heat source e.g. dips, salads, sandwiches and fruit kebabs/salads. (e.g. Year 1 children at Bushbury will design and make fruit kebabs.)</p> <p>Children will know that all food comes from plants or animals and that food has to be farmed, grown elsewhere (e.g. at home) or caught. (Linked to school allotment and orchard.)</p>

Year 2	
Curriculum Objectives	
<p>Design</p> <p>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p>	<p>When designing, children should always think about what their products are for, how they will work and whether they will be linked by intended users.</p> <p>Children should always think about who their products are for.</p> <p>Children should think about what their product must do to be successful and use these criteria to inform their evaluation throughout the designing and making process.</p> <p>Children should be taught a range of ways, for example, talking, drawing, templates and mock-ups to develop their ideas. The techniques chosen should be appropriate for the product they are designing and making and the needs of the individual pupil.</p> <p>With increasing confidence, use ICT to support their work when designing and communicating their ideas. (e.g. use the internet and clipart to find out about monsters.)</p>
<p>Make</p> <p>Select from and use a range of tools and equipment to perform practical tasks.</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p>	<p>When making design decisions, children should confidently select from a range of tools, equipment and materials provided by their teacher to carry out practical tasks successfully.</p> <p>Children should independently select and use a wider range of materials and components (or ingredients) specific to the purpose and task.</p>
<p>Evaluate</p> <p>Explore and evaluate a range of existing products.</p>	<p>Children will explore collections of existing products related to their projects and confidently ask a variety of questions about the products.</p>

<p>Evaluate their ideas and products against design criteria.</p>	<p>With greater independence, children will evaluate their ideas and products against design criteria.</p>
<p>Technical Knowledge Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products.</p>	<p>Children will independently build structures that are predominantly freestanding, including walls, towers and frameworks. Through exploring and assembling they will understand how to make structures stronger, stiffer and more stable.</p> <p>Children will confidently use wheels and axles, and levers and sliders to understand how they work. (e.g. creating moveable monsters.)</p>
<p>Cooking and Nutrition Use the basic principles of a healthy and varied diet to prepare dishes.</p> <p>Understand where a wider variety of food comes from.</p>	<p>Children should begin to name and sort foods in to five groups from <i>The eatwell plate</i> model. They should understand that a healthy diet comprises of food and drinks from the food groups and that everyone should eat at least five portions of fruit and vegetables every day. (This will be covered in Year 2 science, Animals including Humans, (Growth cycle, healthy diet for growth.))</p> <p>With increasing confidence, children will continue to make a range of simple dishes without a heat source. (This could be linked to LC topics e.g. preparing a simple dish for Katie Morag.)</p> <p>Children will know that all food comes from plants or animals (and give examples of some of these) and that food has to be farmed, grown elsewhere (e.g. at home) or caught. (Linked to school allotment and orchard.)</p>

Years 3 and 4

Curriculum Objectives

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 (CAD).

Children with guidance, will choose different research methods to develop design criteria e.g. websites, questionnaires, surveys and interviews.

Children will develop their own criteria and use these to begin to evaluate their ideas and products throughout the designing and making process.

Children will be original with their thinking, create products that are required to work in some way to be successful and will begin to think about the features of their products that will be interesting and engaging for intended users.

Children will begin to think about the tasks that their products should perform.

Children will usually create products with a specific client, consumer or a target group in mind.

Children will use sketching techniques with related notes to develop, record and communicate their thinking. They will begin to think about how simple cross-sectional and exploded diagrams can help to communicate their ideas. (e.g. Y3 – Design a new playground / Y4 – Design packaging for a new chocolate bar.)

	<p>Begin to use simple computer-aided design software to draw shapes accurately, for example the nets for packaging. With the addition of text and graphics, children will begin to think about how their product can have a high quality finish. (e.g. Y4 – Design packaging for a new chocolate bar.)</p>
<p>Make</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks.</p> <p>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>	<p>Children will use appropriate tools, equipment and techniques with accuracy.</p> <p>Children will design and make using a wider range of materials and components safely, adding to those used in key stage 1.</p> <p>As they design and make, children will consider characteristics of materials and components that enable products to work effectively, for example strength, flexibility and electrical conductivity.</p> <p>Children will begin to think more about aesthetic qualities (characteristics of materials and components that make products pleasing the user), for example, colour, pattern and texture, when designing and making their product.</p>
<p>Evaluate</p> <p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p>	<p>Through asking questions, children should investigate, analyse and evaluate existing products related to the product they will be designing and making.</p> <p>Children evaluate their work against their own design criteria and will seek the views of others for feedback on their ideas and products, particularly from intended users.</p> <p>Children will research famous designers and inventors, and ground-breaking products as part of investigative and evaluative activities.</p>
<p>Technical Knowledge</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages.)</p> <p>Understand and use electrical systems in their products (for example, series circuits</p>	<p>Children will build on their understanding from KS1 of how to strengthen, stiffen and reinforce structures and will begin to apply this to more complex structures – these include shell structures which have an outer skin to provide strength (e.g. packaging) and frame structures (e.g. tent frame) which are constructed using an arrangement of thin components.</p> <p>Children will begin to think more about the related components that make up mechanical systems, for example the levers, linkages and pivots in a moving picture. They will begin to think about the input method used to operate the mechanism, the output movement produced by the mechanism and the process – how the mechanism changes the output movement. (e.g. Y3 – playgrounds / Y4 – mechanical toys.)</p>

<p>incorporating switches, bulbs, buzzers and motors.)</p> <p>Apply their understanding of computing to program, monitor and control their product.</p>	<p>Will begin to think about the related components that make up electrical systems, for example the switch, bulb and batteries. (e.g. Year 4 science – electricity.)</p> <p>Children will be able to use a computer to operate electrical products they design and make, for example creating a sequence to make an illuminated sign flash on and off in a repeating pattern.</p>
<p>Cooking and Nutrition</p> <p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>In addition to the skills in KS1:</p> <p>Children will understand that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in <i>The eatwell plate</i>. They will know that to be active and healthy, food is needed to provide energy for the body.</p> <p>They will know that a variety of food is needed in the diet because different foods contain different substances that are needed for health. These are nutrients, water and fibre.</p> <p>Children will create, plan, prepare and cook a range of food dishes, including those which require the use of heat sources. (e.g. Y3 – Design and make a pizza / Y4 – Make a chocolate bar)</p> <p>Use a wider range of cooking techniques to prepare and cook predominantly savoury dishes in line with the principles of <i>The eatwell plate</i>.</p> <p>In KS2, children experience a range of cooking techniques, e.g. learn how to peel, chop, slice, grate, mix, spread, knead and bake.</p> <p>Children will consider how seasons may affect the food available.</p> <p>Children will know 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. (Year 3 – Pizzas / Year 4 chocolate and cocoa beans))</p> <p>They will know that food produced is processed into ingredients that can be eaten or used in cooking, for example grain is milled to produce flour, oil is pressed from olives, butter is made from milk.</p>

Years 5 and 6	
Curriculum Objectives	
<p>Design</p> <p>Use research and develop design criteria to inform the design of innovative, functional, appealing products</p>	<p>Children will independently choose multiple research methods to develop design criteria e.g. websites, questionnaires, surveys and interviews. They will begin to justify their chosen methods.</p>

<p>that are fit for purpose, aimed at particular individuals or groups.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design (CAD).</p>	<p>Children will develop and prioritise their own criteria and use these to evaluate their ideas and products throughout the designing and making process.</p> <p>Children will be more original with their thinking, create products that are required to work in some way to be successful and will think more carefully about the features of their products that will be interesting and engaging for intended users.</p> <p>With greater independence and confidence, children will think carefully about the tasks that their products should perform.</p> <p>Children will always create products with a specific client, consumer or a target group in mind.</p> <p>Children will use high quality sketching techniques with related notes to develop, record and communicate their thinking. They will use cross-sectional diagrams to show what their products will look like inside, and exploded diagrams to communicate the components that will be used to build their products and the order of assembly. (e.g. Y5 – Dragon’s Den project / Y6 – Controllable vehicles).</p> <p>Use simple computer-aided design software to draw shapes accurately. With the addition of text and graphics, children will think about how their product can have a high quality finish. (e.g. Y5 – Dragon’s Den project / Y6 – Controllable vehicles).</p>
<p>Make</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks.</p> <p>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>	<p>Children will select and use a wide range of appropriate tools, equipment and techniques with greater accuracy, with consideration to the effect of overall quality when finished.</p> <p>Children will design and make using a wider range of carefully selected materials and components safely, adding to those used in lower key stage 2.</p> <p>As they design and make, children will consider characteristics of materials and components and understand how these enable products to work effectively, for example strength, flexibility and electrical conductivity.</p> <p>Children will think about aesthetic qualities with an understanding of how these make products pleasing to the user, for example, colour, pattern and texture, when designing and making their product.</p>
<p>Evaluate</p> <p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider</p>	<p>Through asking a wider range of questions, children will investigate, analyse and evaluate a wide range of existing products related to the product they will be designing and making.</p> <p>Children will always evaluate their work against their own design criteria and will seek the views of others for feedback on their ideas and products, particularly from intended users and understand how this can be used to improve their work.</p>

<p>the views of others to improve their work.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p>	<p>Children will independently research famous designers and inventors, and ground-breaking products as part of investigative and evaluative activities and understand the impact on shaping the world.</p>
<p>Technical Knowledge</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages.)</p> <p>Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors.)</p> <p>Apply their understanding of computing to program, monitor and control their product.</p>	<p>Children will build on their understanding from LKS2 of how to strengthen, stiffen and reinforce more complex structures – these include shell structures which have an outer skin to provide strength (e.g. packaging) and frame structures (e.g. tent frame) which are constructed using an arrangement of thin components.</p> <p>Children will begin to think more about the related components that make up mechanical systems, for example the levers, linkages and pivots in a moving picture. They will understand the input movement used to operate the mechanism, the output movement produced by the mechanism and the process – how the mechanism changes the input movement into the output movement. (e.g. Y5 – Dragons’ Den project)</p> <p>Children understand the related components that make up electrical systems, for example the switch, bulb and batteries. They should also think about what type of input device, for example a toggle switch or push-to-make switch, they will use to control their product, what output device will be operated, for example a bulb or buzzer, and the process that causes input devices to control output devices. (e.g. Y6 – Controllable vehicles)</p> <p>Children should use switches or sensors to monitor products, for example a delayed reaction burglar alarm they have created and programmed.</p>
<p>Cooking and Nutrition</p> <p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>In addition to the skills in KS1:</p> <p>Children will understand that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in <i>The eatwell plate</i>. They will know that to be active and healthy, food is needed to provide energy for the body.</p> <p>They will know that a variety of food is needed in the diet because different foods contain different substances that are needed for health. These are nutrients, water and fibre.</p> <p>Children will create, plan, prepare and cook a range of food dishes, including those which require the use of heat sources. (e.g. Y3 – Design and make a pizza / Y4 – Make a chocolate bar)</p> <p>Use a wider range of cooking techniques to prepare and cook predominantly savoury dishes in line with the principles of <i>The eatwell plate</i>.</p>

	<p>In KS2, children experience a range of cooking techniques, e.g. learn how to peel, chop, slice, grate, mix, spread, knead and bake.</p> <p>Children will consider how seasons may affect the food available.</p> <p>Children will know 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. (Year 3 – Pizzas / Year 4 chocolate and cocoa beans)</p> <p>They will know that food produced is processed into ingredients that can be eaten or used in cooking, for example grain is milled to produce flour, oil is pressed from olives, butter is made from milk.</p>
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