

## Progression of Design Technology

### Subject content

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, KS2 pupils should be taught to:

#### 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 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

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

KS2 pupils should be taught to:

- 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

Our DT curriculum is supplemented by the **Kapow Primary Scheme**. We carefully select the units of work to further promote our enquiry curriculum. We focus on developing the skills, knowledge and understanding that children need to become confident designers. Our curriculum introduces children to a range of projects with a focus on structures, mechanisms, electrical systems, cooking and textiles across the school year.

Skills	Year 3	Year 4	Year 5	Year 6
<p><b>Design</b> 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</p> <p>develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>	<p>To design with key features to appeal to a specific person/purpose with support. May use a template.[torch collar castle]</p> <p>To draw and label a design, using 2D shapes &amp; identify materials needed and colours to use.</p> <p>To design and/or decorate on CAD software with support.</p> <p>To begin to know that a design specification is a list of success criteria for a product.</p>	<p>To design with key features to appeal to a specific person/purpose with increased independence [torch collar castle]</p> <p>To draw and labelling a design using 2D shapes and 3D shapes that will create the features &amp; materials needed and colours.</p> <p>Design and/or decorate on CAD software with increased independence.</p> <p>To know that a design specification is a list of success criteria for a product.</p>	<p>To design with some structures and mechanisms [pop-up book bridge game].</p> <p>To name each mechanism, input and output with support.</p> <p>To create storyboarding ideas with support.</p> <p>To design a simple stable structure that is able to support weight.</p> <p>To create a frame structure.</p>	<p>To design a mixture of structures and mechanisms [pop-up book bridge game].</p> <p>To name each mechanism, input and output accurately.</p> <p>To create storyboarding ideas with increased independence.</p> <p>To design a stable structure that is able to support weight independently.</p> <p>To create a frame structure with a focus on triangulation.</p>

<ul style="list-style-type: none"> <li>• Textiles</li> <li>• Structures</li> <li>• Mechanical</li> <li>• Electrical system UKS2</li> </ul>	<p>To begin to design and make a template from an artefact and apply individual design criteria.</p>	<p>To design and make a template from an artefact and apply individual design criteria independently.</p>	<p>To generate ideas through sketching and discussion with support. To model through prototypes with support.</p> <p>To begin to understand the purpose of products [toys] inc fit for purpose' &amp; 'form over function'</p>	<p>To generate ideas through sketching and discussion independently.</p> <p>To model through prototypes with confidence.</p> <p>To understand the purpose of products [toys] inc fit for purpose' &amp; 'form over function'</p>
<p><b>Make</b> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>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> <ul style="list-style-type: none"> <li>• Textiles</li> <li>• Structures</li> <li>• Mechanical</li> <li>• Electrical system UKS2</li> </ul>	<p>To follow design criteria [Egyptian collar]</p> <p>To select and cut fabrics with support using fabric scissors.</p> <p>To thread needles with some support.</p> <p>To tie knots with some support</p> <p>To sew cross stitch to join fabric with some support.</p> <p>To simply decorate fabric using appliqué.</p> <p>To complete design ideas with embellishment.</p> <p>To construct a range of 3D geometric shapes using nets with support.</p> <p>To create special features for individual designs from a bank of ideas.</p> <p>To make facades from a range of recycled materials with support.</p> <p>To make an electrical circuit and switch with support.</p> <p>To use appropriate equipment to cut and attach material with support.</p>	<p>To follow design criteria [cushion].</p> <p>To select and cut fabrics with confidence using fabric scissors.</p> <p>To thread needles with greater independence.</p> <p>To tie knots with greater independence.</p> <p>To sew cross stitch to join fabric with greater independence.</p> <p>To confidently decorate fabric using appliqué.</p> <p>To complete design ideas with stuffing and sewing the edges [cushion].</p> <p>To construct a wider range of 3D geometric shapes using nets with increased independence and talk using specific vocabulary.</p> <p>To create special features for individual designs from own research.</p> <p>To make facades from a range of recycled materials with support increased independence.</p> <p>To make an electrical circuit and switch with support.</p> <p>To use appropriate equipment to cut and attach material confidently.</p>	<p>To follow a design brief with support and begin to focus on accuracy.</p> <p>To make mechanisms/structures using sliders/pivots/folds for movement with support.</p> <p>To use layers and spacers with support to hide the workings of mechanical parts for an aesthetically pleasing result.</p> <p>To make a range of different shaped beam bridges with support.</p> <p>To build a simple structure [bridge] with support</p> <p>To measure and mark wood with increased accuracy.</p> <p>To select appropriate tools and equipment for tasks with support.</p> <p>To practise the correct techniques to saw safely.</p> <p>To identify with support where a structure needs reinforcement and use card corners for support.</p> <p>To explain why selecting appropriating materials is an important part of the design process.</p> <p>To begin to understand basic wood functional properties.</p> <p>To construct a base and add a net that is cut, folded and assembled with support.</p>	<p>To follow a design brief, neatly and with focus on accuracy.</p> <p>To confidently make mechanisms and/or structures using sliders, pivots and folds to produce movement.</p> <p>To use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</p> <p>To make a broad range of different shaped beam bridges with more independence.</p> <p>To build a simple structure [bridge]</p> <p>To independently measure and mark wood accurately.</p> <p>To select appropriate tools and equipment for tasks.</p> <p>To use the correct techniques to saw safely.</p> <p>To identify with support where a structure needs reinforcement and use card corners for support.</p> <p>To confidently explain why selecting appropriating materials is an important part of the design process.</p> <p>To understand basic wood functional properties.</p> <p>To construct a base and add a net that is cut, folded and assembled with accuracy.</p>

			To decorate with increased high quality.  To incorporate a circuit to the base with support.	To decorate with high quality.  To incorporate a circuit to the base.
<b>Evaluate</b> 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	To evaluate an end product and think of other ways to create similar items with support. [collar]  To evaluate own work and the work of others based on the aesthetic of the finished product and in comparison, to the original design with support. [castle]  To test and evaluate the success of a final product. [torch]	To evaluate an end product and think of other ways to create similar items. [cushion]  To evaluate own work and the work of others based on the aesthetic of the finished product and in comparison, to the original design with developed vocabulary and independence. [castle]  To test and evaluate the success of a final product with increased confidence. [torch]	To evaluate the work of others and receive feedback on own work and with support make improvements and suggest improvements. [book]  To adapt and improve design/model with support by identifying points of weakness and reinforcing them as necessary [bridge].  To test own and others finished product, and with support identify positives and how to improve with support.	To evaluate the work of others and receive feedback on own work and make improvements and suggest further improvements. [book]  To adapt and improve design/model by identifying points of weakness and reinforcing them as necessary [bridge].  To test own and others finished product, and with support identify positives and how to improve with confidence.
<b>Technical knowledge</b> 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.	To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.  To know that when two edges of fabric have been joined together it is called a seam.  To know that it is important to leave space on the fabric for the seam.  To understand that some products are turned inside out after sewing so the stitching is hidden.  To begin to know the features of a castle.  To understand that wide and flat based objects are more stable.  To understand the importance of strength and stiffness in structures	To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces and be able to identify on different products.  To know that when two edges of fabric have been joined together it is called a seam and be able to identify on different products.  To know why it is important to leave space on the fabric for the seam.  To understand that some products are turned inside out after sewing so the stitching is hidden and give an example.  To confidently identify the features of a castle.  To confidently understand that wide and flat based objects are more stable and explain with increased vocabulary.  To confidently understand the importance of strength and stiffness in structures and explain succinctly.	To know that mechanisms control movement. [book]  To understand that mechanisms can be used to change one kind of motion into another. [book]  To understand how to use sliders, pivots and folds to create paper-based mechanisms. [book]  To understand a simple way to reinforce structures. [bridge]  To understand how triangles reinforce structures. [bridge]  To know that properties are words that describe the form and function of materials. [bridge]  To understand why material selection is important based on properties. [bridge]	To know that mechanisms control movement and show an example. [book]  To understand that mechanisms can be used to change one kind of motion into another and give an example. [book]  To confidently understand how to use sliders, pivots and folds to create paper-based mechanisms. [book]  To understand some different ways to reinforce structures. [bridge]  To confidently talk about how triangles reinforce structures and give an example. [bridge]  To know that properties are words that describe the form and function of Materials and give a few examples. [bridge]  To understand why material selection is important based on properties. [bridge]

	<p>To know that a façade is the front of a structure.</p> <p>To be aware that a paper net is a flat 2D shape that can become a 3D shape once assembled.</p> <p>To begin to understand the components of a simple circuit, inc insulators, how a battery works and function of a switch with support.</p>	<p>To know that a façade is the front of a structure and identify in different structures.</p> <p>To know that a paper net is a flat 2D shape that can become a 3D shape once assembled.</p> <p>To confidently understand the components of a simple circuit, inc insulators, how a battery works and function of a switch.</p>	<p>To begin to understand the material (functional and aesthetic) properties of wood. [bridge]</p> <p>To begin to understand the difference between arch, beam, truss and suspension bridges.</p> <p>To understand how to carry and use a saw safely with support. [bridge]</p> <p>To know that batteries contain acid and are dangerous. [game]</p> <p>To begin to know the names of the components of a basic series circuit inc buzzer. [game]</p>	<p>To understand the material (functional and aesthetic) properties of wood. [bridge]</p> <p>To confidently understand the difference between arch, beam, truss and suspension bridges.</p> <p>To understand how to carry and use a saw safely with increased confidence. [bridge]</p> <p>To know that batteries contain acid and are dangerous. [game]</p> <p>To confidently know the names of the components of a basic series circuit inc buzzer. [game]</p>
<p><b>Cooking and nutrition</b> 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> <ul style="list-style-type: none"> <li>• tart</li> <li>• biscuit</li> <li>• meat</li> <li>• WWII</li> </ul>	<p>To design a recipe with support. [tart]</p> <p>To design with a budget with support. [biscuit]</p> <p>To design packaging with support for a specific group [biscuit].</p> <p>To follow the instructions within a recipe with support. [tart/biscuit]</p> <p>To taste and select seasonal ingredients. [tart]</p> <p>To peel and cut ingredients safely using a vegetable knife and basic hygiene rules with support. [tart/biscuit]</p> <p>To begin to adapt a recipe for others with support. [biscuit]</p> <p>To use a given cuboid net to create packaging [biscuit].</p>	<p>To design a recipe independently. [tart]</p> <p>To design with a budget using previous experience to support judgements. [biscuit]</p> <p>To design packaging for a specific group [biscuit].</p> <p>To follow the instructions within a recipe independently. [tart]</p> <p>To taste and select seasonal ingredients with confidence. [tart]</p> <p>To peel and cut ingredients safely using a vegetable knife and basic hygiene rules with independence. [tart/biscuit]</p> <p>To confidently establish and use design criteria to help test and review dishes. [tart]</p> <p>To adapt a recipe for others. [biscuit]</p> <p>To use a cuboid net to create packaging [biscuit].</p>	<p>To simply adapt a traditional recipe, and begin to understand that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. [meat]</p> <p>To begin to write an amended method for a recipe to incorporate the relevant changes to ingredients with support. [meat]</p> <p>To design appealing packaging to reflect a recipe with some support. [meat]</p> <p>To research some existing recipes to inform ingredient choices with support. [meat]</p> <p>To use equipment safely, inc knives, hot pans and hobs with support [meat and WW2]</p> <p>To begin to understand about cross contamination. [meat]</p> <p>To begin to identify the nutritional differences between different products and recipes [meat].</p>	<p>To adapt a traditional recipe, and understand that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. [meat]</p> <p>To write an amended method for a recipe to incorporate the relevant changes to ingredients. [meat]</p> <p>To design appealing packaging to reflect a recipe. [meat]</p> <p>To research existing recipes to inform ingredient choices. [meat]</p> <p>To confidently use equipment safely, inc knives, hot pans and hobs [meat and WW2]</p> <p>To understand about cross contamination. [meat]</p> <p>To identify the nutritional differences between different products and recipes [meat].</p>

<p>To begin to establish and use design criteria to help test and review dishes. [tart]</p> <p>To describe the benefits of seasonal fruits and vegetables and the impact on the environment with support. [tart]</p> <p>To suggest some points for improvement with support. [tart]</p> <p>To evaluate a recipe based on taste/smell/texture/appearance with some guidance. [biscuit]</p> <p>To describe the impact of the budget on the selection of ingredients with support [biscuit].</p> <p>To evaluate and compare a simple range of food products. [biscuit]</p> <p>To suggest simple modifications to a recipe. [biscuit]</p> <p>To begin to know that not all fruits and vegetables can be grown in the UK. [tart]</p> <p>To begin to know that climate affects food growth. [tart]</p> <p>To know that vegetables and fruit grow in certain seasons. [tart]</p> <p>To begin to know that imported food is food which has been brought into the country. [tart]</p> <p>To know that exported food is food which has been sent to another country. [tart]</p> <p>To begin to know that similar coloured fruits and vegetables often have similar nutritional benefits and appearance is as important as taste. [tart]</p>	<p>To establish and use design criteria to help test and review dishes. [tart]</p> <p>To confidently describe the benefits of seasonal fruits and vegetables and the impact on the environment. [tart]</p> <p>To confidently suggest several points for improvement. [tart]</p> <p>To confidently evaluate a recipe based on taste/smell/texture/appearance. [biscuit]</p> <p>To describe the impact of the budget on the selection of ingredients. [biscuit].</p> <p>To evaluate and comparing a range of food products. [biscuit]</p> <p>To suggest modifications to a recipe. [biscuit]</p> <p>To confidently know that not all fruits and vegetables can be grown in the UK and suggest their origin. [tart]</p> <p>To know that climate affects food growth. [tart]</p> <p>To begin to know which seasons that some vegetables and fruit grow and know it can have a positive impact on the environment. [tart]</p> <p>To confidently articulate about imported food is food which has been brought into the country. [tart]</p> <p>To know that exported food is food which has been sent to another country. [tart]</p> <p>To know that similar coloured fruits and vegetables often have similar nutritional benefits and appearance is as important as taste. [tart]</p>	<p>To begin to identify and describe healthy benefits of food groups. [meat]</p> <p>To write a recipe with support, explaining the key steps, method and ingredients. [WW2]</p> <p>To be able to follow a simple recipe with increased precision, e.g. correct quantities of each ingredient. [WW2]</p> <p>To be able to adapt a simple recipe based on research with support. [WW2]</p> <p>To work within a given timescale with support. [WW2]</p> <p>To work safely and hygienically with support. [meat &amp; WW2]</p> <p>To evaluate a recipe, considering: taste, smell, texture and origin of the food group with support. [WW2]</p> <p>To evaluate health and safety in production with support to minimise cross contamination. [WW2]</p> <p>To understand the term 'flavour' with support. [WW2]</p> <p>To understand what a 'National Dish' is. [WW2]</p> <p>To understand the term 'processed food'. [WW2]</p> <p>To understand the importance of washing grown food. [WW2]</p> <p>To understand how foods get from farm to fork. [WW2]</p>	<p>To confidently identify and describe healthy benefits of food groups. [meat]</p> <p>To write a simple recipe, explaining the key steps, method and ingredients. [WW2]</p> <p>To be able to confidently follow a recipe with increased precision, e.g. correct quantities of each ingredient. [WW2]</p> <p>To be able to adapt a recipe based on research. [WW2]</p> <p>To work confidently within a given timescale. [WW2]</p> <p>To work safely and hygienically with independence. [meat &amp; WW2]</p> <p>To evaluate a recipe, considering: taste, smell, texture and origin of the food group with support. [WW2]</p> <p>To make suggestions of others recipes. [WW2]</p> <p>To evaluate health and safety in production with support to minimise cross contamination. [WW2]</p> <p>To articulate the term 'flavour' with examples. [WW2]</p> <p>To understand what a 'National Dish' is and give a few examples. [WW2]</p> <p>To understand the term 'processed food' and give a few examples. [WW2]</p> <p>To fully understand the importance of washing grown food and what might happen if unwashed and eaten. [WW2]</p> <p>To confidently understand how foods get from farm to fork. [WW2]</p>
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	<p>To begin to know that the amount of an ingredient in a recipe is known as the 'quantity.' [biscuit]</p> <p>To begin to know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping. [biscuit]</p>	<p>To know that the amount of an ingredient in a recipe is known as the 'quantity.' [biscuit]</p> <p>To know the following cooking techniques confidently: sieving, measuring, stirring, cutting out and shaping. [biscuit]</p>		
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**How will we implement design and technology in our school?**

- We will ensure **evidence of DT** can be seen on Seesaw, class learning journey displays, on enquiry medium term planning, enquiry organisers and whole school displays.
- Our children will be given the **opportunity each term to design, make and evaluate** and children are encouraged to consider purpose when making any products.
- Our children will be given the **opportunity to prepare food, fabric and card** across the year.
- Our children make a **Christmas decoration** for the school tree.
- Our children have the opportunity to **supplement our food technology lessons with other cooking sessions** e.g Young Carer group, Cookery Club etc
- We will ensure our annual **'Healthy Week'** also includes skills and knowledge about healthy eating and food.
- Our children will have access to **daily bagels and fruit at snack time** to support a healthy lifestyle.
- Our children are **encouraged to drink fresh water** regularly to support their understanding of healthy lifestyles, food and nutrition.
- We will ensure **residential trips in Y4 and Y6** have opportunities in some team **activities to reinforce DT skills** through designing, making and evaluating using natural resources.