

Weaving Design and Technology Knowledge, Skills and Understanding into the new National Curriculum

**Key Stage 1:
DT**



National Curriculum Requirements of DT at Key Stage 1

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 and school, gardens and playgrounds, the local community, industry and the wider environment).

When designing and making, pupils should be taught to:

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.

National Curriculum Requirements of Cooking and Nutrition at Key Stage 1

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.

Pupils should be taught to:

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

Knowledge, Skills and Understanding breakdown for Design and Technology

Year 1

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they think of some ideas of their own? • Can they explain what they want to do? • Can they use pictures and words to plan? 	<ul style="list-style-type: none"> • Can they explain what they are making? • Can they explain which tools are they using? 	<ul style="list-style-type: none"> • Can they describe how something works? • Can they talk about their own work and things that other people have done?

Breadth of study

Cooking and nutrition	Textiles	Mechanisms	Use of materials	Construction
<ul style="list-style-type: none"> • Can they cut food safely? • Can they describe the texture of foods? • Do they wash their hands and make sure that surfaces are clean? • Can they think of interesting ways of decorating food they have made, eg, cakes? 	<ul style="list-style-type: none"> • Can they describe how different textiles feel? • Can they make a product from textiles by gluing? 	<ul style="list-style-type: none"> • Can they make a product which moves? • Can they cut materials using scissors? • Can they describe the materials using different words? • Can they say why they have chosen moving parts? 	<ul style="list-style-type: none"> • Can they make a structure/model using different materials? • Is their work tidy? • Can they make their model stronger if it needs to be? 	<ul style="list-style-type: none"> • Can they talk with others about how they want to construct their product? • Can they select appropriate resources and tools for their building projects? • Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building?

Knowledge, Skills and Understanding breakdown for Design and Technology

Year 2

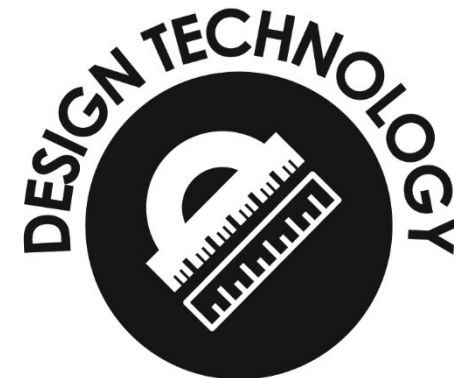
Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they think of ideas and plan what to do next? • Can they choose the best tools and materials? Can they give a reason why these are best? • Can they describe their design by using pictures, diagrams, models and words? 	<ul style="list-style-type: none"> • Can they join things (materials/ components) together in different ways? 	<ul style="list-style-type: none"> • Can they explain what went well with their work? • If they did it again, can they explain what they would improve?

Breadth of study

Cooking and nutrition	Textiles	Mechanisms	Use of materials	Construction
<ul style="list-style-type: none"> • Can they describe the properties of the ingredients they are using? • Can they explain what it means to be hygienic? • Are they hygienic in the kitchen? 	<ul style="list-style-type: none"> • Can they measure textile? • Can they join textiles together to make something? • Can they cut textiles? • Can they explain why they chose a certain textile? 	<ul style="list-style-type: none"> • Can they join materials together as part of a moving product? • Can they add some kind of design to their product? 	<ul style="list-style-type: none"> • Can they measure materials to use in a model or structure? • Can they join material in different ways? • Can they use joining, folding or rolling to make it stronger? 	<ul style="list-style-type: none"> • Can they make sensible choices as to which material to use for their constructions? • Can they develop their own ideas from initial starting points? • Can they incorporate some type of movement into models? • Can they consider how to improve their construction?

Weaving Design and Technology Knowledge, Skills and Understanding into the new National Curriculum

**Key Stage 2:
DT**



National Curriculum Requirements of DT at Key Stage 2

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, 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, such as 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 as 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 programme, monitor and control their products.

National Curriculum Requirements of Cooking and Nutrition at Key Stage 2

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.

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.

Knowledge, Skills and Understanding breakdown for Design and Technology

Year 3

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they show that their design meets a range of requirements? • Can they put together a step-by-step plan which shows the order and also what equipment and tools they need? • Can they describe their design using an accurately labelled sketch and words? • How realistic is their plan? 	<ul style="list-style-type: none"> • Can they use equipment and tools accurately? 	<ul style="list-style-type: none"> • Can they explain what they changed which made their design even better?

Breadth of study

<p>Cooking and nutrition</p> <ul style="list-style-type: none"> • Can they choose the right ingredients for a product? • Can they use equipment safely? • Can they make sure that their product looks attractive? • Can they describe how their combined ingredients come together? • Can they set out to grow plants such as cress and herbs from seed with the intention of using them for their food product? 	<p>Textiles</p> <ul style="list-style-type: none"> • Can they join textiles of different types in different ways? • Can they choose textiles both for their appearance and also qualities? 	<p>Electrical and mechanical components</p> <ul style="list-style-type: none"> • Do they select the most appropriate tools and techniques to use for a given task? • Can they make a product which uses both electrical and mechanical components? • Can they use a simple circuit? • Can they use a number of components? 	<p>Stiff and flexible sheet materials</p> <ul style="list-style-type: none"> • Do they use the most appropriate materials? • Can they work accurately to make cuts and holes? • Can they join materials? 	<p>Mouldable materials</p> <ul style="list-style-type: none"> • Do they select the most appropriate materials? • Can they use a range of techniques to shape and mould? • Do they use finishing techniques?
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Knowledge, Skills and Understanding breakdown for Design and Technology

Year 4

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they come up with at least one idea about how to create their product? • Do they take account of the ideas of others when designing? • Can they produce a plan and explain it to others? • Can they suggest some improvements and say what was good and not so good about their original design? 	<ul style="list-style-type: none"> • Can they tell if their finished product is going to be good quality? • Are they conscience of the need to produce something that will be liked by others? • Can they show a good level of expertise when using a range of tools and equipment? • Do they work at their product even though their original idea might not have worked? 	<ul style="list-style-type: none"> • Have they thought of how they will check if their design is successful? • Can they begin to explain how they can improve their original design? • Can they evaluate their product, thinking of both appearance and the way it works? • Do they take time to consider how they could have made their idea better?

Breadth of study

<p>Cooking and nutrition</p> <ul style="list-style-type: none"> • Do they know what to do to be hygienic and safe? • Have they thought what they can do to present their product in an interesting way? 	<p>Textiles</p> <ul style="list-style-type: none"> • Do they think what the user would want when choosing textiles? • Have they thought about how to make their product strong? • Can they devise a template? • Can they explain how to join things in a different way? 	<p>Electrical and mechanical components</p> <ul style="list-style-type: none"> • Can they add things to their circuits? • How have they altered their product after checking it? • Are they confident about trying out new and different ideas? 	<p>Stiff and flexible sheet materials</p> <ul style="list-style-type: none"> • Can they measure carefully so as to make sure they have not made mistakes? • How have they attempted to make their product strong? 	<p>Mouldable materials</p> <ul style="list-style-type: none"> • Can they use a range of advanced techniques to shape and mould? • Do they use finishing techniques, showing an awareness of audience?
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Knowledge, Skills and Understanding breakdown for Design and Technology

Year 5

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they come up with a range of ideas after they have collected information? • Do they take a user's view into account when designing? • Can they produce a detailed step-by-step plan? • Can they suggest some alternative plans and say what the good points and drawbacks are about each? 	<ul style="list-style-type: none"> • Can they explain why their finished product is going to be of good quality? • Can they explain how their product will appeal to the audience? • Can they use a range of tools and equipment expertly? • Do they persevere through different stages of the making process? 	<ul style="list-style-type: none"> • Do they keep checking that their design is the best it can be? • Do they check whether anything could be improved? • Can they evaluate appearance and function against the original criteria?

Breadth of study

Cooking and nutrition	Textiles	Electrical and mechanical components	Stiff and flexible sheet materials	Mouldable materials
<ul style="list-style-type: none"> • Can they describe what they do to be both hygienic and safe? • How have they presented their product well? 	<ul style="list-style-type: none"> • Do they think what the user would want when choosing textiles? • How have they made their product attractive and strong? • Can they make up a prototype first? • Can they use a range of joining techniques? 	<ul style="list-style-type: none"> • Can they incorporate a switch into their product? • Can they refine their product after testing it? • Can they incorporate hydraulics and pneumatics? 	<ul style="list-style-type: none"> • Are their measurements accurate enough to ensure that everything is precise? • How have they ensured that their product is strong and fit for purpose? 	<ul style="list-style-type: none"> • Are they motivated enough to refine and further improve their product using mouldable materials?

Knowledge, Skills and Understanding breakdown for Design and Technology

Year 6

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> • Can they use a range of information to inform their design? • Can they use market research to inform plans? • Can they work within constraints? • Can they follow and refine their plan if necessary? • Can they justify their plan to someone else? • Do they consider culture and society in their designs? 	<ul style="list-style-type: none"> • Can they use tools and materials precisely? • Do they change the way they are working if needed? 	<ul style="list-style-type: none"> • How well do they test and evaluate their final product? • Is it fit for purpose? • What would improve it? • Would different resources have improved their product? • Would they need more or different information to make it even better? • Does their product meet all design criteria? • Did they consider the use of the product when selecting materials?

Breadth of study

<p>Cooking and nutrition</p> <ul style="list-style-type: none"> • Can they explain how their product should be stored with reasons? • Can they set out to grow their own products with a view to making a salad, taking account of time required to grow different foods? 	<p>Textiles</p> <ul style="list-style-type: none"> • Have they thought about how their product could be sold? • Have they given considered thought about what would improve their product even more? 	<p>Electrical and mechanical components</p> <ul style="list-style-type: none"> • Can they use different kinds of circuit in their product? • Can they think of ways in which adding a circuit would improve their product? 	<p>Stiff and flexible sheet materials</p> <ul style="list-style-type: none"> • Can they justify why they selected specific materials? • How have they ensured that their work is precise and accurate? • Can they hide joints so as to improve the look of their product? 	<p>Mouldable materials</p> <ul style="list-style-type: none"> • Can they justify why the chosen material was the best for the task? • Can they justify design in relation to the audience?
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