



# Design and Technology Curriculum Map

SKILLS, KNOWLEDGE AND UNDERSTANDING PROGRESSION

## 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.

## 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 1

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<p>Can they think of some ideas of their own?</p> <p>Can they explain what they want to do?</p> <p>Can they use pictures and words to plan?</p>	<p>Can they explain what they are making?</p> <p>Can they explain which tools are they using?</p>	<p>Can they describe how something works?</p> <p>Can they talk about their own work and things that other people have done?</p>

### Breadth of study

Cooking and nutrition	Textiles	Mechanisms	Use of materials	Construction
<p>Can they cut food safely?</p> <p>Can they describe the texture of foods?</p> <p>Do they wash their hands and make sure that surfaces are clean?</p> <p>Can they think of interesting ways of decorating food they have made, eg, cakes?</p>	<p>Can they describe how different textiles feel?</p> <p>Can they make a product from textile by gluing?</p>	<p>Can they make a product which moves?</p> <p>Can they cut materials using scissors?</p> <p>Can they describe the materials using different words?</p> <p>Can they say why they have chosen moving parts?</p>	<p>Can they make a structure/model using different materials?</p> <p>Is their work tidy?</p> <p>Can they make their model stronger if it needs to be?</p>	<p>Can they talk with others about how they want to construct their product?</p> <p>Can they select appropriate resources and tools for their building projects?</p> <p>Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building?</p>

# 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
<p>Can they think of ideas and plan what to do next?</p> <p>Can they choose the best tools and materials? Can they give a reason why these are best?</p> <p>Can they describe their design by using pictures, diagrams, models and words?</p>	<p>Can they join things (materials/ components) together in different ways?</p>	<p>What went well with their work?</p> <p>If they did it again, what would they want to improve?</p>

### Breadth of study

Cooking and nutrition	Textiles	Mechanisms	Use of materials	Construction
<p>Can they describe the properties of the ingredients they are using?</p> <p>Can they explain what it means to be hygienic?</p> <p>Are they hygienic in the kitchen?</p>	<p>Can they measure textile?</p> <p>Can they join textiles together to make something?</p> <p>Can they cut textiles?</p> <p>Can they explain why they chose a certain textile?</p>	<p>Can they join materials together as part of a moving product?</p> <p>Can they add some kind of design to their product?</p>	<p>Can they measure materials to use in a model or structure?</p> <p>Can they join material in different ways?</p> <p>Can they use joining, folding or rolling to make it stronger?</p>	<p>Can they make sensible choices as to which material to use for their constructions?</p> <p>Can they develop their own ideas from initial starting points?</p> <p>Can they incorporate some type of movement into models?</p> <p>Can they consider how to improve their construction?</p>

# 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
<p>Can they show that their design meets a range of requirements?</p> <p>Can they put together a step-by-step plan which shows the order and also what equipment and tools they need?</p> <p>Can they describe their design using an accurately labelled sketch and words?</p> <p>How realistic is their plan?</p>	<p>Can they use equipment and tools accurately?</p>	<p>Can they explain what they changed which made their design even better?</p>

## Breadth of study

Cooking and nutrition	Textiles	Electrical and mechanical components	Stiff and flexible sheet materials	Mouldable materials
<p>Can they choose the right ingredients for a product?</p> <p>Can they use equipment safely?</p> <p>Can they make sure that their product looks attractive?</p> <p>Can they describe how their combined ingredients come together?</p> <p>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>	<p>Can they join textiles of different types in different ways?</p> <p>Can they choose textiles both for their appearance and also qualities?</p>	<p>Do they select the most appropriate tools and techniques to use for a given task?</p> <p>Can they make a product which uses both electrical and mechanical components?</p> <p>Can they use a simple circuit?</p> <p>Can they use a number of components?</p>	<p>Do they use the most appropriate materials?</p> <p>Can they work accurately to make cuts and holes?</p> <p>Can they join materials?</p>	<p>Do they select the most appropriate materials?</p> <p>Can they use a range of techniques to shape and mould?</p> <p>Do they use finishing techniques?</p>

# 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
<p>Have they thought of how they will check if their design is successful?</p> <p>Can they begin to explain how they can improve their original design?</p> <p>Can they evaluate their product, thinking of both appearance and the way it works?</p> <p>Do they take time to consider how they could have made their idea better?</p>	<p>Can they tell if their finished product is going to be good quality?</p> <p>Are they conscience of the need to produce something that will be liked by others?</p> <p>Can they show a good level of expertise when using a range of tools and equipment?</p> <p>Do they work at their product even though their original idea might not have worked?</p>	<p>Have they thought of how they will check if their design is successful?</p> <p>Can they begin to explain how they can improve their original design?</p> <p>Can they evaluate their product, thinking of both appearance and the way it works?</p> <p>Do they take time to consider how they could have made their idea better?</p>

## Breadth of study

<p><b>Cooking and nutrition</b></p> <p>Do they know what to do to be hygienic and safe?</p> <p>Have they thought what they can do to present their product in an interesting way?</p>	<p><b>Textiles</b></p> <p>Do they think what the user would want when choosing textiles?</p> <p>Have they thought about how to make their product strong?</p> <p>Can they devise a template?</p> <p>Can they explain how to join things in a different way?</p>	<p><b>Electrical and mechanical components</b></p> <p>Can they add things to their circuits?</p> <p>How have they altered their product after checking it?</p> <p>Are they confident about trying out new and different ideas?</p>	<p><b>Stiff and flexible sheet materials</b></p> <p>Can they measure carefully so as to make sure they have not made mistakes?</p> <p>How have they attempted to make their product strong?</p>	<p><b>Mouldable materials</b></p> <p>Can they use a range of advanced techniques to shape and mould?</p> <p>Do they use finishing techniques, showing an awareness of audience?</p>
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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
<p>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?</p>	<p>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?</p>	<p>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?</p>

## Breadth of study

<p><b>Cooking and nutrition</b> Can they describe what they do to be both hygienic and safe? How have they presented their product well?</p>	<p><b>Textiles</b> 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?</p>	<p><b>Electrical and mechanical components</b> Can they incorporate a switch into their product? Can they refine their product after testing it? Can they incorporate hydraulics and pneumatics?</p>	<p><b>Stiff and flexible sheet materials</b> Are their measurements accurate enough to ensure that everything is precise? How have they ensured that their product is strong and fit for purpose?</p>	<p><b>Mouldable materials</b> Are they motivated enough to refine and further improve their product using mouldable materials?</p>
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# 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
<p>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?</p>	<p>Can they use tools and materials precisely? Do they change the way they are working if needed?</p>	<p>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?</p>

## Breadth of study

<p><b>Cooking and nutrition</b> 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>	<p><b>Textiles</b> Have they thought about how their product could be sold? Have they given considered thought about what would improve their product even more?</p>	<p><b>Electrical and mechanical components</b> 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>	<p><b>Stiff and flexible sheet materials</b> 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>	<p><b>Mouldable materials</b> Can they justify why the chosen material was the best for the task? Can they justify design in relation to the audience?</p>
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