

## DT Medium Term Planning

### **Key Knowledge**

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 [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 & 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.

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.

**Cycle A**

Year group 3/4	Design	Make	Evaluate	Technical knowledge	Cooking and nutrition
<p><b>Autumn 2</b> Pneumatic toys (Mechanisms)</p>	<ul style="list-style-type: none"> <li>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</li> <li>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse a range of existing products</li> <li>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>Understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<ul style="list-style-type: none"> <li>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> </ul>	
<p><b>GDS Opportunities</b></p>	<p><b>Electrical and mechanical components</b></p> <ul style="list-style-type: none"> <li>Can they add things to their circuits?</li> <li>How have they altered their product after checking it?</li> <li>Are they confident about trying out new and different ideas?</li> </ul>				

<p><b>Spring 2</b> Castles (Structures)</p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design</li> </ul>	<ul style="list-style-type: none"> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> </ul>	<ul style="list-style-type: none"> <li>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> </ul>	
<p><b>GDS Opportunities</b></p>	<p><b>Stiff and flexible sheet materials</b></p> <ul style="list-style-type: none"> <li>• Do they use the most appropriate materials?</li> <li>• Can they work accurately to make cuts and holes?</li> <li>• Can they join materials?</li> </ul>				
<p><b>Summer 2</b> Torches (Electrical systems)</p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Generate, develop,</li> </ul>	<ul style="list-style-type: none"> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products</li> <li>• Evaluate their ideas and products against their own design criteria and</li> </ul>	<ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and</li> </ul>	

	<p>model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design</p>	<p>finishing], accurately</p> <ul style="list-style-type: none"> <li>• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<p>consider the views of others to improve their work</p> <ul style="list-style-type: none"> <li>• Understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<p>motors]</p>	
<b>GDS Opportunities</b>	<p><b>Electrical and mechanical components</b></p> <ul style="list-style-type: none"> <li>• Do they select the most appropriate tools and techniques to use for a given task?</li> <li>• Can they make a product which uses both electrical and mechanical components?</li> <li>• Can they use a simple circuit?</li> <li>• Can they use a number of components?</li> </ul>				

### Cycle B

Year group 3/4	Design	Make	Evaluate	Technical knowledge	Cooking and nutrition
<b>Autumn 2 Cushions (Textiles)</b>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Generate, develop, model and communicate their ideas through</li> </ul>	<ul style="list-style-type: none"> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others</li> </ul>	<ul style="list-style-type: none"> <li>• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>• select from and use a wider range</li> </ul>	

	<p>discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design</p>	<ul style="list-style-type: none"> <li>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<p>to improve their work</p>	<p>of materials and textiles according to their functional properties and aesthetic qualities</p>	
<p><b>GDS Opportunities</b></p>	<p><b>Textiles</b></p> <ul style="list-style-type: none"> <li>Can they join textiles of different types in different ways?</li> <li>Can they choose textiles both for their appearance and also qualities?</li> <li>Do they think what the user would want when choosing textiles?</li> <li>Have they thought about how to make their product strong?</li> <li>Can they devise a template?</li> <li>Can they explain how to join things in a different way?</li> </ul>				
<p><b>Spring 2</b> Eating seasonally (Food and Nutrition)</p>	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>		<ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, mixing, decorating accurately</li> <li>select from and use a wider range of equipment and ingredients according to their functional properties and aesthetic qualities</li> </ul>	<ul style="list-style-type: none"> <li>Understand and apply principles of a healthy and varied diet</li> <li>Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques</li> <li>Understand seasonality, and know where and how a variety of ingredients are</li> </ul>

<p><b>GDS Opportunities</b></p>	<p><b>Cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>• Can they choose the right ingredients for a product?</li> <li>• Can they use equipment safely?</li> <li>• Can they make sure that their product looks attractive?</li> <li>• Can they describe how their combined ingredients come together?</li> <li>• Can they set out to grow plants such as cress and herbs from seed with the intention of using them for their food product?</li> </ul>				
<p><b>Summer 2</b> Electronic charm (Digital worlds)</p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design</li> </ul>	<ul style="list-style-type: none"> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>• Understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<ul style="list-style-type: none"> <li>• Apply their understanding of computing to program, monitor and control their products</li> </ul>	
<p><b>GDS Opportunities</b></p>	<p>Electrical and mechanical components</p> <ul style="list-style-type: none"> <li>• Do they select the most appropriate tools and techniques to use for a given task?</li> </ul>				

- 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?