



# Design and Technology Skills and Knowledge Overview

KS1 and KS2 National Curriculum																			
<b>Teaching sequence</b>	<ul style="list-style-type: none"> <li>Big picture: Placing the DT being studied in the context of similar past learning in the subject</li> <li>Daily review: Brief review of learning covered in previous lesson/s</li> </ul>	<b>Key Concepts: Learning, working and talking like a designer</b>	Being introduced to the key terms and vocabulary that a designer would use; high expectations of pupils 'talking' like a designer; examples of real-life designers and how they contributed to their field.																
	<ul style="list-style-type: none"> <li>Teacher delivers a design brief, posing a problem to be solved in a context the children understand</li> </ul>		<table border="1"> <thead> <tr> <th>Concepts</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>design</td> <td>1. plan to do something with a specific purpose in mind 2. do a drawing of something before making it</td> </tr> <tr> <td>designer</td> <td>1. a person who creates a plan for something they want to make 2. KS2 – also focus on 'designer' as a job title/career, e.g. 'fashion designer'</td> </tr> <tr> <td>technology</td> <td>using what we know about science/computing to help us make useful things</td> </tr> <tr> <td>product</td> <td>an outcome piece with a function/that does something - not necessarily a thing which can be sold</td> </tr> <tr> <td>brief</td> <td>the initial instructions that tell us what we need to do in our project</td> </tr> <tr> <td>user</td> <td>the person who we are designing our product for, whose needs/wants must be taken into account</td> </tr> <tr> <td>nutrition</td> <td>the principles of a varied and healthy diet</td> </tr> </tbody> </table>	Concepts	Explanation	design	1. plan to do something with a specific purpose in mind 2. do a drawing of something before making it	designer	1. a person who creates a plan for something they want to make 2. KS2 – also focus on 'designer' as a job title/career, e.g. 'fashion designer'	technology	using what we know about science/computing to help us make useful things	product	an outcome piece with a function/that does something - not necessarily a thing which can be sold	brief	the initial instructions that tell us what we need to do in our project	user	the person who we are designing our product for, whose needs/wants must be taken into account	nutrition	the principles of a varied and healthy diet
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<ul style="list-style-type: none"> <li>Children research existing products and possible construction materials/ingredients/tools.</li> </ul>																			
<ul style="list-style-type: none"> <li>Children create their own design, in response to the brief and their research</li> </ul>																			
<ul style="list-style-type: none"> <li>Children make their product.</li> </ul>																			
<ul style="list-style-type: none"> <li>Children improve their product.</li> </ul>																			
<ul style="list-style-type: none"> <li>Children critically evaluate their work.</li> </ul>																			
Higher attaining pupils should also be encouraged to record more independently and freely as well as be encouraged to experiment with and use materials of their own choice. Their increasingly critical thinking and in-depth evaluation of their own and others' design and technology work should be reflected in their books and the products they create with increasing confidence and independence of thought.																			

Year 1					
Cooking & Nutrition			Structures - Bridges		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
Chopping/cutting. Grating. Peeling. Using tools safely e.g. knife, grater. Different holds for cutting (bridge, grab). Demonstrate basic hygiene.	Understand where food comes from – plants, animals. Know how food is grown. Know the main 5 food groups. Show some understanding of the Eat Well Guide food wheel.	<b>Do</b> - To prepare a healthy dish without a heat source - To make coleslaw.  <b>Know</b> - How to prepare food safely and the main food groups.  <b>Understand</b> – Where food comes from.	Select from a range of materials and components according to their characteristics. To use tools safely. To draw their ideas and design a product based on design criteria. To evaluate what they have made.	Know how freestanding structures can be made stronger, stiffer and more stable. E.g. layer card, using tubes, adding lollipop sticks. Understand that existing products be reused or Recycled. (reuse some materials to make their bridge)	<b>Do</b> - To make a bridge that is stable.  <b>Know</b> – How to make the bridge stable and strong.  <b>Understand</b> – We can reuse and recycle products to make something new.
Year 2					
Mechanisms – Book with moveable parts					
Skills	Knowledge		End Points		
Evaluate existing products – how are they made & how do they work. Design a product – book with moving parts. Use templates for the moving parts.	Explore and use mechanisms (e.g. levers, sliders, wheels etc). Understand the movement of simple mechanisms.		<b>Do</b> – To use a mechanism to make a moving part (Make one page for a class book).  <b>Know</b> – How to make a wheel, slider and lever.		

<p>Make a paper mock up to test their idea. To evaluate what they made. Make suggestions on how to improve their product. Communicate their likes and dislikes about their product.</p>		<p><b>Understand</b> – A mock up can be used to test a product before you make the real thing.</p>
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### Year 3

#### Cooking and Nutrition

Skills	Knowledge	End Points
<p>Use a heat source to cook a savoury dish. Measure ingredients accurately with measuring jugs, measuring spoons and weighing scales. Chopping/cutting. Grating. Peeling. Using tools safely e.g. knife, grater. Different holds for cutting (bridge, grab). <i>(Some skills as Year 1 – children in Y3 should show increasing independence)</i> To demonstrate basic hygiene. To prepare food safely. Analyse a range of existing products (tasting food). Evaluate their product. Consider views of others to improve their work.</p>	<p>Understand seasonality, know where &amp; how a variety of ingredients are grown, reared, caught &amp; processed. Understand the principles of healthy varied Diet. Understand The Eatwell Guide – the proportions of food each group.</p>	<p><b>Do</b> – To prepare &amp; cook savoury dishes using a range cooking techniques.</p> <p><b>Know</b> – How and where ingredients are grown, caught, reared or processed.</p> <p><b>Understand</b> – The principles of a healthy diet (The Eatwell Guide and its proportions).</p>

### Year 4

#### Structures - Greenhouse

Skills	Knowledge	End Points
<p>Use research and develop design criteria. Research designers &amp; key individuals – evaluate existing local buildings. Design a building (greenhouse). Draw annotated sketches. Use computer aided design. Make a prototype (straw and pipe cleaner structures to test shapes). Select and use wide range of materials including construction materials – explain their choices. Become more accurate with measuring, cutting, joining &amp; assembling. Evaluate their products against design criteria.</p>	<p>To know how to strengthen, stiffen and reinforce complex Structures. Understand the purpose of Computer Aided Design (CAD). Understand how key events and individuals in D&amp;T have helped shape the world (done through local building research).</p>	<p><b>Do</b> – To design and make a greenhouse.</p> <p><b>Know</b> – How to strengthen, stiffen and reinforce complex structures.</p> <p><b>Understand</b> – The purpose of Computer Aided Design.</p>

### Year 5

#### Mechanisms – Moveable Bridge

Skills	Knowledge	End Points
<p>Research &amp; evaluate existing bridge structures.</p>	<p>Understand &amp; use mechanical systems e.g. gears, pulleys, cams, levers, linkages.</p>	<p><b>Do</b> – To design and make a moveable bridge.</p>

<p>Design a bridge that moves - use research &amp; design criteria to inform design.          Draw annotated sketches.          Draw exploded diagrams.          Add dimensions to their design.          Select &amp; use wide range of materials &amp; components according to functional properties.          Use techniques involving a number of steps.(When constructing the mechanism).          Measuring, cutting/sawing, joining.          Use tools accurately and safely.          Evaluate their ideas and products against design criteria.          Consider views of others to improve their work.</p>		<p><b>Know</b> – How to measure accurately and assemble the mechanism.</p> <p><b>Understand</b> – How mechanical system works (pulleys, levers, linkages).</p>
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**Year 6**

Electrical Systems - Games			Textiles – Create an item of clothing		
Skills	Knowledge	End Points	Skills	Knowledge	End Points
<p>Investigate &amp; evaluate existing products (games with sounds and movement).            Develop design criteria to inform design of a product (An electrical game - innovative, functional and appealing).            Draw annotated sketches.            Draw cross-sectional diagrams.            Select and use a range of tools, equipment and components (choose parts for their game).            Evaluate product against design criteria.</p>	<p>Understand &amp; use electrical systems in their products (E.g. series circuit with switches, bulbs, motors, buzzers).</p>	<p><b>Do</b> - Make a game using electrical systems.</p> <p><b>Know</b> – How to make an electrical circuit.</p> <p><b>Understand</b> – How existing games work.</p>	<p>Investigate &amp; analyse range of existing products (clothing items – look at fabrics, construction, pattern, weave and openings).            Develop own design criteria.            Draw annotated sketches.            Use prototypes and pattern pieces.            Select and use wide range of tools &amp; equipment (E.g. cutting, shaping, joining, finishing) accurately.            Select own material and item to upcycle into something new.            Evaluate their ideas and products against own design criteria.            Consider views of others to improve their work.</p>	<p>To know how clothing items are constructed (complete pieces of fabric, sewn parts, glued on, knitted).            To know how to join materials e.g. sew, glue, zip, buttons.            To be able to describe the characteristics of different materials functional properties &amp; aesthetic qualities.            To know why patterns and template are used.</p>	<p><b>Do</b> - Make an item of clothing/or accessory using a technique of their choice.</p> <p><b>Know</b> – The different ways materials can be joined/combined</p> <p><b>Understand</b> – Certain materials are used for certain purposes and why.</p>

