



## Progression of knowledge and skills:

## Design Technology

By the end of year, pupils will have:

By the end of year, pupils will have:		
	Developed the following skills:	Have gained the following knowledge:
Early Years	<p>Children start to use appropriate vocabulary to describe materials, e.g. 'smooth' 'shiny' 'rough' 'prickly' 'flat' 'patterned' 'jagged', 'bumpy' 'soft' and 'hard'.</p> <p>Can start to use ideas to encourage or support their thinking and planning, e.g a photograph to remind what a bridge looks like.</p>	<p><b>30-50 mths</b></p> <ul style="list-style-type: none"> <li>• Knows that information can be retrieved from computers</li> <li>Beginning to be interested in and describe the texture of things.</li> <li>• Uses various construction materials.</li> <li>• Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.</li> <li>• Joins construction pieces together to build and balance.</li> <li>• Realises tools can be used for a purpose.</li> </ul> <p><b>40- 60mths</b></p> <p>Manipulates materials to achieve a planned effect.</p> <ul style="list-style-type: none"> <li>• Constructs with a purpose in mind, using a variety of resources.</li> <li>• Uses simple tools and techniques competently and appropriately.</li> <li>• Selects appropriate resources and adapts work where necessary.</li> <li>• Selects tools and techniques needed to shape, assemble and join materials they are using.</li> </ul>
Experienced the following:	<ul style="list-style-type: none"> <li>• Have their work kept and/ or displayed in a 'holding bay' where models and works can be retained for a period for children to enjoy, develop, or refer to.</li> <li>• Experience different structures in the environment, referring to size and shape, e.g. buildings, towers, bridges</li> <li>• Create structures out of lots of different materials, building blocks, lego, craft, recycling, etc.</li> <li>• Experiment with textiles for different occasions, e.g. fur material to keep someone warm.</li> <li>• Experience and taste foods from different cultures, even better with parents to visit to provide support</li> </ul>	

By the end of year children will have:

Year 1

Developed the following skills:

**Developing, planning and communicating ideas**

- Begin to draw on their own experience to help generate ideas and research conducted on criteria.
- Begin to understand the development of existing products: What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do.
- Understand how to identify a target group for what they intend to design and make based on a design criteria.
- Begin to develop their ideas through talk and drawings.
- Begin to choose and identify the most appropriate materials or tools they might want to use.

**Working with tools, equipment, materials and components to make quality products**

- Begin to make their design using appropriate, learnt techniques.
- Begin to 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.
- With help measure, mark out, cut and shape a range of materials.

Have gained the following knowledge:

**Technical knowledge**

- Know what is meant by the terms: stronger, stiffer and more stable when referring to structures.
- know how to build structures

**Cooking and Nutrition:**

- Know that germs can cause illness and can be spread by our hands and surfaces
- Know HOW to wash their hands
- Know HOW to clean the surfaces they are working on.
- Know how to stay safe when cutting
- Begin to understand that all food comes from plants or animals.
- Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught.
- Start to understand how to name and sort foods into the five groups in 'The Eat well plate'
- Begin to understand that everyone should eat at least five portions of fruit and vegetables every day.

**Materials:**

- Can they describe the materials using different words?
- Can they say why they have chosen moving parts?
- Do they know and can they explain how to make something stronger?
- Know that different materials are good at doing different things- warmth, waterproof, etc.
- Know where to use glue, and how much, to fix pieces together.
- Make a product from textile by gluing.

- Explore using tools e.g. scissors and a hole punch safely.
- Use scissors to cut straight and curved lines, fairly accurately
- Begin to assemble, join and combine materials and components together using a variety of temporary
- methods e.g. glues or masking tape.
- Begin to use simple finishing techniques to improve the appearance of their product.

#### **Evaluating processes and products**

- Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria).
- When looking at existing products explain what they like and dislike about products and why.
- Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.

#### **Cooking and nutrition**

- Begin to develop simple techniques such as cutting, peeling and grating, with support for some children.
- Begin to say which flavours and textures they prefer, using key vocabulary: *I prefer because... I like this more than the first one because...*

By the end of year children will:

Year 2

Developed the following skills:

**Developing, planning and communicating ideas**

- Start to generate ideas by drawing on their own and other people's experiences.
- Begin to develop their design ideas through discussion, observation, drawing and modelling.
- Identify a purpose for what they intend to design and make.
- Understand how to identify a target group for what they intend to design and make based on a design criteria.
- Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT.

**Working with tools, equipment, materials and components to make quality products**

- begin to select tools and materials; use correct vocabulary to name and describe them.
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately.
- Start to assemble, join and combine materials in order to make a product.
- Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques.
- Start to choose and use appropriate finishing techniques based on own ideas

Have gained the following knowledge:

**Cooking and nutrition**

- Understand that all food comes from plants or animals.
- Know that food has to be farmed, grown elsewhere (e.g. home) or caught.
- Understand how to name and sort foods into the five groups in 'The Eat well plate'
- Know that everyone should eat at least five portions of fruit and vegetables every day.
- Begin to describe the properties of the ingredients they are using?
- Begin to explain what it means to be hygienic?

**Materials:**

- Can they measure textiles and other materials accurately with support?
- Can they join textiles together to make something?
- Can they cut textiles?
- Can they explain why they chose a certain textile?
- Can they add some kind of design to their product?
- Can they use joining, folding or rolling to make it stronger?
- Can they make sensible choices as to which material to use for their constructions?

	<p><b>Evaluating processes and products</b></p> <ul style="list-style-type: none"> <li>• Evaluate their work against their design criteria.</li> <li>• Look at a range of existing products explain what they like and dislike about products and why.</li> <li>• Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.</li> <li>• With confidence talk about their ideas, saying what they like and dislike about them.</li> </ul> <p><b>Cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>• Can they describe the properties of the ingredients they are using and say why they are choosing them according to taste?</li> <li>• Become confident with simple techniques such as cutting, peeling and grating, independently</li> </ul>	
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By the end of <b>KS1</b> , pupils will have... Experienced the following	
<ul style="list-style-type: none"> <li>• Parents to visit and work alongside children, with careers/ skills in cooking, building, design, costume etc.</li> <li>• Children take part in purposeful making, eg designing costumes for an event or for their end of term outcome</li> <li>• Children experience STEM activities, that promote the 'doing' of technology, and that answers a question, e.g. using this material, could I build a tower that is taller than all of us?</li> </ul>	

By the end of year children will have	
	Developed the following skills:
	Have gained the following knowledge:

Year 3

**Developing, planning and communicating ideas**

- With growing confidence generate ideas for an item, considering its purpose and the user/s.
- Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product.
- Understand how well products have been designed, made, what materials have been used and the construction technique.
- Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.
- Start to understand whether products can be recycled or reused.
- Know to make drawings with labels when designing.
- When planning explain their choice of materials and components including function and aesthetics.

**Working with tools, equipment, materials and components to make quality products**

- Select a wide range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.
- Explain their choice of tools and equipment in relation to the skills and techniques they will be using.
- Start to understand that mechanical and electrical systems have an input, process and output.
- Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement.

- Start to know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.
- Start to understand that a healthy diet is made up from a variety of different food and drink, as depicted in 'The Eat well plate'
- Begin to know that to be active and healthy, food and drink are needed to provide energy for the body

**Materials:**

- Can they measure textiles and other materials accurately independently?
- Can they join textiles and other materials of different types in different ways?
- Can they choose textiles and other materials both for their appearance and also qualities?
- Can they work accurately to make cuts and holes?
- Do they select the most appropriate tools and techniques to use for a given task?
- Can they use a simple circuit and, with support, begin to make a product which uses both electrical and mechanical components?

- Know how simple electrical circuits and components can be used to create functional products.
- Measure, mark out, cut, score and assemble components with more accuracy.
- Start to work safely and accurately with a range of simple tools.
- Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.
- Start to measure, tape or pin, cut and join fabric with some accuracy.

#### **Evaluating processes and products**

- Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose
- Begin to disassemble and evaluate familiar products and consider the views of others to improve them.
  
- Evaluate the key designs of individuals in design and technology has helped shape the world.

#### **Cooking and nutrition**

- Understand how to prepare and cook a variety of predominantly savoury dishes **safely** and **hygienically**.
- With support, learn how to operate a heat source for their dishes.
- Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.

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By the end of year children will have		
Year 4	Developed the following skills:	Have gained the following knowledge:
	<p><b>Developing, planning and communicating ideas</b></p> <ul style="list-style-type: none"> <li>● Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science.</li> <li>● Confidently make labelled drawings from different views showing specific features.</li> <li>● Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products.</li> <li>● When planning consider the views of others, including intended users, to improve their work. inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</li> <li>● When planning explain their choice of materials and components according to function and aesthetic.</li> </ul> <p><b>Working with tools, equipment, materials and components to make quality products</b></p>	<ul style="list-style-type: none"> <li>● Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.</li> <li>● Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' . Start to identify key foods in each of these five areas.</li> <li>● Know that to be active and healthy, food and drink are needed to provide energy for the body.</li> </ul> <p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>• Can they measure carefully so as to make sure they have not made mistakes?</li> <li>• Can they explain how to join things in a different way?</li> <li>• Can they choose materials and techniques to make their product strong?</li> <li>• Can they work accurately to make cuts and holes?</li> <li>• Do they think about their audience when choosing materials and design?</li> <li>• Can they add things to their circuits, and, with peer support, make a product which uses both electrical and mechanical components?</li> <li>• Can they devise a template?</li> </ul>



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|  | <ul style="list-style-type: none"><li>● Select a wider range of tools and techniques for making their product safely.</li><li>● Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.</li><li>● Start to join and combine materials and components accurately in temporary and permanent ways.</li><li>● Know how mechanical systems such as cams or pulleys or gears create movement.</li><li>● Understand how more complex electrical circuits and components can be used to create functional products.</li><li>● Continue to learn how to program a computer monitor, changes in the environment and control their products.</li><li>● Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit.</li><li>● Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy.</li><li>● Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</li></ul> |  |
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### **Evaluating processes and products**

- Evaluate their products carrying out appropriate tests.
- Start to evaluate their work both during and at the end of the assignment.
- Be able to disassemble and evaluate familiar products and consider the views of others to improve them.
- Evaluate the key designs of individuals in design and technology has helped shape the world.

### **Cooking and nutrition**

- Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically, according to a recipe.
- Begin to use a heat source independently for some of these dishes.
- Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.

By the end of **LKS2**, pupils will have experienced the following

- Parents to visit and work alongside children, with careers/ skills in cooking, building, design, costume etc.
- Children take part in purposeful making, eg designing costumes for an event or for their end of term outcome
- Children experience STEM activities, that promote the 'doing' of technology, and that answers a question, e.g. using this material, could I build a tower that is taller than all of us?
- Children to experience a paid expert to come in to support their topic learning within the technology they are focused on.

By the end of year pupils will have		
Year 5	Developed the following skills:	Have gained the following knowledge:
	<p><b>Developing, planning and communicating ideas</b></p> <ul style="list-style-type: none"> <li>• Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</li> <li>•</li> <li>• Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</li> <li>•</li> <li>• With growing confidence apply a range of finishing techniques, including those from art and design.</li> <li>• Draw up a specification for their design- link with Mathematics and Science.</li> <li>• Use the results of investigations, information sources, including ICT when developing design ideas.</li> </ul>	<p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>• Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.</li> <li>• Begin to understand that seasons may affect the food available. Begin to identify seasonal fruit and vegetables.</li> <li>• Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</li> </ul> <p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>• Are their measurements accurate enough to ensure that everything is precise?</li> <li>• Can they use a range of joining techniques?</li> <li>• Can they choose materials and techniques to make their product strong AND attractive?</li> <li>• Can they work accurately to make cuts and holes?</li> </ul>

- With growing confidence select appropriate materials, tools and techniques.
- Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.

**Working with tools, equipment, materials and components to make quality products**

- Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately.
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- 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.
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- Understand how mechanical systems such as cams or pulleys or gears create movement.
- 
- Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products.
- mechanical and electrical systems have an input, process and output.
- 
- Begin to measure and mark out more accurately.
- 
- Demonstrate how to use skills in using different tools and equipment safely and accurately with

- Do they think about their audience when choosing materials and design?
- Can they incorporate a switch into their product?
- Can they refine their product after testing it?
- Can they incorporate hydraulics and pneumatics
- Can they make up a prototype first?

growing confidence cut and join with accuracy to ensure a good-quality finish to the product.

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- Weigh and measure accurately (time, dry ingredients, liquids).
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- Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.

#### **Evaluating processes and products**

- Start to evaluate product against the original design specification and by carrying out tests.
- Evaluate their work both during and at the end of the assignment.
- Begin to evaluate it personally and seek evaluation from others.
- Evaluate the key designs of individuals in design and technology has helped shape the world.

#### **Cooking and nutrition**

- Understand how food is processed into ingredients that can be eaten or used in cooking.
- Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically, adapting the ingredients according to taste, justifying their choices.

	<ul style="list-style-type: none"> <li>● Be confident in using a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul>	
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By the end of year children will have		
Year 6	Developed the following skills:	Have gained the following knowledge:
	<p><b>Developing, planning and communicating ideas</b></p> <ul style="list-style-type: none"> <li>● Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</li> <li>● Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</li> <li>● Accurately apply a range of finishing techniques, including those from art and design.</li> <li>● Draw up a specification for their design- link with Mathematics and Science.</li> <li>● Plan the order of their work, choosing appropriate materials, tools and techniques.</li> <li>● Suggest alternative methods of making if the first attempts fail.</li> <li>● Identify the strengths and areas for development in their ideas and products.</li> <li>● Know how much products cost to make, how sustainable and innovative they are and the</li> </ul>	<p><b>Cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>● Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.</li> <li>● Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking.</li> <li>● As appropriate to topic, know where different food stuffs are mainly produced or grown and that we import some food.</li> <li>● Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</li> <li>● Can they explain how their product should be stored with reasons?</li> <li>● 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?</li> </ul> <p><b>Materials:</b></p>

impact products have beyond their intended purpose.

**Working with tools, equipment, materials and components to make quality products**

- Confidently select appropriate tools, materials, components and techniques and use them.
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- Use tools safely and accurately.
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- Assemble components to make working models.
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- Aim to make and to achieve a quality product.
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- With confidence pin, sew and stitch materials together to create a product.
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- Demonstrate when make modifications as they go along.
- 
- Construct products using permanent joining techniques.
- 
- Understand how mechanical systems such as cams or pulleys or gears create movement
- Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products.

- Have they thought about how their product could be sold?
- Have they given considered thought about what would improve their product even more?
- Can they use different kinds of circuit in their product?
- Can they think of ways in which adding a circuit would improve their product?
- Can they justify why they selected specific materials?
- Can they work within a budget?
- How have they ensured that their work is precise and accurate?
- Can they hide joints so as to improve the look of their product?

- Know how to reinforce and strengthen a 3D framework.
- Understand that mechanical and electrical systems have an input, process and output.
- Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.

#### **Evaluating processes and products**

- Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.
- Evaluate their work both during and at the end of the assignment.
- Record their evaluations using drawings with labels.
- Evaluate against their original criteria and suggest ways that their product could be improved.
- Evaluate the key designs of individuals in design and technology has helped shape the world.

#### **Cooking and nutrition**

- Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically, adapting the ingredients according to taste , seasonality and origins of the recipe (e.g.



	<p>Indian flavours for Indian cooking), justifying their choices.</p> <ul style="list-style-type: none"><li>● Confidently use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li></ul>	
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By the end of **UKS2**, pupils will have experienced the following

- Parents or experts to visit and work alongside children, with careers/ skills in cooking, building, design, costume etc.
- Children take part in purposeful making, eg designing costumes for an event or for their end of term outcome
- Children experience STEM activities, that promote the 'doing' of technology, and that answers a question, e.g. using this material, could I build a tower that is taller than all of us?
- Children to visit a gallery, museum, exhibition or event that supports or celebrates the technology they are learning.
- Use ICT programmes to support the design and/ or making of technology, including 3D modelling
- Use and experience electronics and robotics