



## DESIGN TECHNOLOGY CURRICULUM

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## **1. INTENT, IMPLEMENTATION AND IMPACT**

### **Intent**

Design and Technology is an inspiring, rigorous and practical subject. It encourages children to learn to think and intervene creatively and to solve problems both as individuals and as members of a team. At Croft C of E Primary School, we encourage our children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We teach skills in the way that they are used in the real world. Rarely does a job require only one skill set.

### **FOREST SCHOOLS**

Forest School is an opportunity for the children in EYFS and Year 1 at Croft C of E Primary School to have new, creative experiences in the outdoor environment in a safe way. Children will have opportunities to learn about the natural environment, how to handle risks and most importantly to use their own initiative to solve problems and co-operate with others.

Through purposeful and careful planning of Forest School experiences, we strive to increase self-esteem, improve children's concentration, attendance, behaviour and academic achievement.

### **Implementation**

The teaching and implementation of Design Technology at Croft C of E Primary School is a skills-based curriculum designed to equip pupils with the knowledge and skills to experiment, invent and create their own products. It is a structured whole school approach to this creative subject derived from the National Curriculum. Lessons are planned following a structure of 'Design, Make and Evaluate'. Our whole school curriculum provides pupils with opportunities to develop their skills in Design Technology using a variety of tools and materials. Specific skills are built upon each year and tracked through our progression of skills document. Work is completed in DT booklets to show both a progression of skills and a learning journey.

Design Technology is taught as a discreet subject in an opposite term to Art & Design. The terms when it is covered can differ throughout the year groups. Design Technology is taught for three half terms and Art & Design for three half terms (or the equivalent). Progression grids are used in order to ensure knowledge, skills and vocabulary build year on year. This ensures that by the end of year 6, pupils have a wealth of skills to prepare them for secondary school.

### **Impact**

Our Design Technology Curriculum is planned to demonstrate progression and to stimulate creativity. Children are clear about what the intended outcomes are and have a means to measure their own work against this.

In Design Technology, children are reflective and evaluate their own and each other's work, thinking about how they can make changes to keep improving. This is meaningful and continuous throughout the process, with evidence of age-related verbal and written reflection.

The impact of our Design Technology Curriculum is that it equips our children to be risk takers, evaluators and reflective and engaged learners with the ability to make the right choices that will have a positive life-long impact.

### **Assessment**

The progression of skills document (whole school and phases) will ensure progression and coverage of skills across the whole school. This will be reviewed each year. An assessment sheet will be put in each child's DT book and work will be assessed to the objectives and key knowledge.

## 2. NATIONAL CURRICULUM COVERAGE

	EYFS /Y1			Y2/3		
	AUT	SPR	SUM	AUT	SPR	SUM
<b>Design When designing and making, pupils should be taught to:</b>						
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						
<b>Make When designing and making, pupils should be taught to:</b>						
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.						
<b>Evaluate When designing and making, pupils should be taught to:</b>						
explore and evaluate a range of existing products						
evaluate their ideas and products against design criteria.						
<b>Technical Knowledge When designing and making, pupils should be taught to:</b>						
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						
<b>Cooking and Nutrition As part of their work with food, pupils should be taught to:</b>						
use the basic principles of a healthy and varied diet to prepare dishes						
understand where food comes from.						
	Y3/4			Y5/6		
	AUT	SPR	SUM	AUT	SPR	SUM
<b>Design When designing and making, pupils should be taught to:</b>						
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 When designing and making, pupils should be taught to:**

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 When designing and making, pupils should be taught to:**

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 When designing and making, pupils should be taught to:**

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]			Science			
apply their understanding of computing to program, monitor and control their products.						

**Cooking and Nutrition As part of their work with food, 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.						

### 3. LONG TERM PLAN

#### CROFT CE PRIMARY SCHOOL CE PRIMARY SCHOOL -DESIGN AND TECHNOLOGY LONG TERM PLAN OVERVIEW

	Autumn	Spring	Summer
EYFS /Year 1	<b>Little Pig House</b> <b>Aspect:</b> Structure <b>Focus:</b> 2D to 3D product <b>Outcome:</b> To create a house that will keep the 3 little pigs safe from the wolf	<b>London Transport</b> <b>Aspect:</b> Mechanisms <b>Focus:</b> Wheels and axles <b>Outcome:</b> To create a mode of transport (taxi, tube or bus) to carry Paddington Bear from the station to Buckingham Palace  <b>Aspect:</b> Food and nutrition <b>Focus:</b> Victorian tea party and scone making. <b>Outcome:</b> To create scones to eat at a Victorian party.	<b>Toy dinosaurs</b> <b>Aspect:</b> Mechanisms <b>Focus:</b> Design <b>Outcome:</b> To design a dinosaur with a moving part that a child can play with without it falling apart
	<b>Planet paperweight</b> <b>Aspect:</b> Structure <b>Focus:</b> Freestanding structure <b>Outcome:</b> To design and make a functional paperweight	<b>African appetite</b> <b>Aspect:</b> Food and nutrition <b>Focus:</b> Celebrating culture and healthy eating <b>Outcome:</b> To create a traditional African dish	<b>Castle construction</b> <b>Aspect:</b> Mechanisms <b>Focus:</b> Sliders and simple pulleys <b>Outcome:</b> To design and make a castle garden with moving parts
Year 2 /3	<b>Roman catapults</b> <b>Aspect:</b> Structures <b>Focus:</b> Levers and pulleys <b>Outcome:</b> To design and make a working catapult	<b>Environmentally friendly fish cakes</b> <b>Aspect:</b> Food and nutrition <b>Focus:</b> Food preparation and understanding sustainability <b>Outcome:</b> To make environmentally friendly fish cakes	<b>Castle construction</b> <b>Aspect:</b> Structure <b>Focus:</b> 2D to 3D product <b>Outcome:</b> To design and make a decorative head costume
	<b>Food inspired by the Windrush Generation</b> <b>Aspect:</b> Food and nutrition <b>Focus:</b> Celebrating culture and seasonality <b>Outcome:</b> To design an authentic rice dish inspired by the Windrush Generation.	<b>Mars Rover</b> <b>Aspect:</b> Multi-aspect project <b>Focus:</b> Frame structure, axles, wheels, simple electronic system <b>Outcome:</b> To design and make a Mars rover with electronic parts	<b>Extreme Eart</b> <b>Aspect:</b> Textiles and sewing <b>Focus:</b> Template, joining techniques <b>Outcome:</b>

## 4. PROGRESSION OF SKILLS

Design and Technology		
EYFS /KS1	LKS2	UKS2
<b>Design</b>		
<p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> use their knowledge of existing products and their own experience to help generate their ideas;</li> <li><b>b</b> design products that have a purpose and are aimed at an intended user;</li> <li><b>c</b> explain how their products will look and work through talking and simple annotated drawings;</li> <li><b>d</b> design models using simple computing software;</li> <li><b>e</b> plan and test ideas using templates and mock-ups;</li> <li><b>f</b> understand and follow simple design criteria;</li> <li><b>g</b> work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment.</li> </ul>	<p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> identify the design features of their products that will appeal to intended customers;</li> <li><b>b</b> use their knowledge of a broad range of existing products to help generate their ideas;</li> <li><b>c</b> design innovative and appealing products that have a clear purpose and are aimed at a specific user;</li> <li><b>d</b> explain how particular parts of their products work;</li> <li><b>e</b> use annotated sketches, exploded diagrams and cross-sectional drawings to develop and communicate their ideas;</li> <li><b>f</b> when designing, explore different initial ideas before coming up with a final design;</li> <li><b>g</b> when planning, start to explain their choice of materials and components including function and aesthetics;</li> <li><b>h</b> test ideas out through using prototypes;</li> <li><b>i</b> use computer-aided design to develop and communicate their ideas</li> <li><b>j</b> develop and follow simple design criteria;</li> <li><b>k</b> work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.</li> </ul>	<p>Children can:</p> <ul style="list-style-type: none"> <li><b>a</b> use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market;</li> <li><b>b</b> use their knowledge of a broad range of existing products to help generate their ideas;</li> <li><b>c</b> design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user;</li> <li><b>d</b> explain how particular parts of their products work;</li> <li><b>e</b> use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas;</li> <li><b>f</b> generate a range of design ideas and clearly communicate final designs;</li> <li><b>g</b> consider the availability and costings of resources when planning out designs;</li> <li><b>h</b> work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.</li> </ul>
<b>Make</b>		
<p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> <li><b>a</b> with support, follow a simple plan or recipe;</li> <li><b>b</b> begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer;</li> <li><b>c</b> select from a range of materials, textiles and components according to their characteristics;</li> </ul> <p>Practical skills and techniques</p>	<p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> <li><b>a</b> with growing confidence, carefully select from a range of tools and equipment, explaining their choices;</li> <li><b>b</b> select from a range of materials and components according to their functional properties and aesthetic qualities;</li> <li><b>c</b> place the main stages of making in a systematic order;</li> </ul> <p>Practical skills and techniques</p>	<p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> <li><b>a</b> independently plan by suggesting what to do next;</li> <li><b>b</b> with growing confidence, select from a wide range of tools and equipment, explaining their choices;</li> <li><b>c</b> select from a range of materials and components according to their functional properties and aesthetic qualities;</li> <li><b>d</b> create step-by-step plans as a guide to making;</li> </ul>

**d** learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures;

**e** use a range of materials and components, including textiles and food ingredients;

**f** with help, measure and mark out;

**g** cut, shape and score materials with some accuracy;

**h** assemble, join and combine materials, components or ingredients;

**i** demonstrate how to cut, shape and join fabric to make a simple product;

**j** manipulate fabrics in simple ways to create the desired effect;

**k** cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups;

**l** begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations

**d** learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures;

**e** use a wider range of materials and components, including construction materials and mechanical structures;

**f** with growing independence, measure and mark out to the nearest cm and millimetre;

**g** cut, shape and score materials with some degree of accuracy;

**h** assemble, join and combine material and components with some degree of accuracy;

**i** demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product;

**j** join textiles with an appropriate sewing technique;

**k** begin to select and use different and appropriate finishing techniques to improve the appearance of a product.

Practical skills and techniques

**e** learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures;

**f** independently take exact measurements and mark out, to within 1 millimetre;

**g** use a full range of materials and components, including construction materials and kits, textiles, and mechanical components;

**h** cut a range of materials with precision and accuracy;

**i** shape and score materials with precision and accuracy;

**j** assemble, join and combine materials and components with accuracy;

**k** join textiles using a greater variety of stitches, such as backstitch, blanket stitch, running stitch;

**l** refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape.

### Evaluate

Children can:

**a** explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations;

**b** explain positives and things to improve for existing products;

**c** explore what materials products are made from;

**d** talk about their design ideas and what they are making;

**e** as they work, start to identify strengths and possible changes they might make to refine their existing design;

**f** evaluate their products and ideas against their simple design criteria;

**g** start to understand that the iterative process

Children can:

**a** explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose;

**b** explore what materials/ingredients products are made from and suggest reasons for this;

**c** consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product;

**d** evaluate their product against their original design criteria;

**e** evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.

Children can:

**a** complete detailed competitor analysis of other products on the market;

**b** critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make;

**c** evaluate their ideas and products against the original design criteria, making changes as needed.

sometimes involves repeating different stages of the process.

**Technical**

Children can:  
**a** build simple structures, exploring how they can be made stronger, stiffer and more stable;  
**b** talk about and start to understand the simple working characteristics of materials and components;  
 explore and create products using mechanisms, such as levers, sliders and wheels.

Children can:  
**a** understand that materials have both functional properties and aesthetic qualities;  
**b** apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products;  
**c** understand and demonstrate how mechanical and electrical systems have an input and output process;  
**d** make and represent simple electrical circuits, such as a series and parallel, and components to create functional products;  
**e** explain how mechanical systems such as levers and linkages create movement;  
 use mechanical systems in their products.

Children can:  
**a** apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products;  
**b** understand and demonstrate that mechanical and electrical systems have an input, process and output;  
**c** explain how mechanical systems, such as cams, create movement and use mechanical systems in their products;  
 apply their understanding of computing to program, monitor and control a product.

**Cooking and nutrition**

Children can:  
**a** explain where in the world different foods originate from;  
**b** understand that all food comes from plants or animals;  
**c** understand that food has to be farmed, grown elsewhere (e.g. home) or caught;  
**d** name and sort foods into the five groups in the Eatwell Guide;  
**e** understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why;  
**f** use what they know about the Eatwell Guide to design and prepare dishes.

Children can:  
**a** start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world;  
**b** understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically;  
**c** with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven;  
**d** use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking;  
**e** explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes;  
**f** understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body;  
**g** prepare ingredients using appropriate cooking utensils;  
**h** measure and weigh ingredients to the nearest gram and

Children can:  
**a** know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world;  
**b** understand about seasonality, how this may affect the food availability and plan recipes according to seasonality;  
**c** understand that food is processed into ingredients that can be eaten or used in cooking;  
**d** demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source;  
**e** demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling;  
**f** explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes;  
**g** adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and



	millilitre; i start to independently follow a recipe; j start to understand seasonality.	aroma; h alter methods, cooking times and/or temperatures; i measure accurately and calculate ratios of ingredients to scale up or down from a recipe; j independently follow a recipe.
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Designing	Making	Evaluating
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	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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	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		Food Technology
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.		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

## 5. SEND IN DESIGN TECHNOLOGY

We teach Design Technology to all children, whatever their ability. DT forms part of the school's curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities matched to the needs of children with learning difficulties and we consider each child's abilities.

**Ambition – What are we aiming for children with SENs to achieve in this subject?**

Be ambitious of what our SEN children can achieve. Art and DT are different ways for children to think and draw on all their learning from across the curriculum without having to use it in the traditional way. SEN children historically can achieve and sometimes exceed their peers when completing Art & DT tasks.

**Access – What amendments are made to the subject in order to help children with SENs to achieve?**

### Strategies to scaffold Learning

How can I support learners who struggle to access lessons because of literacy difficulties?

- Provide visual aids to enable learners to identify artists and their work, as well as to identify equipment and media.
- Provide a word and/or picture bank for the learner to refer to during guided and independent activities.
- Use strategies such as modelling, demonstrating and imitating to support learners in understanding the step-by-step processes.

### How can I support learners who struggle to retain vocabulary?

- Learners will hear and use a range of specific vocabulary including pattern, colour, tone, texture, line, shape, form and space. Discuss and display any key vocabulary together with its meaning. Practise saying them together.
- Provide visual word banks that are accessible to the learners.
- Ensure that the vocabulary becomes embedded by referring to it regularly during lessons and whilst modelling.

### How can I support learners who struggle with fine motor skills?

- Consider using frames or adhesives (e.g., masking tape) that hold down learners' work to surfaces in cases where learners may struggle to hold a resource in place. Provide learners with larger scale materials to work on and gradually decrease the scale as they acquire greater control.
- Encourage learners to experiment with different media, for example when drawing offer chunkier graphite sticks as well as soft 'B' range pencils. Similarly, offer a range of painting application media – some learners may prefer a sponge to a brush or may even use their fingers at times.
- Plan each lesson well in advance, to consider points where learners may struggle and allow for adult guidance accordingly. Use of scissors can be a source of frustration for some learners and wider-handled or easy grip scissors can be a useful aid.

- Engaging in art and design activity is great for helping build fine motor skills for all children. Learners will enjoy and benefit from using malleable media such as clay or air dough.

#### How can I support learners who struggle with attention?

- Reflect on the positioning of learners within the classroom to maximise their engagement. Some learners will benefit from working and interacting with selected others. A calm environment will help minimise distractions.
- Consider adapting the lesson to break it into chunks that permit time for paired or group talk and allow tasks to be completed across manageable stages.
- Pre-expose learners to the content of the lesson by sharing with them any resources to be used as well as the content of the lesson, perhaps the work of an artist they are learning about or an example of the kind of outcomes they will produce. This will support learners to engage in the processes.
- Giving time for learners to look back through their sketchbook to make connections to what they already know, which in turn can help nurture motivation.
- Allow movement breaks if and when necessary and give learners classroom jobs such as handing out a resource. This will support learners who struggle with self-regulation.
- All learners should routinely clean and tidy away the equipment they have used and time for this needs to be built into lessons, as it is a useful tool for encouraging independence as well as managing transitions.

#### How can I support learners who need additional time to develop conceptual understanding?

- Provide opportunities for small group learning either before (pre-teach) or during the lesson. This will support learners and allow time to ask questions or explore resources alongside adult intervention. These opportunities are part of the repetition process needed to maximise capacity to build up conceptual understanding.
- Take time to model and demonstrate each element of a process, allowing learners to develop their understanding through a step-by-step approach. This will benefit all learners as it allows for an active participatory approach.
- Showing outcomes from the previous lesson's work can be a useful memory aid.
- Have visual aids in the form of worked examples that the learners can have to hand when completing independent tasks.

*These strategies scaffold learning across all year groups for practical art lessons:*

- Share information visually as well as through discussion.
- Allow sufficient talk time to encourage thinking and idea sharing.
- Key vocabulary should be clearly displayed and used repetitively throughout lessons.
- Introduce each piece of equipment – name it, explain what it does, model how it can be used or applied.
- Model processes on a step-by-step basis, allowing learners time to do practical tasks alongside the teacher. It is important the teachers' thought processes are shared aloud.
- Ensure any equipment to be used is fully accessible to all and adapted for individuals as necessary to ensure all can fully participate.
- Support learners to develop their fine motor skills through regular opportunities.



## 6. KEY KNOWLEDGE AND VOCABULARY

### Key Knowledge EYFS / Year 1:

- Know how to use own ideas to design something and describe how their own idea works
- Know how design a product which moves
- Know how to explain to someone else how they want to make their product and make a simple plan before making
- Know how to use own ideas to make something
- Know how to make a product which moves
- Know how to choose appropriate resources and tools
- Know how something works
- Know how to use wheels and axles, when appropriate to do so
- Know what works well and not so well in the model they have made
- Know how to make their own model stronger

#### *Key Vocabulary*

Design	Plan	Product	Explain
Cut	Join	Glue	Sew
Fix	Tape	Mix	Stir
Evaluate	Strong	Stable	Stiff
Sturdy	Axle	Water	Soap

### Key Knowledge Year 2/3:

- Know how to think of an idea and plan what to do next
- Know why they have chosen specific materials
- Know how to choose tools and materials and explain why they have chosen them
- Know how to join materials and components in different ways
- Know how to measure materials to use in a model or structure
- Know what went well with their work
- Know how to make a model stronger and more stable
- Know how to cut food safely

#### *Key Vocabulary*

design	criteria	materials	template
plan	product	explain	cut
join	fix	tape	choose
explain	centimetres	evaluate	improvement
reason	strong	stable	stiff
clean	cut	chop	knife
blade	safely	ingredients	sturdy
prepare	hygiene	hinges	recipe
assemble	peel	purpose	features

### Key Knowledge Year 3/4:

- Know how to use ideas from other people when designing
- Know how to produce a plan and explain it
- Know how to persevere and adapt work when original ideas do not work
- Know how to communicate ideas in a range of ways, including by sketches and drawings which are annotated
- Know which tools to use for a particular task and show knowledge of handling the tool
- Know which material is likely to give the best outcome
- Know how to measure accurately
- Know how to evaluate and suggest improvements for design
- Know how to evaluate products for both their purpose and appearance
- Know how the original design has been improved
- Know how to present a product in an interesting way
- Know links scientific knowledge by using lights, switches or buzzers
- Know how to use electrical systems to enhance the quality of the product
- Know how to be both hygienic and safe when using food
- Know how to bring a creative element to the food product being designed

### Key Vocabulary

design	criteria	materials	template
plan	product	sketch	function
prototype	adapt	join	accurately
quality	centimetres	evaluate	reinforce
strengthen	folding	joining	cross-section
exploded diagram			

### Key Knowledge Year 5/6:

- come up with a range of ideas after collecting information from different sources
- produce a detailed, step-by-step plan
- explain how a product will appeal to a specific audience
- use a range of tools and equipment competently
- make a product that relies on a motor
- suggest alternative plans; outlining the positive features and draw backs
- evaluate appearance and function against original criteria
- links scientific knowledge to design by motors
- be both hygienic and safe in the kitchen
- know how to prepare a meal by collecting the ingredients in the first place
- know which season and countries various foods are available for harvesting

### Key Vocabulary

design	criteria	materials	template
plan	explain	annotate	sketch
function	purpose	realistic	taste
step-by-step	process	assemble	technique
accurately	quality	reinforce	strengthen
3d	circuit	battery	savoury

wire	control	knead	recipe
ingredients	weigh		

**By the end of KS2:**

**Design**

- Indicate the design features of their products that will appeal to intended users
- Explain in detail how particular parts of their products work
- Carry out research using surveys, interviews, questionnaires and web-based resources
- Identify the needs, wants preferences and values of individuals and groups
- Generate innovative ideas, drawing on research
- Use computer-aided design to develop and communicate their ideas
- Make design decisions, taking account of constraints such as time, resources and cost

**Make**

- Explain their choice of tools and equipment in relation to the skills and techniques they will be using
- Explain their choice of materials and components according to functional properties and aesthetic qualities
- Produce appropriate lists of tools, equipment and materials that they need
- Formulate step-by-step plans as a guide to making
- Accurately measure, mark out, cut and shape materials and components
- Accurately assemble, join and combine materials and components
- Accurately apply a range of finishing techniques, including those from art and design
- Demonstrate resourcefulness when tackling practical problems

**Evaluate**

- Consider the views of others, including intended users, to improve their work
- Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
- Investigate how much existing products cost to make Analyse how innovative existing products are
- Investigate how sustainable the materials in existing products are
- Research and learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking product

**Technical Knowledge**

- Know that materials have both functional properties and aesthetic qualities
- Know that mechanical and electrical systems have an input, process and output
- Understand how mechanical systems such as cams or pulleys or gears create movement
- Understand how more complex electrical circuits and components can be used to create functional products
- Know how to reinforce and strengthen a 3D framework

**Cooking and Nutrition**

- Know that seasons may affect the food available
- Know how food is processed into ingredients that can be eaten or used in cooking
- Know that recipes can be adapted to change the appearance, taste, texture and aroma
- Prepare and cook a variety of predominantly savoury dishes safely and hygienically including the use of a heat source
- Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking

## 7. RESOURCES AND WEBSITES

### **Suggested websites:**

The Design Technology Association <https://www.data.org.uk/for-education/primary/>

STEM Learning <https://www.stem.org.uk/resources/curated-collections/primary-0>

BBC Bitesize <https://www.bbc.co.uk/bitesize/subjects/zyr9wmn>

Twinkl <https://www.twinkl.co.uk/resources/keystage2-ks2/ks2-subjects/ks2-design-and-technology>

Cracking Ideas [https://crackingideas.com/teachingresources\\_hub](https://crackingideas.com/teachingresources_hub)

Crafts Council <https://www.craftscouncil.org.uk/articles/>

### **Cooking and Healthy Eating**

School Food Matters <https://www.schoolfoodmatters.org/>

Warburtons <https://www.warburtons.co.uk/#>

The Soil Association <https://www.soilassociation.org/>

Jamie Oliver <https://www.jamieoliver.com/>

NHS - The Eatwell Guide <https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>

BHF - The Eatwell Guide <https://www.bhf.org.uk/information-support/support/>