



Design Technology

EYFS

Knowledge, Skills and Understanding breakdown for STEM Technology

When designing and making pupils should be taught to...

Design	Make	Evaluate	Technical knowledge	Cooking & Nutrition
<ul style="list-style-type: none"> - To work together to develop and realise creative ideas. - To think about and discuss what they want to make. 	<ul style="list-style-type: none"> - To construct using a range of materials. - To fold materials such as paper and card in different ways. 	<ul style="list-style-type: none"> - Discuss problems and how they might be solved as they arise. - To reflect on how they achieved their aims. - To explain the process they have used. 	<ul style="list-style-type: none"> - To use different techniques for joining materials e.g. how to use tape and different types of glue. - To use a range of materials and tools with care and precision. - To promote independence. 	<ul style="list-style-type: none"> - To start to have an understanding of where ingredient comes from. - To begin to have an awareness of healthy food choices and start to understand the concept of a balanced diet. - To be able to prepare simple dishes with help such as a fruit salad or sandwich.

Challenge

EYFS	<p><u>Design</u> To explain their choice of materials for a given project.</p>	<p><u>Make</u> To select appropriate materials and use with increased independence.</p>	<p><u>Evaluate</u> To develop their knowledge of technical vocabulary and start to use it when evaluating their products.</p>	<p><u>Technical knowledge</u> To use and select appropriate tools and materials and use with increased confidence.</p>	<p><u>Cooking & Nutrition</u> To give examples of where specific food comes from and explain why a healthy and balanced diet is important.</p>
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Design Technology

Year 1 and 2

Knowledge, Skills and Understanding breakdown for STEM Technology

When designing and making pupils should be taught to...

Design	Make	Evaluate	Technical knowledge	Cooking & Nutrition
<p>Across KS1</p> <ul style="list-style-type: none"> - Design purposeful, functional, appealing products for themselves and other users based on a design criteria. - Learn appropriate vocabulary to explain their understanding of the design process. - Generate, develop, model and communicate their ideas through talking, drawing, templates, and, where appropriate, information and communication technology. <p>Upper Key Stage 1</p> <p>As above including write, label and mark on design drawings.</p>	<p>Across KS1</p> <ul style="list-style-type: none"> - Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] <p>Upper Key Stage 1</p> <ul style="list-style-type: none"> - As above but with increased control and independence. <p>Across KS1</p> <ul style="list-style-type: none"> - Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Upper Key Stage 1</p> <ul style="list-style-type: none"> - Selecting appropriate materials for purpose with increased independence. <p>Across KS1</p> <ul style="list-style-type: none"> - To be able to make a rough estimate when creating to specification. <p>Year Upper Key Stage 1</p> <ul style="list-style-type: none"> - To be able to use standard tools to check estimates e.g rulers, tape measures. <p>Across KS1</p> <ul style="list-style-type: none"> - To know how to follow written instructions with increased independence. 	<p>Across KS1</p> <ul style="list-style-type: none"> - Explore and evaluate a range of existing products. - Evaluate their ideas and products against design criteria <p>Upper Key Stage 1</p> <p>Presenting their findings and evaluation to their peers. (Computing link)</p>	<p>Across KS1</p> <ul style="list-style-type: none"> - Build structures, exploring how they can be made stronger, stiffer and more stable <p>Upper Key Stage 1</p> <ul style="list-style-type: none"> - Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. <p>Across KS1</p> <p>To begin to remember different techniques and used them with increased independence.</p>	<p>Across KS1</p> <p>Use the basic principles of a healthy and varied diet. (PSHE Link)</p> <ul style="list-style-type: none"> - To understand where their ingredients comes. - To learn and demonstrate safe food preparation and hygiene. - To use their knowledge to prepare a simple dish.

Challenge

Year 1 and 2	<p><u>Design</u></p> <p>Year 1</p> <p>Record their reasoning for selecting specific materials.</p> <p>Year 2</p> <p>Record their reasoning in annotation for selecting specific materials linking it to their knowledge of properties.</p>	<p><u>Make</u></p> <p>Year 1</p> <p>Using tools and materials with increased confidence, accuracy and independence.</p> <p>Year 2</p> <p>To be able to adapt their design during the making process and explain their decisions.</p>	<p><u>Evaluate</u></p> <p>Year 1</p> <p>To be able to record reasons for their opinions during the evaluation process.</p> <p>Year 2</p> <p>To be able to explain using correct vocabulary how they would solve issues that arose during the making process.</p>	<p><u>Technical knowledge</u></p> <p>Year 1 and 2</p> <p>To use appropriate technical language with increasing confidence.</p>	<p><u>Cooking & Nutrition</u></p> <p>Year 1 and 2</p> <p>To be able to explain the affect a healthy balanced diet has on our bodies.</p> <p>To have secure knowledge of a range of cooking techniques. E.g. cutting, slicing, mixing etc.</p> <p>Year 2</p> <p>To be able to explain with confidence the importance of safe food preparation and kitchen hygiene.</p>
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STEM Technology

Highlight by topic

Year A Autumn - Tudors

Year A Spring – Around The World

Year A Summer – Think Local, Act Global

Highlight by topic

Year B Autumn – Ancient Egypt

Year B Spring - Splash

Year B Summer – They're Coming...

Year 3 and 4

Knowledge, Skills and Understanding breakdown for STEM Technology

Design	Make	Evaluate	Technical knowledge	Cooking & Nutrition
<p>Understanding Contexts, Users & Purposes Across KS2 Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. Describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. Lower KS2 Gather information about the needs and wants of particular individuals and groups. Develop their own design criteria and use these to inform their ideas.</p> <p>Generating, Developing, Modelling and Communicating Ideas Across KS2 Share & clarify ideas through discussion. Model their ideas using prototypes and pattern pieces. Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. Use computer-aided design to develop and communicate their ideas. Lower KS2 Generate realistic ideas, focusing on the needs of the user.</p>	<p>Planning Across KS2 Select tools and equipment suitable for the task. Select materials and components suitable for the tasks. Explain their choice of materials and components according to the functional properties and aesthetic qualities.</p> <p>Practical Skills & Techniques Across KS2 Follow procedures for safety and hygiene. Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Lower KS2 Measure, mark out, cut and shape materials and components with some accuracy. Assemble, join and combine materials and components with some accuracy. Apply a range of finishing techniques, including those from art & design, with some accuracy.</p>	<p>Own Ideas & Products Across KS2 Identify the strengths and areas for development in their ideas and products. Consider the views of others, including intended users, to improve their work. Lower KS2 Refer to their design criteria as they design and make. Use their design criteria to evaluate their completed products.</p> <p>Existing Products - Investigating & Analysing. Across KS2 How well products have been designed. How well products have been made. Why materials have been chosen. What methods of construction have been used. How well products work. How well products achieve their purposes. How well products meet user needs and wants. Lower KS2 Who designed and made the products. Where products were designed and made. When products were designed and made. Whether products can be recycled or reused.</p> <p>Key Events & Individuals About inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p>	<p>Making Products Work Across KS2 How to use learning from science to help and make products that work. How to use learning from mathematics to help design and make products that work. That materials have both functional properties and aesthetic properties. That mechanical and electrical systems have an input, process and output. Lower KS2 How mechanical systems such as levers and linkages or pneumatic systems create movement. How simple electrical circuits and components can be used to create functional products. How to program a computer to control their products. How to make strong, stiff shell structures.</p>	<p>Where Food Comes From Across KS2 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.</p> <p>Food Preparation, Cooking & Nutrition Across KS2 How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Lower KS2 That a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eatwell Plate'. That to be active and healthy, food and drink are needed to provide energy for the body.</p>

Challenge

Year 3 & 4	<p>Design Make design decisions that take account of the availability of resources.</p>	<p>Make Explain their choice of tools & equipment in relation to the skills and techniques they will be using. Order the main stages of making.</p>	<p>Evaluate Key Events & Individuals Know and understand about key events and individuals in design.</p>	<p>Making Products Work Know that materials can be combined and mixed to create more useful characteristics. Use the correct technical vocabulary for the projects they are undertaking. Know that a single fabric shape can be used to make a 3D textiles product. Know that food ingredients can be fresh, pre-cooked and processed.</p>	<p>Where Food Comes From Know that food originates in different parts of the world and provide examples of these.</p> <p>Food Preparation, Cooking & Nutrition Know that foods can be categorised in different food groups and exemplify these. Practical experience of a range of cooking techniques.</p>
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STEM-Technology

Highlight by topic

Year A Autumn - The Blitz

Year A Spring – Out Of This World

Year A Summer – Bristol

Highlight by topic

Year B Autumn – Eureka!

Year B Spring - On the Latin Side

Year B Summer – British Greats

Year 5 and 6

Knowledge, Skills and Understanding breakdown for STEM Technology

Design	Make	Evaluate	Technical knowledge	Cooking & Nutrition
<p>Understanding Contexts, Users & Purposes (UCUP) <u>Across KS2</u> Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. Describe the purpose of their products. Indicate the design features of their products that will appeal to intended users. Explain how particular parts of their products work. <u>Upper KS2</u> Carry out research, using surveys, interviews, questionnaires and web-based resources. Identify the needs, wants, preferences and values of particular individuals and groups.</p> <p>Generating, Developing, Modelling and Communicating Ideas (GDMCI) <u>Across KS2</u> Share & clarify ideas through discussion. Model their ideas using prototypes and pattern pieces. Use annotated sketches, cross-sectional drawings and exploded diagrams to develop & communicate their ideas. Use computer-aided design to develop and communicate their ideas. <u>Lower KS2</u> Generate innovative ideas, drawing on research.</p>	<p>Planning <u>Across KS2</u> Select tools and equipment suitable for the task. Select materials and components suitable for the tasks. Explain their choice of materials and components according to the functional properties and aesthetic qualities.</p> <p>Practical Skills & Techniques. <u>Across KS2</u> Follow procedures for safety and hygiene. Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. <u>Upper KS2</u> 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 & design. Demonstrate resourcefulness when tackling practical problems.</p>	<p>Own Ideas & Products <u>Across KS2</u> Identify the strengths and areas for development in their ideas and products. Consider the views of others, including intended users, to improve their work. <u>Upper KS2</u> Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.</p> <p>Existing Products - Investigating & Analysing. <u>Across KS2</u> How well products have been designed. How well products have been made. Why materials have been chosen. What methods of construction have been used. How well products work. How well products achieve their purposes. How well products meet user needs and wants. <u>Upper KS2</u> How much products cost to make. How innovative products are. How sustainable the materials in products are. What impact products have beyond their intended purpose. Key Events & Individuals About inventors, designers, engineers, chefs and manufacturers who have developed groundbreaking products.</p>	<p>Making Products Work <u>Across KS2</u> How to use learning from science to help and make products that work. How to use learning from mathematics to help design and make products that work. That materials have both functional properties and aesthetic properties. That mechanical and electrical systems have an input, process and output. <u>Upper KS2</u> How mechanical systems such as cams or pulleys or gears create movement. How more complex electrical circuits and components can be used to create functional products. How to program a computer to monitor changes in the environment and control their products. How to reinforce and strengthen a 3D framework.</p>	<p>Where Food Comes From <u>Across KS2</u> 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. <u>Upper KS2</u> That seasons may affect the food available. How food is processed into ingredients that can be eaten or used in cooking.</p> <p>Food Preparation, Cooking & Nutrition <u>Across KS2</u> How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. That different food and drink contain different substances - nutrients, water and fibre - that are needed for health.</p>

Challenge

Year 5 & 6	<p>Design <u>UCUP</u> Develop a simple design specification to guide their thinking. <u>GDMCI</u> Make design decisions, taking account of constraints such as time, resources & cost.</p>	<p>Make <u>Planning</u> Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Produce appropriate lists of tools, equipment and materials that they need. Formulate step-by-step plans as a guide to making. <u>Practical Skills & Techniques</u> Use techniques that involve a number of steps.</p>	<p>Evaluate <u>Own Ideas and Products</u> Evaluate their ideas and products against their original design specification. <u>Key Events & Individuals</u> Know and understand about key events and individuals in design.</p>	<p>Making Products Work Know that materials can be combined and mixed to create more useful characteristics. Use the correct technical vocabulary for the projects they are undertaking. Know that a 3D textiles product can be made from a combination of fabric shapes. Know that a recipe can be adapted by adding or substituting one or more ingredient.</p>	<p>Where Food Comes From Know that food originates in different parts of the world and provide examples of these.</p> <p>Food Preparation, Cooking & Nutrition Know that foods can be categorised in different food groups and exemplify these.</p> <p>Practical experience of a range of cooking techniques.</p> <p>Know that recipes can be adapted to change the appearance, taste, texture and aroma and make these changes.</p>
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