

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

EYFS and Key Stage 1

	EYFS	Year 1	Year 2
Designing	• Think of what they want to make with a given set of resources • Begin to be aware that the resources they have will limit what they can make • Talk to an adult about what they want to make • Make decisions about how to approach a task before starting • Start to choose the resources they need to make a product	• Begin to research existing products before designing their own • When researching, find out how products work and which materials have been used. • Use own ideas to design something • Describe how their own idea works • Design a product which moves • Explain to someone else how they want to make their product • Make a simple plan before making • Begin to develop their own ideas through drawings, and where appropriate, make templates or mock ups of their initial ideas using ICT (if needed).	• Begin to develop their design ideas using research and discussion with peers and adults. • Understand the purpose of their product • Have an identified target group in mind when designing and making a simple product. • Think of an idea and plan what to do next • Explain why they have chosen specific textiles or materials • Draw a simple design and label the parts of their product • Develop their own ideas through drawings, and where appropriate, make templates or mock ups of their initial ideas using ICT (if needed).

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EYFS and Key Stage 1

	EYFS	Year 1	Year 2
Making	• Handle equipment safely • Explore a variety of materials, tools and techniques, for example know how lego joins together • Begin to appreciate that glue does not work on all materials • Show increasing levels of independence in the making stage	• Use own ideas to make something • Assemble and join materials using a variety of methods • Begin to build structures, exploring how they can be made stronger, stiffer and more stable. • Explore the use of different mechanisms (for example sliders, wheels and axles) in their products. • With help, measure, mark out and cut a range of materials. • Use tools safely (e.g. scissors and a hole punch). • Begin to assemble, join and combine materials and components together using a variety of temporary methods (e.g. glue or sellotape). • Begin to use simple finishing techniques to improve the appearance of their products.	• Choose tools and materials and explain why they have chosen them • Join materials and components in different ways, including glue, sellotape and masking tape. • Can identify and name a simple selection of hand tools (e.g. scissors). • Carry out finishing techniques that have been modelled by the teacher • Use simple sewing techniques including cutting, shaping and joining fabric to make a simple product. • Build structures, exploring how they can be made stronger, stiffer and more stable. • With help, measure, cut and score with some accuracy. • Start to assemble, join and combine materials in order to make a product. • Start to choose and use appropriate finishing techniques based on their own ideas.

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EYFS and Key Stage 1

	EYFS	Year 1	Year 2
Evaluating	• Be prepared to stop to check how well their product is developing • Changing strategy as needed when they know their product is not turning out the way they wanted • Be able to explain to others how they made their product and be able to offer a simple explanation as to how they would improve on it	• Describe how something works • Explain what works well and not so well in the model they have made • Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.	• Evaluate their work against their design criteria. • Look at a range of existing products and what they like and dislike about products and why. • Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. • With confidence talk about their ideas, saying what they like and dislike about their product.
Technical Knowledge	• Think of a range of ways of joining two resources together • Begin to use a wider range of tools carefully and skilfully • Begin to understand which materials are suitable for certain tasks.	• Make their own model stronger • Make a product that has at least one moving part e.g. wind/ simple motor powered boat	• Make a model stronger and more stable • Use wheels and axles, when appropriate to do so • Know how simple mechanisms work e.g. sliders and linkages • Make a product that has at least two moving parts.

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EYFS and Key Stage 1

	EYFS	Year 1	Year 2
Food Technology	• Know why it is important to wash their hands before handling food • Begin to understand which foods go together and which do not • Begin to name certain foods such as sandwich, samosas etc.	• Cut food safely • Know that all food comes from either plants or animals. • Use basic food handling, hygiene practices and personal hygiene • Know how to prepare simple dishes safely and hygienically without using a heat source. • Know how to use techniques such as cutting, peeling and grating.	• Know that everyone should eat at least five portions of fruit and vegetables each day. • Demonstrate how to prepare simple dishes safely and hygienically without using a heat source. • Demonstrate how to use techniques such as cutting, peeling and grating. • Weigh ingredients to use in a recipe • Describe the ingredients used when making a dish or cake • Can talk about which food is healthy and which is not • Follow safe procedures for food safety and hygiene.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Lower Key Stage 2

	Year 3	Year 4
Designing	• Research independently and generate some ideas before thinking about resources. • Consider the purpose and audience for their product • Order the main stages of making a product, continually referring to purpose and establish criteria for a successful product. • Prove that a design meets the specification • Design a product and make sure that it meets the design criteria including looking attractive (if needed) • Draw annotated designs with labels that detail their material choices and suitability of the given materials • Learn about inventors, designers, engineers, chefs and manufacturers who have developed groundbreaking products. • Start to understand whether their products can be recycled or reused. • When planning, explain their choices of materials and components, including function. • Develop their own ideas through drawings, making templates or mock ups of their initial ideas using ICT (if needed).	• Research as a matter of course before considering designing a product. • Use ideas from other people when designing e.g., creating a mood board of existing products • Confidently make labelled drawings from different views, showing specific features. • Produce a plan and explain the use of materials, equipment and processes • Persevere and adapt work when original ideas do not work • If the first attempt fails, identify strengths and future areas for development. • Communicate ideas through annotated sketches that show different viewpoints of the product • Begin to be very familiar with different inventors, designers, engineers, chefs and manufacturers who have developed groundbreaking products.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Lower Key Stage 2

	Year 3	Year 4
Making	- Follow a step-by-step plan, choosing the right equipment and materials - Select the most appropriate tools and techniques for a given task - Work accurately to measure, mark out, make cuts, score, make holes and assemble components with more accuracy. - Start to work safely and accurately with a range of simple tools. - Choose finishing techniques to improve the appearance of their products using a range of equipment including ICT - Start to understand that mechanical systems (such as levers and linkages) create movement. - Start to think about their ideas as they make their product and be willing to change things if they help them to improve their work. - Start to measure, tape or pin, cut and join fabric with some accuracy.	- Know which tools to use for a particular task and show knowledge of handling the tool accurately and safely. - Know which material is likely to give the best outcome based on its properties - Mark, measure and cut accurately a range of materials using appropriate tools, equipment and techniques. - Start to join and combine materials and components accurately in temporary and permanent ways. - Sew, weave or knit using a range of stitches - Show high levels of perseverance when things do not go as they would wish in the first instance. - Start to understand the mechanical and electrical systems have an input, process and output. - Know how mechanical systems (such as pulleys or gears) create movement. - Know how simple electrical circuit and components can be used to create functional products. - Understand how to reinforce and strengthen a 3D framework. - Begin to use finishing techniques to strengthen and improve their appearance of their product using a range of equipment, including ICT

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Lower Key Stage 2

	Year 3	Year 4
Evaluating	• Explain how to improve a finished model • Know why a model has or has not been successful • Evaluate their product against their 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 DT has helped shaped the world.	• Evaluate and suggest improvements for designs • Evaluate products for both their purpose and appearance • Evaluate their own and others work • Evaluate their product, carrying out appropriate tests. • Evaluate their product both during and at the end of the assignment. • Present a product in an interesting way • Be able to disassemble and evaluate familiar products and consider the views of others to improve them.
Technical Knowledge	• Know how to strengthen a product by stiffening a given part or reinforce a part of the structure • Use a simple IT program within the design • Create a product that incorporates a pulley mechanism.	• Link scientific knowledge by using lights, switches or buzzers • Use IT where appropriate to add to the quality of the product • Create a product that incorporates at least one lever. • Use appropriate sewing techniques.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Lower Key Stage 2

	Year 3	Year 4
Food Technology	• Describe how food ingredients come together • Weigh out ingredients and follow a given recipe to create a dish • Know when food is ready for harvesting • Demonstrate hygienic food preparation • Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of heat source. • Begin to understand how to use a range of techniques, such as peeling, chopping, slicing, gracing, mixing, spreading, kneading and baking. • Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.	• Bring a creative element to the food product being designed • Know which season various foods are available for harvesting • Recognise safe practices in the kitchen and can identify hazards e.g. hazards when using an oven • Know how to use a range of techniques, such as peeling, chopping, slicing, gracing, mixing, spreading, kneading and baking. • know that to be active and healthy, food and drink are needed to provide energy for the body.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Upper Key Stage 2

	Year 5	Year 6
Designing	• Competently research products similar to the one they are intending to design and evaluate strengths and weakness to be incorporated into their own design. • Research and use ICT where appropriate • Design, with a range of initial ideas, after collecting information from investigating existing products • Produce a detailed, step-by-step plan • Explain how a product will appeal to a specific audience and how it meets the purpose • Create annotated 3D designs of their design on isometric or squared paper from a range of viewpoints. • With growing confidence, apply a range of finishing techniques including those from art and design. • Start to appreciate how much the product costs to make.	• When researching, be competent in discriminating as to what would be and would not be helpful for their intended product. • Use market research of existing products to inform their design • Follow and refine original plans, justifying it in a convincing way • Draw detailed 3D designs using exploded diagrams or cross-sectional drawing where appropriate to display finer details • Show that culture and society is considered in plans and design specification • Show thought has been given to materials relating to recycling and sustainability. • Know how much products cost and make choices accordingly.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Upper Key Stage 2

	Year 5	Year 6
Making	• Name and use a range of tools and equipment competently • Select appropriate materials, tools and technique (e.g. 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. • Incorporate mechanical systems (such as pulleys or gears) to create movement in their products. • 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. • Use finishing techniques to strengthen and improve the appearance of their products using a range of equipment including ICT. • Make a prototype before making a final version • Carry out finishing techniques to enhance the appearance and function of their product	• Confidently select appropriate tools, materials, components and techniques and use them efficiently. • Know how to use any tool correctly and safely • Know what each tool is used for • Explain why a specific tool is best for a specific action • Make modifications as they go along and explain their reasons. • Construct products using permanent joining techniques. • Use mechanical systems such as pulleys and gears competently to create movement in their products. • 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. • Use finishing techniques to strengthen and improve the appearance of their products using a range of equipment including ICT. • Pin, sew and stitch materials together to create a product

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Upper Key Stage 2		
	Year 5	Year 6
Evaluating	• Evaluate a product against original design specifications and by carrying out tests. • Suggest alternative plans; outlining the positive features and drawbacks • Evaluate appearance and function against original criteria • Begin to evaluate their product personally and seek evaluation from others.	• Test and evaluate designed products with specified audience where possible • Explain how products should be stored and give reasons • Evaluate product against clear criteria • Evaluate their work both during and at the end of the assignment. • Record their evaluations using drawing with labels.
Technical Knowledge	• Suggest alternative plans; outlining the positive features and drawbacks • Evaluate appearance and function against original criteria • Create a product that incorporates gears.	• Know which IT product would further enhance a specific product • Use knowledge to improve a made product by strengthening, stiffening or reinforcing • Use electrical systems correctly and accurately to enhance a given product • Know when a product they have made is improved by either the use of pulleys, levers or gears.

DESIGN TECHNOLOGY: DISCIPLINARY KNOWLEDGE

Upper Key Stage 2

	Year 5	Year 6
Food Technology	• Be both hygienic and safe in the kitchen • Know how to prepare a meal by collecting the ingredients in the first place • Weigh and measure accurately (timings, dry ingredients and liquids) • Begin to understand that seasons may affect the food available. • 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, including where appropriate, the use of a heat source. • Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.	• Explain how food ingredients should be stored and give reasons • Work within a budget to create a meal • Understand the difference between a savoury and sweet dish • Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically, including where appropriate, the use of a heat source. • Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health.