



Design and Technology



Curriculum Map

PORTWAY INFANT SCHOOL

Design and Technology INTENT

At Portway Infant School we aim to provide a Design and Technology curriculum which enables our children to gain a practical understanding of the world around them. Our curriculum helps children to begin to appreciate every-day products in our modern world and use this as inspiration when **creating** their own products and designs.

Children will understand the process of creating a new product as they design, make and evaluate their own products with consideration of the intended user and purpose of their product.

We want Design and Technology to prepare our children, to give them the opportunities, responsibilities, and experiences they need to be successful in later life. This enables us to support their the children to build a successful **cultural capital** for their future.

We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum.

At KS1, this includes:

- mechanisms
- structures
- nutrition
- textiles

Through our curriculum our intention is for children to:

Use **creativity** and imagination to make design decisions using problem-solving skills; making something for someone for some purpose, enabling them to explore and play with a wide range of media and materials.

Make cross curricula links - draw on STEAM disciplines such as, science, engineering, computing, art and mathematics.

Acquire a broad range of subject knowledge, learning how to take risks, becoming resourceful, innovative, enterprising, be **curious** and capable citizens.

Develop a critical understanding and practical expertise of Design and Technology's impact on daily life and the wider world and learn about the work of a range of designers describing the difference/ similarity between different practises and making links to their own work.

Build and apply skills in designing, making, evaluating.

Experience all the essential DT elements: mechanisms, structures, food technology, and textiles.

Design and make authentic products with functionality and purpose using a range of materials.

Have opportunities to research, explore and work in a range of relevant contexts including the local community, industry, and the wider environment, to develop the ability to understand and interpret the world around them.

Build knowledge as set out in our Design and Technology Curriculum

Build **vocabulary** as set out in our Design and Technology Curriculum.

Enjoy reading high quality books to support learning in Design and Technology

KS1 Intentions

User – children will have a clear idea of who they are designing and making products for, considering their needs, wants, interests or preferences. The user could be themselves, an imaginary character, another person, client, consumer or a specific target audience.

Purpose – children will know what the products they design and make are for. Each product should perform a clearly defined task that can be evaluated in use.

Functionality – children will design and make products that function in some way to be successful. Products often combine aesthetic qualities with functional characteristics.

In D&T, it is insufficient for children to design and make products which are purely aesthetic.

Design Decisions – when designing and making, children will have opportunities to make informed decisions such as selecting materials, components and techniques and deciding what form the products will take, how they will work, what task they will perform and who they are for.

Innovation – when designing and making, children will have some scope to be original with their thinking. Projects encourage innovation and lead to a range of design ideas and products being developed, characterised by engaging, open-ended starting points for children's learning.

Authenticity – children will design and make products that are believable, real and meaningful to themselves i.e. not replicas or reproductions or models which do not provide opportunities for children to make design decisions with clear users and purposes in mind.

EYFS Design and Technology

EYFS End Points (Related Early Learning Goals)

Personal, Social and Emotional Development

ELG: Self-Regulation

- Can set and work towards simple goals, and is able to wait for what they want and control their impulses when appropriate.
- Gives focused attention to what the teacher says, responding appropriately even when engaged in activity, and shows an ability to follow instructions involving several ideas or actions.

ELG: Fine Motor Skills

- Uses a range of small tools, including scissors and paint brushes.
- Is beginning to show accuracy when drawing.

Expressive Arts and Design

ELG: Creating with Materials

- Safely uses and explores a variety of materials, tools and techniques, experimenting with form and function.
- Shares their creations, explaining the processes they have used.

EYFS Design and Technology

	How?	When?
Design	STRUCTURES: Junk Modelling • Making verbal plans and material choices. • Developing a junk model.	What a Wonderful World (Summer 1)

Make	COOKING & NUTRITION: Soup • Designing a soup recipe as a class. • Designing soup packaging TEXTILES: Bookmarks • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials. MECHANISMS: Seasonal Card • Designing a Christmas card with a simple sliding mechanism. • Designing the chimney and the sky. • Choosing from available materials.	Twinkly Night (Spring 1) At the Seaside (Summer 2) Marvellous Me and my Community (Autumn 2)
	STRUCTURES: Junk Modelling • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together. COOKING & NUTRITION: Soup • Chopping plasticine safely. • Chopping vegetables with support. TEXTILES: Bookmarks • Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading.	What a Wonderful World (Summer 1) Twinkly Night (Spring 1) At the Seaside (Summer 2)

	MECHANISMS: Seasonal Card • Developing fine motor/scissor skills. • Decorating Santa, the chimney and the sky. • Joining materials with glue, Sellotape or masking tape.	Marvellous Me and my Community (Autumn 2)
Evaluate	STRUCTURES: Junk Modelling • Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model. COOKING & NUTRITION: Soup • Tasting the soup and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why. TEXTILES: Bookmarks • Reflecting on a finished product and comparing to their design. MECHANISMS: Seasonal Card • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their seasonal card.	What a Wonderful World (Summer 1) Twinkly Night (Spring 1) At the Seaside (Summer 2) Marvellous Me and my Community (Autumn 2)
(Technical) Knowledge	STRUCTURES: Junk Modelling • To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model. COOKING & NUTRITION: Soup	What a Wonderful World (Summer 1) Twinkly Night (Spring 1)

	• To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown. • To recognise and name some common vegetables. • To know that different vegetables taste different. • To know that eating vegetables is good for us. • To discuss why different packages might be used for different foods. TEXTILES: Bookmarks • To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object. MECHANISMS: Seasonal Card • To know that a slider mechanism can move an object up and down.	At the Seaside (Summer 2) Marvellous Me and my Community (Autumn 2)
Vocabulary	STRUCTURES: Junk Modelling Join, Stick, Cut, Bend, Slot, Scissors, Measure, Materials, Fix COOKING & NUTRITION: Soup Fruit, Vegetables, Safety, Knife, Blade, Tool, Edge, Handle, Chop, Slice, Cut, Saucepan, Blender, Chopping board, Hob, Boil, Blend, Mix, Packaging, Recyclable, Metal, Plastic, Reusable TEXTILES: Bookmarks Thread, Weave, Pattern, Sew, Sewing needle, Embroider, Design, Evaluate MECHANISMS: Seasonal Card Design, evaluation, mechanism, slider, template, test, adapt	

Key Stage 1 Design and Technology

Design	Make	Evaluate	Technical Knowledge
design purposeful, functional, appealing products for themselves and other users based on design criteria	select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	explore and evaluate a range of existing products	build structures, exploring how they can be made stronger, stiffer and more stable
generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	evaluate their ideas and products against design criteria	explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Year 1 Design and Technology

Department for Education Statutory Guidance		How?	When?
Design	Design purposeful, functional, appealing products for themselves and other users based on design criteria	MECHANISMS/MECHANICAL SYSTEMS: Levers & Sliders: Create a Moving Picture - Explaining how to adapt mechanisms, using bridges or guides to control the movement. - Designing a moving picture.	Bustling Cities (Spring 2)
		STRUCTURES: Construct a Windmill	Life as a Child (Autumn 1)

	Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design COOKING & NUTRITION: Fruit and Vegetable Smoothie • Designing smoothie carton packaging by-hand or on ICT software.	Boom Pow Shazam (Spring 1)
Make	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	MECHANISMS/MECHANICAL SYSTEMS: Levers & Sliders: Create a Moving Picture • Following a design to create moving models that use levers and sliders. STRUCTURES: Construct a Windmill • Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure COOKING & NUTRITION: Fruit and Vegetable Smoothie • Chopping fruit and vegetables safely to make a smoothie.	Bustling Cities (Spring 2) Life as a Child (Autumn 1) Boom Pow Shazam (Spring 1)

Evaluate	explore and evaluate a range of existing products evaluate their ideas and products against design criteria	After each piece of making, children will evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. MECHANISMS/MECHANICAL SYSTEMS: Levers & Sliders: Create a Moving Picture • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. STRUCTURES: Construct a Windmill • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements COOKING & NUTRITION: Fruit and Vegetable Smoothie • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.	Through all topics Bustling Cities (Spring 2) Life as a Child (Autumn 1) Boom Pow Shazam (Spring 1)
Technical Knowledge	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	MECHANISMS/MECHANICAL SYSTEMS: Levers & Sliders: Create a Moving Picture • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. Additional Knowledge • To know that in Design and technology we call a plan a 'design.' • To know some real-life objects that contain mechanisms. STRUCTURES: Construct a Windmill	Bustling Cities (Spring 2) Life as a Child (Autumn 1)

		To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. Additional Knowledge • To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the client's needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure. COOKING & NUTRITION: Fruit and Vegetable Smoothie • Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	Boom Pow Shazam (Spring 1)
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Vocabulary	MECHANISMS/MECHANICAL SYSTEMS: Levers & Sliders: Create a Moving Picture Sliders, levers, mechanism, adapt, design criteria, model, template, assemble, test, evaluation
	STRUCTURES: Construct a Windmill Axle, bridge, design, design criteria, model, net, packaging, structure, template, unstable, stable, strong, weak, client, evaluation, test, windmill
	COOKING & NUTRITION: Fruit and Vegetable Smoothie Blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable

Year 2 Design and Technology		
Department for Education Statutory Guidance	How?	When?
Design	MECHANISMS/MECHANICAL STRUCTURES: Wheels & Axles • Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement.	Awesome Allestree (Autumn 2)
	A BALANCED DIET: Healthy Wraps • Designing a healthy wrap based on a food combination which work well together.	Perfect Plants (Summer 2)
	TEXTILES: Pirate Pouch • Designing a pouch.	All Aboard (Autumn 1)

Make	select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	MECHANISMS/MECHANICAL STRUCTURES: Wheels & Axles • Adapting mechanisms, when: • they do not work as they should. • to fit their vehicle design. • to improve how they work after testing their vehicle.	Awesome Allestree (Autumn 2)
	select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	A BALANCED DIET: Healthy Wraps • Slicing food safely using the bridge or claw grip. • Constructing a wrap that meets a design brief.	Perfect Plants (Summer 2)
		TEXTILES: Pirate Pouch • Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pinning and cutting fabric using a template.	All Aboard (Autumn 1)

Evaluate	explore and evaluate a range of existing products evaluate their ideas and products against design criteria	MECHANISMS/MECHANICAL STRUCTURES: Wheels & Axles • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move. A BALANCED DIET: Healthy Wraps • Describing the taste, texture and smell of fruit and vegetables. • Taste testing food combinations and final products. • Describing the information that should be included on a label. • Evaluating which grip was most effective. TEXTILES: Pirate Pouch • Troubleshooting scenarios posed by teacher. • Evaluating the quality of the stitching on others' work. • Discussing as a class, the success of their stitching against the success criteria. • Identifying aspects of their peers' work that they particularly like and why.	Awesome Allestree (Autumn 2) Perfect Plants (Summer 2) All Aboard (Autumn 1)
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		TEXTILES: Pirate Pouch • To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing.	All Aboard (Autumn 1)
Vocabulary	MECHANISMS/MECHANICAL STRUCTURES: Wheels & Axles Axle, Axle holder, Chassis, Design, Evaluation, Fix, Mechanic, Mechanism, Model, Test, Wheel A BALANCED DIET: Healthy Wraps Alternative, Diet, Balanced diet, Evaluation, Expensive, Healthy, Ingredients, Nutrients, Packaging, Refrigerator, Sugar, Substitute TEXTILES: Pirate Pouch Accurate, Fabric, Knot, Pouch, Running-stitch, Sew, Shape, Stencil, Template, Thimble		