Design and Technology Curriculum
Knowledge Informed; Skills Rich.

Vision

Penpol pupils are curious, creative and courageous learners. Our school community believes in authenticity as the foundations of deep-rooted learning. Through our rich and relevant Design and Technology curriculum, we nurture community-minded, forward-facing international citizens of the future.

Curriculum Intent: Why do we teach Design and Technology at Penpol Primary School?

At Penpol Primary School we teach children to think creatively to solve problems both as individuals and as members of a team. Design and Technology encourages children to use their curiosity and imagination to make products that solve real life problems within a variety of contexts. We aim to link the work to other disciplines such as maths, science, computing and art. This makes the learning connected and children can combine their understanding to ensure meaningful and successful outcomes are achieved.

The way the Design and Technology curriculum is delivered allows children to evaluate, reflect, present and innovate, which are all skills and experiences they have modelled in all the subjects across Penpol's broad curriculum.

As they move forward into the working world Design and Technology is part of many careers. The learning that takes place here provides them with rich and relevant learning to take with them into their exciting futures.

Implementation: How is Design and Technology taught at Penpol School?

Through creatively planned projects children are presented with genuine problems to solve, where ingenuity and functionality is a priority, and also 'designed' problems where creativity and imagination is the key.

The progression of children's understanding is mapped out across the year groups and over a year. Children follow key concepts: Design, Nutrition, Technology, Technology, Data, Evaluate, Functionality, Innovation

The lessons follow a clear structure where children gain the knowledge of the task, plan their approach, apply skills they may already have, learn and understand the technical knowledge and vocabulary, make, evaluate, innovate and present.

Where appropriate experts are brought in to share their skills and also show children the types of jobs that may be available as well as how design and technology weaves into so many other opportunities in the world in which they live.

Impact: What will we see from the teaching of Design and Technology?

We ensure that children develop creative, technical and practical expertise to perform everyday tasks confidently and participate in an increasingly technological world.

Children build, on their journey, a repertoire of knowledge, understanding and skills in order to design and make high quality prototypes as well as critique, test and evaluate their own work and the work of others. Children will apply the principles of nutrition and learn how to cook. A good quality finish will be expected on all designs, relevant to the age and ability of each child. Children learn how to take risks, becoming resourceful, enterprising and capable citizens so they are able to contribute to the creativity and culture of the future generation.

Key Concepts for Design and Technology

	Explanation
Design	A plan or drawing produced to show the look and function or workings of a building, garment or other object before it is made. 
Nutrition	The nourishment or energy that is obtained from food consumed, or the process of consuming the proper amount of nourishment and energy. An example of nutrition is the nutrients found in fruits and vegetables. An example of nutrition is eating a healthy diet. 
Technology	Technology is the science or knowledge put into practical use to solve problems or invent useful objects or tools. 
Data	Data is 'known facts. It especially refers to numbers, but can also mean words, sounds and images also. Originally, data is the plural of the Latin word datum which means 'give'. 
Evaluate	To evaluate is the act or the result of evaluating a situation that requires careful consideration to determine the value, nature, character, or quality of something. 
Functionality	The quality or state of being functional. A design that is admired for it beauty and for it's use. 
Innovation	The process of making something new or doing something in a new way. Innovation also has to include the concept of improvement; to innovate is not just to do something differently, but to do or make something better. 

Design and Technology content

	Design	Make	Evaluate	Technical Knowledge	Cooking Nutrition
1	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	use the basic principles of a healthy and varied diet to prepare dishes
2	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.	understand where food comes from.

3 4 5 6	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 wider 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	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.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer1	Summer 2
	London's Burning		Digging for Dinosaurs		Are we there yet?	
Year 1	Baking Bread DESIGN NUTRITION EVALUATE		?? TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATE		??	
	Who's the King of the Castle?		Busy Bees		Commotion in the Ocean	
Year 2	Designing and making a catapult Design, make and evaluate 3D drawbridge. DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATION		Make a Bee puppet DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATION INNOVATE			
	Walk like an Egyptian		Minecraft		Raving Rainforest	
Year 3	Create Canopic Jars Build a pyramid based on measurements DESIGN TECHNOLOGY DATA EVALUATE FUCTIONALITY		Design and make mechanical machines based on sorting stones rocks DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY		Create a rainforest flowering plant Make a rainforest diorama showing levels Create puppets DESIGN TECHNOLOGY DATA EVALUATE FUNCTIONALITY	
	Rampaging Romans		Making Matters		Earthquakes and Explosions	

Year 4	Design and make a roman helmet Cook Roman Pottage DESIGN NUTRITION TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION		Making wands and potions Make magical musical instruments DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATION	Building and designing exploding volcanoes DESIGN TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION
	The Stone Age	Greeks	Space	Conservation conversation
Year 5	Make a prehistoric shelter and tool DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATION INNOVATE	Preparing Greek Food DESIGN NUTRITION TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION	Mars Rover - DT (science links - Pneumatics vs hydraulic, Size of wheels - links to Friction and pulleys) DESIGN TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION	DT - Vegetarian ceviche (Salad grown on site - Food miles etc) Design and make elderflower cordial DESIGN NUTRITION DATA EVALUATE INNOVATION
	Wartime Britain		Light it up!	The world is my oyster Explore it and protect it
Year 6	WWII cooking Model planes DESIGN NUTRITION TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION		Design and make morse code machines Design and market renewable energy powered object. DESIGN TECHNOLOGY DATA EVALUATE FUNCTIONALITY INNOVATION	Design and make an ocean cleaning machine DESIGN TECHNOLOGY EVALUATE FUNCTIONALITY INNOVATION