Mawgan-in-Pydar Primary Academy

DESIGN TECHONOLOGY WHOLE SCHOOL PROGRESSION

Subject content - Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.	
KS1 Programme of Study **Design:** • Design purposeful, functional, appealing products for themselves and others based on design criteria • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make:** • Select from and use a range of tools and equipment to perform practical tasks • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate:** • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria **Technical knowledge:** • Build structures, exploring how they can be made stronger, stiffer and more stable • Explore and use mechanisms in their products – levers, sliders, wheels, axels	**KS2 Programme of Study** Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. **Design:** • 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:** • Select from and use a range of tools and equipment to perform practical tasks accurately • Select from and use a wide ranger range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Evaluate:** • 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 technology have helped shaped the world **Technical knowledge:** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Understand and use mechanical systems in their products – gears, pulleys, cams, levers, linkages • Understand and use electrical systems in their products – series circuits incorporating switches, bulbs, buzzers and motors • Apply their understanding of computing to programme, monitor and control their products

Cooking and nutrition: As part of their work with food, pupils should be taught how to cook and apply the basic principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.				
KS1 Programme of Study • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from		**KS2 Programme of Study** • 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		
EYFS Programme **ELG: Expressive arts and design** • Explore a variety of artistic effects to express their ideas and feelings • Explore different materials freely, to develop their ideas about how to use them and what to make • Join different materials and explore different textures • Create collaboratively, sharing ideas, resources and skills				
	Foundation **Sequence towards KS1**	**KS1** **Sequence towards Lower KS2**	**Lower KS2** **Sequence towards Upper KS2**	**Upper KS2** **Sequence towards KS3**
Design	• Experiment and build with a range of constructions resources, find out about the properties and functions of different construction materials • Talk about ideas, choose resources, tools and techniques with a purpose in mind	• Use pictures and words to convey what they want to design/make • Propose more than one idea for their product • Use ICT to communicate ideas • Select pictures to help develop ideas • Use drawings as they are developed • Add notes to drawings to help explanations • Explore ideas by rearranging materials • Use mock-ups eg: recycled material trial models to try out their ideas	• Develop more than one design or adaptation of an initial design • Record the plan by drawing annotated sketches • Plan a sequence of actions to make a product • Use prototypes to develop and share ideas • Think ahead about the order of their work and decide upon tools and materials • Propose realistic suggestions to how they can achieve their ideas • Consider aesthetic qualities of materials chosen • Use CAD where appropriate	• Record ideas using annotated diagrams • Use models, kits, and drawings to help formulate design ideas • Sketch and model alternative ideas • Decide which design idea to develop • Devise step by step plans which can be read/followed by someone else • Plan the sequence of work • Use exploded diagrams and cross-sectional diagrams to communicate ideas
Make	• Make models using different construction materials e.g. construction kits, reclaimed materials, experiment with different ways to build, construct and join resources	• Select materials from a limited range • Explain what they are making • Discuss their work as it progresses • Select and name tools needed to work materials	• Select from a range of tools for cutting, shaping, joining and finishing • Use tools with accuracy • Select from materials according to their functional properties • Prepare pattern pieces as templates for their design	• Develop one idea in depth • Make prototypes • Use researched information to inform decisions • Produce detailed lists of ingredients/components/materials and tools

	• Use equipment and tools to build, construct and make simple models and constructions	• Explain which materials they are using and why	• Select from techniques for different parts of the process • Use appropriate finishing techniques	• Select and use a wide range of tools • Cut accurately and safely to a marked line • Select from and use a wide range of materials • Refine their products – review, rework and improve
Evaluate	• Talk about what they like/dislike about their models/constructions, say why and how they would change them	• Explore existing products and investigate how they have been made (including teacher made examples) • Talk about their design as they develop and identify good and bad points • Decide how existing products do/do not achieve their purpose • Say what they like and do not like about items they have made • Discuss how closely their finished product meets their own design criteria	• Investigate similar products to the one to be made to give starting points for a design • Draw/sketch existing products in order to analyse and understand how products are made • Research the needs of the user • Identify the strengths and weaknesses of their design ideas in relation to purpose • Decide which design idea to develop • Consider and explain how the finished product could be improved • Discuss how well the finished product meets their design criteria	• Research and evaluate existing products • Consider user and purpose • Identify the strength and weaknesses of their design ideas • Explain how the finished product could be improved related to the design criteria • Report using correct technical vocabulary • Discuss how well the finished product meets the design criteria having tested outcomes with the user • Investigate key events and individuals in design technology
Cooking and Nutrition	• Name a variety of fruit and vegetables • Prepare fruit and vegetables for snack time – washing, peeling, chopping • Select and name a variety of tools - knife, peeler, chopping board • Know the importance of hygiene when preparing food including washing hands and surfaces • Choose fruits and other foods for snack	• Group familiar food products eg fruit and vegetables • Cut, chop, peel and grate a range of ingredients • Work safely and hygienically • Know about the needs of a variety of food in a diet – the eatwell plate • Name and sort foods into the five groups in the eatwell plate • Understand where food comes from • Know that everyone should eat at least five portions of fruit and vegetables every day	• Follow instructions and recipes • Join and combine a range of ingredients • Begin to understand the food groups on the eatwell plate • Know that to be active and healthy, food and drink are needed to provide energy for the body • Know how to eat a healthy balanced diet, incorporating five portions of fruit and vegetables a day • Understand seasonality • Know where and how ingredients are reared and caught	• Understand and apply the principles of a varied and healthy diet • Know where and how ingredients are grown and processed • Know that different food and drink contain different substances – nutrients, water and fibre, that are needed for health • Choose ingredients to support healthy eating choices when designing their food products • Join and combine a widening range of ingredients eg beating or rubbing

		• Prepare simple dishes safely and hygienically without using a heat source • Measure or weigh using cups or electronic scales	• Prepare ingredients hygienically and using the appropriate utensils following a recipe • Prepare and cook food using different cooking techniques • Measure and weigh ingredients appropriately, using scales	• Select and prepare food for a particular purpose • Prepare and cook a variety of mostly savoury dishes using a range of cooking techniques • Measure ingredients to the nearest gram and millilitre and calculate rations of ingredients to scale up or down from a recipe • Create and refine recipes, including ingredients, methods, cooking times and temperatures • Understand the importance of correct storage and handling of ingredients
Being a Designer (technical knowledge)	• Name tools being used • Use appropriate vocabulary they have learned	• Start to use technical vocabulary • Cut out shapes which have been drawn using a template • Join materials in a variety of ways • Decorate using a variety of techniques • Know some ways of making structures stronger and more stable • Attach wheels to a chassis using an axel • Know some different ways of making things move in a 2D shape	• Using an increasingly appropriate technical vocabulary for tools, materials and their properties • Investigate key events and individuals in design technology • Understand seam allowance,, protype and product • Use basic sewing skills • Strengthen models • Use electrical systems such as switches, bulbs and buzzers • Use ICT to control products	• Use the correct vocabulary appropriate to the product • Understand how key people have influenced design in a variety of contexts • Join materials using appropriate methods • Create 3D textile products using pattern pieces • Understand pattern layout with textiles • Build frameworks to support mechanisms • Reinforce complex structures • Use mechanical systems such as switches and motors • Program, monitor and control using ICT