



Malvern Parish CE Primary School
Long Term Curriculum Plan
Year 3 and Year 4

Design Technology

KS2 National Curriculum Overview

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. They should work in a range of relevant contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment.

When designing and making pupils should be taught to

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 wider range of tools and equipment to perform practical tasks, such as 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.

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 and technology have helped shape 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, such as gears, pulleys, cams, levers and linkages.
- understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors.
- apply their understanding of computing to programme, monitor and control their products.

Cooking and nutrition

- 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.

Concept	Milestones for Progress
Master practical skills - Food	<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).
Master practical skills - Textiles	<ul style="list-style-type: none"> • Understand the need for a seam allowance. • Join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles.
Master practical skills – Electricals and electronics	<ul style="list-style-type: none"> • Create series and parallel circuits
Master practical skills - Construction	<ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques.
Master practical skills - Mechanisms	<ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).
Design, make, evaluate and improve	<ul style="list-style-type: none"> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design. • Use software to design and represent product designs.
Take inspiration from design throughout history	<ul style="list-style-type: none"> • Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. • Improve upon existing designs, giving reasons for choices. • Disassemble products to understand how they work.

Throughout the teaching of each unit lessons should follow the sequence of:

1. investigating,
2. designing,
3. making
4. evaluating

Vocabulary which should be used throughout the teaching of Design and Technology*	
Design	plan to do something with a specific purpose in mind; 2. do a drawing of something before making it
Designer	a person who creates a plan for something they want to make also focus on 'designer' as a job title/career, e.g. 'fashion designer'
Design criteria	the explicit goals that a project must achieve in order to be successful
Computer-aided design (CAD)	the use of computers to aid in the creation, modification, analysis, or optimization of a design.
Technology	using what we know about Science to help us make useful things
Component	a part or element of a larger whole
Product	an outcome piece with a function/that does something - not necessarily a thing which can be sold
Prototype	an early sample or model of a product built to test a concept or process. A prototype is generally used to evaluate a new design
Brief	the initial instructions that tell us what we need to do in our project
User	the person who we are designing our product for, whose needs/wants must be taken into account
Appeal	The product should be attractive/interesting to the user
Evaluate	The process by which we test the finished products or prototypes and say whether they work well and if the design can be corrected or improved.
Hygiene*	conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness.

* To be used in the teaching of food/cookery

CYCLE A		
Key Knowledge and skills to be taught		
Autumn 1 Super scientists	Spring 1 – Look Inside Science Rocks	Summer 1 Green Planet
Knowledge and Practical Skills	Knowledge and Practical Skills	Knowledge and Practical Skills
Food - Healthy and variety diet	Mechanisms - Levers and mechanisms	Textiles (2d and 3d products)
Product and Rationale	Product and Rationale	Product and Rationale
Bread making for Grandma	Moving Greeting card	Pillow for the man in the Kapok tree for comfort
Vocabulary	Vocabulary	Vocabulary
Consumer Reaction Rise Prove Dough Knead	Lever Linkages component Movement Book	Pattern Piece Running stitch Back stitch Cross stitch Over stitch Embroidery Applique Textile

CYCLE B		
Key Knowledge and skills to be taught		
Autumn 1 Healthy bodies Healthy minds	Spring 1 Bright Lights	Summer 1 Electric sounds
Knowledge and Practical Skills	Knowledge and Practical Skills	Knowledge and Practical Skills
Food - Healthy and varied diet	Construction - Shell Structure – including CAD	Electricity - Simple Circuits and switches – programing and control
Product and Rationale	Product and Rationale	Product and Rationale
Granola bars -healthy lunchbox snack	Lightbox for Lazlo	Alarm
Vocabulary	Vocabulary	Vocabulary

Mix
Ingredients
Slice
Weigh
Measure
Recipe
Bake
Utensils

Net
Box
Lid
Join
Tab
Score
Computer Aided Design

Switch
Circuit
Buzzers
Battery
Electrical engineer
Conductor
Insulator