



Progression in Design & Technology

Who's who?

Subject Leader: Mrs Tinniswood

Teaching staff: Miss Jardine, Mr Armstrong & Mrs Tinniswood

Our Aims

Design and Technology prepares children to deal with our rapidly changing world. It encourages them to become independent, creative problem-solvers and thinkers as individuals and part of a team. It enables them to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems.

At Rosley CE School, we aim to inspire pupils to be innovative and creative in their approach and to develop an appreciation for the product design cycle through planning, creation, and evaluation. We aim, where possible, to make maximum use of links to other disciplines such as mathematics, science, engineering, computing and art. We want pupils to develop the confidence to take risks, through drafting design concepts, modelling, and testing and to be reflective learners who evaluate their work and the work of others. We aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.

YEAR A

YEAR RECEPTION, 1 & 2		
TERM	UNIT OF STUDY	LEARNING/KEY SKILLS
Autumn	Mechanisms/Mechanical systems Fairground Wheel	<ul style="list-style-type: none">• Design and label a wheel• Consider the designs of others and make comments about their practicality or appeal• Consider the materials, shape, construction and mechanisms of their wheel• Label designs and build a stable structure with a rotating wheel.• Test and adapt their designs as necessary.• Follow a design plan to make a completed model of the wheel

<p>Spring</p>	<p>Structures</p> <p>Baby Bear's Chair</p>	<ul style="list-style-type: none"> • Identify man-made and natural structures. • Identify stable and unstable structural shapes. • Contribute to discussions. • Identify features that make a chair stable. • Work independently to make a stable structure, following a demonstration. • Explain how their ideas would be suitable for Baby Bear. • Produce a model that supports a teddy, using the appropriate materials and construction techniques. • Explain how they made their model strong, stiff and stable.
<p>Summer</p>	<p>Cooking & Nutrition</p> <p>Fruit and Vegetables</p>	<ul style="list-style-type: none"> • Describe fruits and vegetables and explain why they are a fruit or a vegetable. • Name a range of places that fruits and vegetables grow. • Describe basic characteristics of fruit and vegetables. • Prepare fruits and vegetables to make a smoothie

YEAR 3 & 4		
TERM	UNIT OF STUDY	LEARNING/KEY SKILLS
Autumn	Digital World Electronic charm	<ul style="list-style-type: none"> • Give a brief explanation and examples of the digital revolution • Suggest a feature from the Micro:bit that is suitable for an eCharm • Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed • Identify errors by comparing their code to a correct example • Explain the basic functionality of their finished program • Suggest key features for a pouch, considering the theme and user • Use a template when cutting/assembling a pouch, with some support. • Describe what is meant by 'point of sale display' with an example. • Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours. • Evaluate their design.
Spring	Cooking & Nutrition Eating seasonally	<ul style="list-style-type: none"> • Explain that fruits and vegetables grow in different countries based on their climates. • Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. • Know that eating seasonal fruit and vegetables has a positive effect on the environment. • Design their own tart recipe using seasonal ingredients. • Understand the basic rules of food hygiene and safety. • Follow the instructions within a recipe
Summer	Structures Constructing a Roman fort	<ul style="list-style-type: none"> • Draw and label a simple fort that includes the most common features. • Recognise that a fort is made up of multiple 3D shapes. • Design a fort with key features which satisfy a given purpose. • Score or cut along lines on the net of a 2D shape.

		<ul style="list-style-type: none"> • Use glue to securely assemble geometric shapes. • Utilise skills to build a complex structure from simple geometric shapes. • Evaluate their work by answering simple questions.
YEAR 5 & 6		
TERM	UNIT OF STUDY	LEARNING/KEY SKILLS
Autumn	Mechanical Systems Automata toys	<ul style="list-style-type: none"> • Understand that the mechanism in an automata uses a system of cams, axles and followers. • Experiment with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement. • Understand how cams and linkages work • Understand and draw cross-sectional diagrams to show the inner-working. • Assemble components accurately to make a stable frame. • Select appropriate materials and measure, mark and check accuracy • Evaluate the work of others and receive feedback, applying points of improvements • Understand how to use equipment safely.
Spring	Digital World Navigating the world	<ul style="list-style-type: none"> • Incorporate key information from a client’s design request such as ‘multifunctional’ and ‘compact’ in their design brief. • Write a program that displays an arrow to indicate cardinal compass directions with an ‘On start’ loading screen. • Identify errors (bugs) in the code and suggest ways to fix (debug) them. • Self and peer evaluate a product concept against a list of design criteria with basic statements. • Identify key industries that use 3D CAD modelling and why. • Recall and describe the name and use of key tools used in Tinkercad (CAD) software.

		<ul style="list-style-type: none"> • Combine more than one object to develop a finished 3D CAD model in Tinkercad. • Complete a product pitch plan that includes key information.
Summer	<p>Electrical Systems</p> <p>Electronic greetings cards</p>	<ul style="list-style-type: none"> • Explore, analyse and evaluate greeting cards. • Experiment and construct a series circuit. • Explore making a mood board to help inspire and generate a range of design ideas. • Develop skills in generating ideas inspired by research; annotate design ideas; review design ideas against design criteria. • Develop skills in creating a final design, including technical details such as circuit diagram, materials and tools required. • Develop skills in making an electronic greeting card, complete with a functional series circuit. • Develop skills in evaluating a product, e.g. electronic greeting card greeting card. • Consider the views of others to improve their work

HOW TO SUPPORT YOUR CHILD'S LEARNING

- Talk to your child about the role of design in everyday things at home.
- Fill a box with materials your child could use for making things. E.g. packets, plastic containers, small boxes, little bits of wood, rubber bands, old cotton reels, pieces of fabric, paper clips, string, paper plates, plastic cups, straws, toilet rolls etc. Remember to include design essentials such as glue, sticking tape, a hole punch, a stapler and scissors.
- Give your child a project and encourage them to approach it like a real designer. This will help a lot with the way lessons are taught at school. Choose something that interests your child – cooking a simple dish, making clothes for a doll, designing a model car or plane, or creating a birthday card for a friend.