



# Progression in Design & Technology

## Who's who?

Subject Leader: Mrs Tinniswood

Teaching staff: Miss Jardine & Mrs Tinniswood

## Our Aims

At Rosley CE School, we believe that Design and Technology enhances our curriculum by engaging children, igniting their creativity and preparing them for life in a rapidly changing world.

The knowledge and skills acquired in Design and Technology will serve our pupils well beyond their primary years, from persevering in solving problems to evaluating their works and responding to feedback. These are skills children will utilise throughout their lives.

Our curriculum ensures children have the opportunity to **design and make SOMETHING, for SOMEONE, for a PURPOSE**. They learn to evaluate existing products and can draw on specifics of existing products to support them when creating their own designs.

Children enjoy the practical nature of Design and Technology and are carefully guided to improve their making skills using a range of different techniques, building on their prior knowledge and overcoming obstacles as they come. Children evaluate their products with the user in mind. They share their designs with others and give and receive feedback to support their future learning.

Where possible, we link our curriculum to our Cumbrian locality. This may involve the choice of ingredients, investigating farm to fork, or may involve work towards local enterprise projects. However, it is also important that our Design and Technology broadens our pupils' horizons by introducing them to technology and materials beyond their immediate experience.

**YEAR A 2023 - 2024**

<b>YEAR RECEPTION, 1 &amp; 2</b>		
<b>TERM</b>	<b>UNIT OF STUDY</b>	<b>LEARNING/KEY SKILLS</b>
<b>Autumn</b>	<b>Mechanisms/Mechanical systems</b>  Fairground Wheel	<ul style="list-style-type: none"> <li>• Design and label a wheel</li> <li>• Consider the designs of others and make comments about their practicality or appeal</li> <li>• Consider the materials, shape, construction and mechanisms of their wheel</li> <li>• Label designs and build a stable structure with a rotating wheel.</li> <li>• Test and adapt their designs as necessary.</li> <li>• Follow a design plan to make a completed model of the wheel</li> </ul>
<b>Spring</b>	<b>Structures</b>  Baby Bear’s Chair	<ul style="list-style-type: none"> <li>• Identify man-made and natural structures.</li> <li>• Identify stable and unstable structural shapes.</li> <li>• Contribute to discussions.</li> <li>• Identify features that make a chair stable.</li> <li>• Work independently to make a stable structure, following a demonstration.</li> <li>• Explain how their ideas would be suitable for Baby Bear.</li> <li>• Produce a model that supports a teddy, using the appropriate materials and construction techniques.</li> <li>• Explain how they made their model strong, stiff and stable.</li> </ul>
<b>Summer</b>	<b>Cooking &amp; Nutrition</b>  Fruit and Vegetables	<ul style="list-style-type: none"> <li>• Describe fruits and vegetables and explain why they are a fruit or a vegetable.</li> <li>• Name a range of places that fruits and vegetables grow.</li> <li>• Describe basic characteristics of fruit and vegetables.</li> <li>• Prepare fruits and vegetables to make a smoothie</li> </ul>

YEAR 3 & 4		
TERM	UNIT OF STUDY	LEARNING/KEY SKILLS
Autumn	<b>Cooking &amp; Nutrition</b>  Eating seasonally	<ul style="list-style-type: none"> <li>• Explain that fruits and vegetables grow in different countries based on their climates.</li> <li>• Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then.</li> <li>• Know that eating seasonal fruit and vegetables has a positive effect on the environment.</li> <li>• Design their own tart recipe using seasonal ingredients.</li> <li>• Understand the basic rules of food hygiene and safety. Follow the instructions within a recipe</li> </ul>
Spring	<b>Digital World</b>  Wearable technology	<ul style="list-style-type: none"> <li>• Give a brief explanation of the digital revolution and/or remember key examples.</li> <li>• Suggest a feature from the virtual micro:bit that is suitable for the product.</li> <li>• Write a program that initiates a flashing LED panel, or another pattern, on the virtual micro:bit when a button is pressed.</li> <li>• Identify errors, if testing is unsuccessful, by comparing their code to a correct example.</li> <li>• Explain the basic functionality of their finished program.</li> <li>• Suggest key features for a way to attach the product to the user, with some consideration for the overall theme and the user.</li> <li>• Create annotated diagrams to help illustrate how their product is worn.</li> <li>• Describe what is meant by 'point of sale display' with an example.</li> <li>• Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration.</li> <li>• Evaluate their design using a focus group.</li> </ul>

<b>Summer</b>	<b>Structures</b>  Constructing a Roman fort	<ul style="list-style-type: none"> <li>• Draw and label a simple fort that includes the most common features.</li> <li>• Recognise that a fort is made up of multiple 3D shapes.</li> <li>• Design a fort with key features which satisfy a given purpose.</li> <li>• Score or cut along lines on the net of a 2D shape.</li> <li>• Use glue to securely assemble geometric shapes.</li> <li>• Utilise skills to build a complex structure from simple geometric shapes.</li> <li>• Evaluate their work by answering simple questions.</li> </ul>
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**YEAR 5 & 6**

<b>TERM</b>	<b>UNIT OF STUDY</b>	<b>LEARNING/KEY SKILLS</b>
Autumn	<b>Mechanical Systems</b>  Automata toys	<ul style="list-style-type: none"> <li>• Understand that the mechanism in an automata uses a system of cams, axles and followers.</li> <li>• Experiment with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement.</li> <li>• Understand how cams and linkages work</li> <li>• Understand and draw cross-sectional diagrams to show the inner-working.</li> <li>• Assemble components accurately to make a stable frame.</li> <li>• Select appropriate materials and measure, mark and check accuracy</li> <li>• Evaluate the work of others and receive feedback, applying points of improvements</li> <li>• Understand how to use equipment safely.</li> </ul>

Spring	<p><b>Digital World</b></p> <p>Navigating the world</p>	<ul style="list-style-type: none"> <li>• Incorporate key information from a client’s design request such as ‘multifunctional’ and ‘compact’ in their design brief.</li> <li>• Write a program that displays an arrow to indicate cardinal compass directions with an ‘On start’ loading screen.</li> <li>• Identify errors (bugs) in the code and suggest ways to fix (debug) them.</li> <li>• Self and peer evaluate a product concept against a list of design criteria with basic statements.</li> <li>• Identify key industries that use 3D CAD modelling and why.</li> <li>• Recall and describe the name and use of key tools used in Tinkercad (CAD) software.</li> <li>• Combine more than one object to develop a finished 3D CAD model in Tinkercad.</li> <li>• Complete a product pitch plan that includes key information.</li> </ul>
Summer	<p><b>Electrical Systems</b></p> <p>Electronic greetings cards</p>	<ul style="list-style-type: none"> <li>• Explore, analyse and evaluate greeting cards.</li> <li>• Experiment and construct a series circuit.</li> <li>• Explore making a mood board to help inspire and generate a range of design ideas.</li> <li>• Develop skills in generating ideas inspired by research; annotate design ideas; review design ideas against design criteria.</li> <li>• Develop skills in creating a final design, including technical details such as circuit diagram, materials and tools required.</li> <li>• Develop skills in making an electronic greeting card, complete with a functional series circuit.</li> <li>• Develop skills in evaluating a product, e.g. electronic greeting card greeting card.</li> <li>• Consider the views of others to improve their work</li> </ul>

## **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.