

## Cumwhinton School Curriculum - Design Technology Y4 SPR

<p>Year 4</p>	<p>NC Content</p>	<p>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 [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].</p> <p>When designing and making, pupils should be taught to:</p> <p><u>Design</u></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul> <p><u>Make</u></p> <ul style="list-style-type: none"> <li>• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>• 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</li> </ul> <p><u>Evaluate</u></p> <ul style="list-style-type: none"> <li>• investigate and analyse a range of existing products</li> <li>• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>• understand how key events and individuals in design and technology have helped shape the world</li> </ul> <p><u>Technical knowledge</u></p> <ul style="list-style-type: none"> <li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>• apply their understanding of computing to program, monitor and control their products.</li> </ul> <p><u>Cooking and nutrition</u></p> <p>As part of their work with food, pupils should be taught how to cook and apply the 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.</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul>
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## Design Technology

Design

Make

Evaluate

Technology Vocabulary

### Mapping across the Year

	AUTUMN	SPRING	SUMMMER
Design		To 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. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	<u>Cooking and Nutrition</u> To understand and apply the principles of a healthy and varied diet To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
Make		To 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	To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
Evaluate		To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To understand how key events and individuals in design and technology have helped shape the world	
Technology Vocabulary		To 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] To understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] To apply their understanding of computing to program, monitor and control their products.	

### CONCEPTUAL SCHOOL AMBITION DRIVERS

	EYFS & KS1	LKS2	UKS2
AUT	Diversity	Fairness	Individuality
SPR	Truth	Change	Resilience
SUM	Responsibility	Equality	Sustainability

**DT - SPRING YEAR 4**  
**HUMANITY - Change**

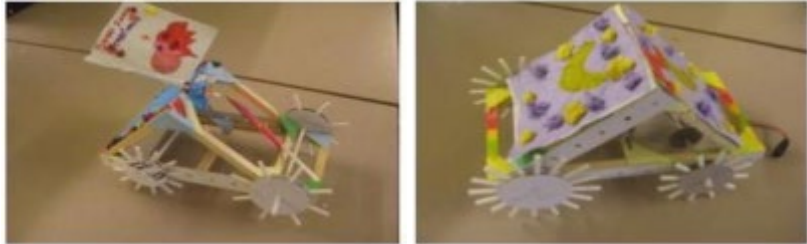
Design

Make

Evaluate

Technology Vocabulary

**How can we change vehicles so they are suitable for the moon?**

NC		CUMWHINTON CURRICULUM
Design	To 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. To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	<p>Project - Moon buggies Based on the geared motor that propels the vehicle via wheels.            Design - Children have time to research moon buggies and their design. Give children opportunities to discuss with each other about their thoughts and plans for their designs.            Discuss with children that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Describe how simple mechanisms (at least: pulleys, levers, gears) increase the effects of a force Show children videos first of what moon buggies are and why they are use on the moon - like this to the materials they are made from:  <a href="https://www.youtube.com/watch?v=7wC8LVRgZW8">https://www.youtube.com/watch?v=7wC8LVRgZW8</a> <a href="https://www.youtube.com/watch?v=zsftnWIjYnA">https://www.youtube.com/watch?v=zsftnWIjYnA</a>            Show children the moon buggies that they'll be making.</p>  <p>Give children time to sketch out their moon buggy plan and label, with the materials used. This can be done multiple times if their plan changes or can be done using technology on the computer. Children keep their draft plans in their file, these can be used for evaluations and to help with their thought process.</p>
Make	To 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	<p>This will start by the children making a simple frame and they can select sizes of paddles or wheels, depending on factors like speed, power and how to convert the motor's movement to the drive. This can be slowed, kept the same or increased by the use of different size pulleys in the drive mechanism.            Children can use a range of given materials provided, to create their moon buggies, following step by step instructions and their designs.            Children can decorate their moon buggies with appropriate materials and patterns</p>
Evaluate	To investigate and analyse a range of existing products. To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. To understand how key events and individuals in design and technology have helped shape the world	<p>Evaluate - Children to investigate whilst building their models - link to both science and maths links. Children evaluate their models against success criteria/ previous drafts and their peer's designs. In small groups, discuss what went well and how others can improve.</p>

<p><b>Technology Vocabulary</b></p>	<p>To 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] To understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] To apply their understanding of computing to program, monitor and control their products.</p>	<p>Whilst making their moon buggies - can children make sure their frame is strong enough? What materials would be best and how best will they decide to structure this? Can children talk and discuss the choices they have made.</p> <p>Subject vocabulary Moon buggies, motor, geared, vehicle , mechanisms, levers, pulleys, force, frame, power, movement, attach, fix, join, length, axles, investigate, design criteria, product, purpose, function, annotated sketch</p>
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