

Cumwhinton School Curriculum - Design Technology Y5 SPR

Year 5	NC Content	<p><u>Design</u></p> <ul style="list-style-type: none">-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 <p><u>Make</u></p> <ul style="list-style-type: none">- 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><u>Evaluate</u></p> <ul style="list-style-type: none">-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 <p><u>Technical knowledge</u></p> <ul style="list-style-type: none">- 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]-understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]-apply their understanding of computing to program, monitor and control their products. <p><u>Cooking and Nutrition</u></p> <ul style="list-style-type: none">-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.- 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 <p><u>Techniques</u></p> <ul style="list-style-type: none">-understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
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	Design	Make	Evaluate	Technology Vocabulary
Mapping across the Year				
	AUTUMN		SPRING	SUMMMER
Design			<p>To understand and apply the principles of a healthy and varied diet</p> <p>To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>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>
Make			<p>To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p>	<p>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>
Evaluate			<p>To evaluate own cooking - how could it be improved next time? How could the recipe be adapted?</p>	<p>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>
Technology Vocabulary			<p>To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. To 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>	

CONCEPTUAL SCHOOL AMBITION DRIVERS

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

DT - SUMMER YEAR 5
HUMANITY - Equality

Design

Make

Evaluate

Technology Vocabulary

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

<https://practicalaction.org/our-work/projects/global-distributors-collective/>
Design

Ask the children to investigate a collection of torches, cycle lamps and other battery-powered lights eg pocket torches, 'miners' headlamps, rear bicycle lamps, camping table lamps. How does the casing stay together? How is the light reflected? How does the switch work? How many batteries are used? What type are they? What materials have been used and why? Are there any special surface textures? What shape is it and why? How heavy is it? Discuss the circumstances in which each light is used and relate this to the particular features of its design eg a 'Pools' coupon collector who visits houses in winter, the milk deliverer, a caving enthusiast, a cyclist. How does a designer take account of individual differences of a person's anatomy (eg hand size) when designing a product to be used by the general population? Where do they get information from about body sizes? Children could do a survey of head/hand sizes to highlight the need for adjustment within the specification of a product.

Explain to the children how a torch works, identifying the key features eg bulb, reflector, battery, switch, casing. If possible take apart an old torch to discover how it is made, especially the way a complete circuit is made using a switch. Investigate how the torches are designed to be safe.

Discuss the advantages/disadvantages of disposable products eg torches. Discuss the life-cycle of a torch, showing the materials used from source to disposal.

Provide the children with as wide a variety of lights as possible to investigate. Then they will consider a wide variety of situations in which people use lights.

Encourage the children not to copy a light they have already seen. You might ask them to make a completely 'new' light or a 'light of the future'.

Circuits are best made by using battery holders and bulb holders to secure these components.

Wires or strips of aluminium foil will make adaptable connectors which could be fixed in place with sticky tape or other suitable means.

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

Show the children how to make a simple electrical circuit using a battery, bulb, switch and connecting wires.

Teach the children that a variety of metal components can be used as part of the circuit.

Ask the children to make a variety of hand-made switches by using simple classroom materials eg card, plastic, aluminium foil, paper fasteners, paper clips.

Ask the children to make switches that work in different ways eg when you press them, when you slide them. The children could investigate the reflective qualities of some materials which might be used as a torch reflector. The children could explore a variety of 'casings' for a torch and ways in which the batteries, switch and bulb might be fixed inside. Include reclaimed card boxes, tubes, plastic bottles, 3D geometric shapes made from nets of card, etc

Think of a situation in which a battery-powered light might be of use. (Avoid the use of the word 'torch' at this stage.) Who are you going to design for? What activity is your light for? What must it do to be successful? How will you meet your user's needs?

list the needs of someone using the light eg:

- the light should shine a beam onto the page of a book
- the light should have a case which doesn't fall over on uneven ground

		<p>-the switch should only stay on when the light is being held by someone discuss appearance, function, safety and reliability. How will the people use what you are designing? What could go wrong? What must your product not do? How could you make it safer? Are there different ways of making this? Which would give the best results?</p> <p>prioritise the specification, listing first the essential elements and those that are important (but not essential)</p> <p>make their plans for the light by labelling a drawing to show:</p> <ul style="list-style-type: none"> -the materials to be used for different parts of the light -how the circuit will be arranged inside the casing -the kind of switch to be used.
<p>Evaluate</p>	<p>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>	<p>As the project proceeds and once the products have been made, ask the children to evaluate their model by considering how well it works and meets the needs of the user that they have identified. How well does this work? Will it do what you intend it to? How can you improve it? What do you need to change? Why? How will this meet the needs of the user? What do the users say?</p>
<p>Technology Vocabulary</p>	<p>To apply their understanding of how to strengthen, stiffen and reinforce more complex structures. To 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>Ask the children to make switches that work in different ways eg when you press them, when you slide them. The children could investigate the reflective qualities of some materials which might be used as a torch reflector. The children could explore a variety of 'casings' for a torch and ways in which the batteries, switch and bulb might be fixed inside. Include reclaimed card boxes, tubes, plastic bottles, 3D geometric shapes made from nets of card, etc</p>