

## Long Term Planning: Design Technology

	Autumn Term	Spring Term	Summer Term
Year 1	How can I build a street without	How can I build a street without bricks? /	'Bake off' / Primary Engineer – Regional
	bricks?	Engineer Leaders Award Level 1	competition (Shoe box cars Level 1)
	<ul> <li>* design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>* generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> <li>* select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>* select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> <li>* explore and evaluate a range of existing products</li> <li>* evaluate their ideas and products against design criteria</li> <li>* build structures, exploring how they can be made stronger, stiffer and more stable</li> </ul>	<ul> <li>* design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>* generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> <li>* explore and evaluate a range of existing products</li> <li>* evaluate their ideas and products against design criteria</li> </ul>	<ul> <li>use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from.</li> <li>design purposeful, functional, appealing products for themselves and other users based on design criteria generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> <li>select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> <li>explore and evaluate a range of existing products evaluate their ideas and products against design criteria</li> <li>build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products</li> </ul>
Year 2	How can I build a castle that	How can I build a castle that withstands	'The organic pizza business' /ALP BMW
	withstands invasion?	invasion? /Engineer Leaders Award Level 1	Engineer competition
		<ul> <li>design purposeful, functional, appealing products for themselves and other users based on design criteria</li> </ul>	<ul> <li>use the basic principles of a healthy and varied diet to prepare dishes</li> </ul>



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Year 3	<ul> <li>Was wattle and daub an effective building technique?</li> <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</li> </ul>	<ul> <li>How can a building survive an earthquake?</li> <li>/ Engineer Leaders Award Level 2</li> <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, nattern pieces and</li> </ul>	<ul> <li>'The great British farm shop' (Pupil made farm produce) / Primary Engineer – Regional competition (Shoe box cars Level 2)</li> <li>* understand and apply the principles of a healthy and varied diet</li> <li>* prepare and cook a variety of predominantly sayoury dishes using a range of cooking techniques</li> </ul>
	<ul> <li>diagrams, prototypes, pattern pieces and computer-aided design</li> <li>select from and use a wider range of tools and equipment to perform practical tasks [for</li> </ul>	<ul> <li>computer-aided design</li> <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> </ul>	<ul> <li>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>use research and develop design criteria to inform the design of innovative, functional, appealing</li> </ul>

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	<ul> <li>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> <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 understand how key events and individuals in design and technology have helped shape the world</li> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> </ul>	<ul> <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> <li>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</li> <li>understand how key events and individuals in design and technology have helped shape the world apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <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 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>	<ul> <li>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> <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> <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> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use electrical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>understand and use electrical systems in their products [for example, gears circuits incorporating switches, bulbs, buzzers and motors]</li> <li>apply their understanding of computing to program, monitor and control their products.</li> </ul>
Year 4	How healthy was an Anglo Saxon	CADCAM Computer Aided Design &	Primary Engineer – Regional competition
	diet?	Computer Aided Manufacturing / Engineer	(Electric/motorised vehicles)
	<ul> <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> </ul>	<ul> <li>Leaders Award Lvl 2</li> <li>* use research and develop design criteria to inform the design of innovative, functional, appealing products</li> </ul>	<ul> <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> </ul>

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	<ul> <li>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed</li> </ul>	<ul> <li>that are fit for purpose or groups</li> <li>generate, develop, mo through discussion, ar and exploded diagram computer-aided desigg</li> <li>select from and use a equipment to perform cutting, shaping, joinin</li> <li>select from and use a components, including and ingredients, accor properties and aesthe</li> <li>investigate and analys</li> <li>evaluate their ideas ar design criteria and cor improve their work</li> <li>understand how key e and technology have h</li> <li>apply their understand and reinforce more co apply their understand and reinforce more co session of innovative, fi that are fit for purpose or groups</li> <li>generate, develop, mo through discussion, ar and exploded diagram computer-aided desig</li> </ul>	e, aimed at particular individuals odel and communicate their ideas nnotated sketches, cross-sectional ns, prototypes, pattern pieces and gn wider range of tools and n practical tasks [for example, ng and finishing], accurately wider range of materials and g construction materials, textiles rding to their functional etic qualities se a range of existing products nd products against their own nsider the views of others to events and individuals in design helped shape the world ding of how to strengthen, stiffen omplex structures ding of computing to program, heir products. elop design criteria to inform the functional, appealing products e, aimed at particular individuals	<ul> <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> <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> <li>investigate and analyse a range of existing products evaluate their ideas and products against their own</li> <li>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> <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>
Year 5	To design and make an authentic	Tudor puppet	Engineer Leaders	Seasonal soup' /Primary Engineer –
	<ul> <li>use research and develop design criteria to inform t</li> </ul>	he design of innovative,	Award Level 2	Regional competition
	functional, appealing products that are fit for purpo individuals or groups	se, aimed at particular	<ul> <li>use research and develop design criteria to inform</li> </ul>	(Electric/motorised vehicles with gears)

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* generate, develop, model and communicate their ideas through discussion,	the design of	3
annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	functional,	
* select from and use a wider range of tools and equipment to perform practical	appealing products	:
tasks [for example, cutting, shaping, joining and finishing], accurately	that are fit for	
<ul> <li>select from and use a wider range of materials and components, including</li> </ul>	purpose, aimed at	
construction materials, textiles and ingredients, according to their functional	particular	3
properties and aesthetic qualities	groups	
<ul> <li>Investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider</li> </ul>	* generate develop	
the views of others to improve their work	model and	;
<ul> <li>understand how key events and individuals in design and technology have helped</li> </ul>	communicate their	
shape the world	ideas through	
<ul> <li>apply their understanding of how to strengthen, stiffen and reinforce more</li> </ul>	discussion,	
complex structures	annotated sketches, cross-sectional and	;
	exploded diagrams	
	prototypes, pattern	
	pieces and	
	computer-aided	
	design	
	<ul> <li>investigate and</li> <li>analyze a range of</li> </ul>	;
	existing products	
	evaluate their ideas	
	and products	:
	against their own	
	design criteria and	;
	of others to improve	
	their work	;
	<ul> <li>understand how key</li> </ul>	
	events and	;
	individuals in design	
	and technology	
	the world	:

- 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
- 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
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- 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
- 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
- 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.



Year 6	Did all classes of passenger on board	BMW design project / Engineer Leaders	Primary Engineer – Regional competition
	RMS Titanic have a healthy and	Award Level 2	(Electric/motorised vehicles with gears),
Year 6	<ul> <li>Did all classes of passenger on board RMS Titanic have a healthy and balanced diet?</li> <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>	<ul> <li>BMW design project / Engineer Leaders Award Level</li> <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> <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> <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> <li>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</li> <li>understand how key events and individuals in design and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> <li>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</li> <li>understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<ul> <li>Primary Engineer – Regional competition (Electric/motorised vehicles with gears), including pupils' own CADCAM (3D printed) produced parts</li> <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> <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> <li>* 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</li> <li>* understand how key events and individuals in design and technology have helped shape the world</li> <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</li> </ul>
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