

Year 5/6 Design and Technology Curriculum
Medium Term Plan

Topic		Lesson Focus	Key Knowledge	Vocabulary
Frame Structure	1	Explore frame structures in everyday life	<p>To know that a frame structure is a structure which is made up of a series of thin bars, which create a framework</p> <p>To know that frame structures are used in everyday life</p> <p>To know at least two real life examples of frame structures</p> <p>To know that frame structures serve the purpose of supporting weight therefore need to surround the object they are supporting e.g. a bridge supporting a heavily trafficked road</p>	<ul style="list-style-type: none"> ● Strength ● Shape ● Material ● Weak ● 3D ● Structure ● Reinforce ● frame structure ● stiffen ● strengthen ● reinforce ● triangulation ● stability ● shape ● join ● temporary ● permanent
	2	Understand how frame structures are strengthened	<p>To know that 3D frame structures can be reinforced and strengthened by adding pieces</p> <p>To know that frame structures need to be strengthened in order to hold greater weight and prevent breaking from compression</p> <p>To know that compression is when a force is placed onto the frame structure with the intent of pressing or squashing the structure</p> <p>To know that triangles are the most effective shape in stiffening a frame structure (triangulation) because they provide resistance to compression</p>	
	3	Test appropriate materials for a frame structure	<p>To know that materials used to make frame structures have an effect on strength of the structure</p> <p>To know that some materials are more/less effective when designing/making frame structures.</p>	
	4	Design and make a frame structure	<p>To know that designing something involves making choices to make something work.</p> <p>To know that design choices need to be reasoned, justifying how it will make the final product work better</p> <p>To know that testing products shows us if they are fit for purpose (if they work)</p> <p>To know that a design brief is a starting point for a design which states the purpose a design/product</p> <p>To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief</p> <p>To know that research is valuable during design process to form design criteria and guide design choices</p> <p>To know that technology has evolved to enable human lifestyles to become easier/ more functional</p>	
	5	Evaluate the frame structure	<p>To know that design is an iterative process which means it includes Investigation, Designing, Making, Evaluating and Improving products</p>	

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Food- Celebrating culture and seasonality	1	Investigate food and growth conditions	To know that seasonality affects the production of food as some foods are only produced due to qualities of certain seasons e.g. weather To know that weather has an effect on growth of certain foods e.g. some food grow more effectively in sunny climates, some in rainy climates To know that UK weather conditions are inappropriate for growing some foods as it is too cold and wet	<ul style="list-style-type: none"> ● Seasonality ● Weather ● Growth ● Production ● Factories ● Processed ● Celebration ● Religion ● Cultural ● Regional ● National <p>design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, design, make, ideas, product, function , evaluate , planning, investigating, iterative</p>
	2	Explore foods bought in a supermarket Process of how foods can be processed in a factory	To know that certain foods are more readily available in supermarkets depending on the time of year as they may have been produced in another country To know that food can be processed in factories	
	3	Explore how foods are used in celebrations and rituals	To know that food can be used as part of celebrations and religious rituals e.g. fruit cake at weddings originally used as it is long lasting and traditionally kept for anniversaries/children's christenings To know that countries, counties and cities have specific regional and national dishes (dictated by history and location) e.g. Italy is known for pasta	
	4	Taste Challa bread and design own	To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	5	Make Challa bread	To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	6	Evaluate	To know that design is an iterative process which means it includes Investigation, Designing, Making, Evaluating and Improving products	

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<p>Electrical Systems- Using more complex switches and circuits</p> <p>Using Crumble software to programme a motorised vehicle</p>	1	Revisiting and understanding different circuits	<p>To know that simple electrical circuits and components can be used to create functional moving products e.g. car with a motor</p> <p>To know that in a series circuit, all components are connected end-to-end, forming a single path for current flow.</p> <p>To know that in a parallel circuit, all components are connected across each other, forming exactly two sets of electrically common points.</p> <p>To know that input devices are devices in which information is inputted e.g. keyboard, webcam, computer program</p> <p>To know that output devices are device in which information is outputted e.g. screen, speaker</p> <p>To know that the input device in an electrical system affects the output of the same electrical system</p>	<ul style="list-style-type: none"> • Electrical • Components • Functional • Computer • Program • Monitor • Control • series circuit • parallel circuit • input device • output device, system • flowchart <p>design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, design, make, ideas, product, function , evaluate , planning, investigating, iterative</p>
	2	Crumble software - How to programme a motor to move	To know that computers can be programmed to change directions of movement of an electrical system	
	3	Crumble software - How to programme a motor to move	To know that computers can be programmed to change directions of movement of an electrical system	
	4	Design a programmed motorised vehicle	<p>To know that designing something involves making choices to make something work.</p> <p>To know that design choices need to be reasoned, justifying how it will make the final product work better</p> <p>To know that testing products shows us if they are fit for purpose (if they work)</p> <p>To know that a design brief is a starting point for a design which states the purpose a design/product</p> <p>To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief</p> <p>To know that research is valuable during design process to form design criteria and guide design choices</p> <p>To know that technology has evolved to enable human lifestyles to become easier/ more functional</p>	
	5	Make vehicle	<p>To know that designing something involves making choices to make something work.</p> <p>To know that design choices need to be reasoned, justifying how it will make the final product work better</p> <p>To know that testing products shows us if they are fit for purpose (if they work)</p> <p>To know that a design brief is a starting point for a design which states the purpose a design/product</p> <p>To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief</p> <p>To know that research is valuable during design process to form design criteria and guide design choices</p>	

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			To know that technology has evolved to enable human lifestyles to become easier/ more functional	
	6	Evaluate	To know that design is an iterative process which means it includes Investigation, Designing, Making, Evaluating and Improving products	

*ongoing skill throughout year

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Topic	Lesson	Lesson Focus	Key Knowledge	Vocabulary
Textiles	1	Evaluate current fabric Christmas decorations on the market Draw an exploded diagram of a decoration	To know that exploded diagrams are used to show smaller details of a product To know that in exploded diagrams the representation of the finished product looks as though it has exploded outwards and individual elements of the product can be seen more clearly	<ul style="list-style-type: none"> ● Research ● Limitation ● Stitches ● Sew ● Seam ● Seam allowance ● Invisible stitch ● Overcast stitch ● Millimetres ● Exploded diagram
	2	Explore stitches and seams	To know the names of two additional sewing stitches (invisible stitch, overcast stitch) To know that a seam is where material has been sewn together To know that a seam allowance is an excess measurement of a piece of material (at the seam) To know that a seam allowance must be included when joining material to allow for material lost in joining process.	
	3	Design own fabric Christmas decoration according to design brief which includes design limitations	To know that designs often have limitations e.g. time, materials, budget which can affect design choices and criteria To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	4	Use CAD to make a pattern piece and test	To know that technology has evolved to enable human lifestyles to become easier/ more functional	

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		pattern piece by measuring in correct units	To know that CAD can assist in the textiles design process through specific computer programs e.g. to make pattern pieces/templates To know that MM is a more accurate unit of measure than CM To know that MM can be measured using a ruler	
	5	Make Christmas decoration	To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	6	Make and evaluate decoration	To know that design is an iterative process which means it includes Investigation, Designing, Making, Evaluating and Improving products	
Pulleys, gears or cams	1	Understand cams Explore working examples	To know that cams are rotating or sliding pieces in a mechanical linkage used for transferring rotary motion into linear motion To know that cams are not circular in shape, rather an irregular shaped wheel To know that cams, pulleys and gears create movement through rotation To know that cams, pulleys or gears comprise of many components, input into one component affects output of other components, this is due to all components being effectively linked together.	<ul style="list-style-type: none"> ● Cams ● Pulleys ● Gears ● Rotation ● Linear ● Linkage ● Grooved ● Rim ● Force ● Lift ● Movement ● Rotary ● Motion
	2	Understand pulleys Explore working examples	To know that rotary motion is a motion that is circular (clockwise or anticlockwise) To know that a basic pulley comprises of a wheel on a fixed axle with a groove around the rim/edges to guide a rope or cable To know that pulleys provide greater force for lifting objects To know that the more pulleys that are added to a pulley system, the less input force will be needed to produce the same output To know that cams, pulleys and gears create movement through rotation To know that cams, pulleys or gears comprise of many components, input into one component affects output of other components, this is due to all components being effectively linked together.	
	3	Understand gears Explore working examples	To know that cogs are toothed wheels which are linked by the teeth. To know that movement of one cog in a linkage will affect the other linked cogs by moving the connected teeth. To know that cams, pulleys and gears create movement through rotation	

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			To know that cams, pulleys or gears comprise of many components, input into one component affects output of other components, this is due to all components being effectively linked together.	
	4	Design fairground ride using cams, pulleys or gears	To know that designs often have limitations e.g. time, materials, budget which can affect design choices and criteria To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	5	Make fairground ride	To know that designing something involves making choices to make something work. To know that design choices need to be reasoned, justifying how it will make the final product work better To know that testing products shows us if they are fit for purpose (if they work) To know that a design brief is a starting point for a design which states the purpose a design/product To know that a design criteria is a list of attributes required of a finished product which enable it to meet the design brief To know that research is valuable during design process to form design criteria and guide design choices	
	6	Evaluate	To know that design is an iterative process which means it includes Investigation, Designing, Making, Evaluating and Improving products	
Food	1	Food groups	To know the nutritional components of a given meal (with drink) including food groups (Fat, Sugar, Protein, Carbohydrate, Vitamins and Minerals)	<ul style="list-style-type: none"> ● Recipe ● Ingredients ● Nutritional ● Adapted ● Taste ● Texture ● Aroma ● Fat ● Sugar ● Carbohydrate ● Protein ● Vitamins ● Nutrients ● Nutrition ● Healthy
	2	Understand recipes Changing recipes	To know that recipe can be followed to create a meal To know that each step of a recipe requires a cooking skill e.g. chopping, mixing, boiling etc. To know that recipes can be adapted to change the appearance, taste, texture and aroma of the finished product To know that changing recipes to cater for taste, texture and aroma is part of the design/making process	
	3	Allergies and intolerances	To know that some people have intolerances and allergies to certain types of foods To know that intolerances and allergies are not the same thing	

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			<p>To know that an intolerance is an inability of the body to process/digest certain food causing some physical symptoms e.g. rashes, stomach pain</p> <p>To know that allergies cause allergic reactions in the body which can be fatal</p>	<ul style="list-style-type: none"> • varied, gluten • dairy • allergy • intolerance • savoury • source • seasonality
	4	Write a recipe taking into account a food intolerance or dietary need		

*ongoing skill throughout year