

EYFS			
Term	Autumn	Spring	Summer
Topic and Project	<u>Topic to fit children's interests - Junk Modelling</u>	<u>Topic to fit children's interests- Boats</u>	<u>Food – Rainbow Salad (Seasons)</u>
Design/Make	<ul style="list-style-type: none"> ◦ ELG: Fine Motor Skills: Use a range of small tools, including scissors, paint brushes and cutlery. ◦ Develop fine motor skills and use a range of tools competently, safely and confidently. ◦ ELG: Creating with Materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ◦ Explore, use and refine a variety of artistic effects to express ideas and feelings. 	<ul style="list-style-type: none"> • ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary • ELG: Speaking: Offer explanations for why things might happen • Articulate their ideas and thoughts in well-formed sentences • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • ELG: The Natural World: Explore the natural world around them, making observations and drawing pictures of animals and plants • Explore the natural world around them. • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • ELG: Creating with materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 	<ul style="list-style-type: none"> ◦ ELG: Speaking: Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. ◦ Children learn new vocabulary and begin to use it to consider and discuss their choices ◦ ELG: Managing self: Manage their own basic hygiene and personal needs, including...understanding the importance of healthy food choice ◦ Know and begin to discuss things that support their overall health and wellbeing

		<ul style="list-style-type: none"> • Safely select and use (with support) a range of materials 	
Evaluate	<ul style="list-style-type: none"> ◦ ELG: Creating with Materials: Share their creations, explaining the process they have used ◦ Create collaboratively, sharing ideas, resources and skills 	<ul style="list-style-type: none"> ◦ ELG: Creating with materials: Share their creations, explaining the process they have use ◦ Verbally explain what they have created and begin to show why certain materials/techniques have been used. 	<ul style="list-style-type: none"> ◦ ELG: Creating with materials: Share their creations, explaining the process they have use ◦ Using taste and verbally discuss what you liked/did not like about your salad.
Technical knowledge	<ul style="list-style-type: none"> ◦ Building knowledge of how to use scissors safely ◦ Begin to independently select materials fit for purpose 	<ul style="list-style-type: none"> ◦ Understand why certain materials may be better than others ◦ Understand joining techniques and use these techniques with support 	<ul style="list-style-type: none"> ◦ Use tools properly, such as cutlery ◦ Consider what we need for a healthy balanced diet

Year 1			
Term	Autumn	Spring	Summer
Topic and Project	<u>From Antarctica to Africa</u> Structures - Constructing a windmill	<u>Toys</u> Textiles – Puppets	<u>Our United Kingdom</u> Mechanisms - Wheels and Axles- Create a moving vehicle
Design	<ul style="list-style-type: none"> ◦ Learn the importance of a clear design criteria, and begin to discuss as a class the design criteria for this project ◦ Including individual preferences and requirements in a design in discussion with the teacher 	<ul style="list-style-type: none"> ◦ Using a template to create a design for a puppet ◦ Explore a range of puppets/images of puppets to develop own ideas 	<ul style="list-style-type: none"> ◦ Work in a group to design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move ◦ As part of a group, create clearly labelled drawings which illustrate movement
Make	<ul style="list-style-type: none"> ◦ Make stable structures (with support where necessary) using a variety of materials ◦ As a class, learn how to turn 2D nets into 3D structures ◦ Following instructions to cut and assemble the supporting structure of a windmill ◦ Making functioning turbines and axles 	<ul style="list-style-type: none"> ◦ Cutting fabric neatly with scissors ◦ Using joining methods to decorate a puppet ◦ In discussion with the teacher, sequence steps for construction 	<ul style="list-style-type: none"> ◦ Select a range of tools and equipment in discussion with the teacher ◦ Work as a group to adapt mechanisms

<p>Evaluate</p>	<ul style="list-style-type: none"> ◦ Existing products – Looking at images, identify what they like/dislike about existing products ◦ Begin to discuss with teacher/peers what went wrong/what could be changed. 	<ul style="list-style-type: none"> ◦ Existing products – Looking at images/puppets consider materials used ◦ Reflecting on a finished product, verbally explaining likes and dislikes 	<ul style="list-style-type: none"> ◦ Existing products - Identifying existing products looking at how they work/how they are used ◦ Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ Understand that the shape of materials can be changed to improve the strength and stiffness of structures ◦ To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses) ◦ To understand why axles are used in structures 	<ul style="list-style-type: none"> ◦ Understand that 'joining technique' means connecting two pieces of material together ◦ To know that there are various temporary methods of joining fabric by using staples. glue or pins ◦ To understand that a template (or fabric pattern) is used to cut out the same shape multiple times ◦ To know that drawing a design idea is useful to see how an idea will look 	<ul style="list-style-type: none"> ◦ Understand wheels are round to rotate/move ◦ To understand that for a wheel to move it must be attached to a rotating axle ◦ To know that an axle moves within an axle holder fixed to the vehicle or toy

Year 2

Term	Autumn	Spring	Summer
Topic and Project	<u>The Great Fire of London/Nantwich</u> Textiles – Create a pouch to carry belongings.	<u>Famous People</u> Structures – Baby Bears’ Chair (link to famous bears e.g. Paddington)	<u>Coastlines</u> Mechanisms – Make a moving Sea Monster
Design	<ul style="list-style-type: none"> ◦ Designing a pouch using ICT – this could be in the form of a Purple Mash paint project. ◦ Clearly explaining the purpose/user of final product ◦ Explain how the product is fit for purpose. 	<ul style="list-style-type: none"> ◦ Generating and communicating ideas using drawing/sketching ◦ Learning about different types of structures explaining what the structures are and their purpose ◦ 	<ul style="list-style-type: none"> ◦ Creating a class design criterion for a moving sea monster ◦ Designing and label a moving sea monster on the computer/tablet (purple mash) for a specific audience in accordance with a design criterion
Make	<ul style="list-style-type: none"> ◦ Independently select and cut fabrics for sewing ◦ Decorating a pouch using a variety of materials selected independently ◦ Threading a needle ◦ pinning and cutting fabric using a template (with support) ◦ Discuss and suggest steps in making process 	<ul style="list-style-type: none"> ◦ Making a structure according to design criteria ◦ Creating joints and structures from a variety of materials ◦ Build a strong and stiff structure by folding paper 	<ul style="list-style-type: none"> ◦ Making linkages using card for levers and split pins for pivots ◦ Experimenting with linkages adjusting the widths, lengths and thicknesses of card used ◦ Independently cutting and assembling components neatly
Evaluate	<ul style="list-style-type: none"> ◦ Existing products – identify what they like/dislike about similar products ◦ Evaluating peers work, discussing what they like and why 	<ul style="list-style-type: none"> ◦ Existing products – Looking at real chairs/images – identify materials ◦ Exploring the features of structures ◦ Testing the strength of own structures and identifying weakest part 	<ul style="list-style-type: none"> ◦ Evaluating own designs against design criteria ◦ Using peer feedback to modify a final design

	<ul style="list-style-type: none"> ◦ Discussing as a class, the success of their stitching against the success criteria 	<ul style="list-style-type: none"> ◦ Evaluating the strength, stiffness and stability of own structure 	
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ To know that sewing is a method of joining fabric ◦ To know that different stitches can be used when sewing ◦ To understand the importance of tying a knot after sewing the final stitch 	<ul style="list-style-type: none"> ◦ To understand how structures are stable ◦ To understand that the shape of a structure affects its strength ◦ To understand how to improve strength and stiffness ◦ To know that a structure is something which has been formed or made from parts ◦ To understand a 'stable', 'strong' and 'stiff' structure 	<ul style="list-style-type: none"> ◦ To know that mechanisms are a collection of moving parts that work together to produce movement ◦ To know that there is always an input (energy) and output (movement) in a mechanism ◦ To know that a lever is something that turns on a pivot ◦ To know that a linkage mechanism is made up of a series of levers

Year 3

Term	Autumn	Spring	Summer
Topic and Project	<u>Animals</u> Mechanical systems – pneumatic toy animal	<u>Stone Age</u> Structures – constructing a castle	<u>Egyptians</u> Textiles – Make an Egyptian collar
Design	<ul style="list-style-type: none"> ◦ Develop a design criterion based on a design brief ◦ Generating ideas using sketches and diagrams ◦ Use different drawings to explain things clearly – identifying key materials to ensure their product works for its intended purpose. 	<ul style="list-style-type: none"> ◦ Design a Stone Age castle with key features from this time period and use nets to create prototypes ◦ Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours ◦ Designing and/or decorating a castle tower on CAD software 	<ul style="list-style-type: none"> ◦ Designing and making a template from an existing collar ◦ Understand the purpose of an Egyptian collar and use this to inform design criterion. ◦ Individually create a design criteria and apply this when designing/making product
Make	<ul style="list-style-type: none"> ◦ Creating a pneumatic system and build a housing for the system ◦ Using syringes and balloons to create different types of pneumatic systems ◦ Selecting materials due to their functional and aesthetic characteristics ◦ Manipulating materials to create different effects by cutting, creasing, folding, weaving 	<ul style="list-style-type: none"> ◦ Constructing a range of 3D geometric shapes using nets ◦ Making facades from a range of recycled materials ◦ Use a range of tools to assemble 3D shapes ◦ Use a range of geometric shape structures to create a castle 	<ul style="list-style-type: none"> ◦ Create and follow a design criterion ◦ Use a range of tools, such as fabric scissors ◦ Thread needles and tie knots with greater independence ◦ Sew cross stitch ◦ Decorating fabric using appliqué
Evaluate	<ul style="list-style-type: none"> ◦ Existing products – analyse a range of existing products (physical products or videos) ◦ Look at the work of John Boyd Dunlop and his pneumatic invention 	<ul style="list-style-type: none"> ◦ Existing products – Look at images of castles/Stone Age castles to inform design ◦ Self and peer evaluate finished designed based on the to the original design 	<ul style="list-style-type: none"> ◦ Existing products – Look at images of Egyptian collars considering materials used considering recyclable materials

	<ul style="list-style-type: none"> ◦ Peer evaluate each-others work and make improvements based on this ◦ Test and modify finished product. 	<ul style="list-style-type: none"> ◦ Suggesting points for modification of the individual designs 	<ul style="list-style-type: none"> ◦ Evaluating an end product and suggesting other ways in which to create similar items
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ Understand how pneumatic systems work ◦ Recognise that pneumatic systems operate by drawing in, releasing and compressing air 	<ul style="list-style-type: none"> ◦ Recognise that wide and flat based objects are more stable ◦ Understand the importance of strength and stiffness in structures and techniques to make own structure stronger/stiffer 	<ul style="list-style-type: none"> ◦ Understand that applique is a way of mending or decorating a textile by applying smaller pieces of fabric ◦ Understand that two edges of fabric joined together is known as a seam

Year 4

Term	Autumn	Spring	Summer
Topic and Project	<u>Settlements</u> Mechanical systems – Make a slingshot car	<u>Extreme Earth – What makes the Earth Angry?</u> Electricity – Create a torch	<u>Marvellous Mayans</u> Textiles – Fastenings – Create a sleeve for a book about the Mayans
Design	<ul style="list-style-type: none"> ◦ Design a shape that reduces air resistance ◦ Draw a net to create a structure ◦ Personalise a design 	<ul style="list-style-type: none"> ◦ Designing a torch on based on a success criterion ◦ considering the target audience and create an individual design and success criterion ◦ Show an understanding of how their product works and identify the key components. 	<ul style="list-style-type: none"> ◦ Writing design criteria for a product, showing why decisions have been made ◦ Design a book sleeve for a Children’s book about the Mayans– consider target audience in design process (chn could interview chn lower down the school to inform design criterion)
Make	<ul style="list-style-type: none"> ◦ Measure, mark, cut and assemble with increasing accuracy ◦ Make a model based on a chosen design 	<ul style="list-style-type: none"> ◦ Making a torch with a working electrical circuit and switch and show an understanding of the steps of the making process ◦ Independently select and use appropriate equipment to cut and attach materials ◦ Assemble a torch according to the design and success criteria 	<ul style="list-style-type: none"> ◦ Make and test a paper template with accuracy and in keeping with the design criteria ◦ Measure, mark and cut fabric using a paper template ◦ In discussion with peers/teacher, select a stitch style to join fabric, working neatly sewing small neat stitches ◦ Incorporate fastening to a design

<p>Evaluate</p>	<ul style="list-style-type: none"> ◦ Evaluate the speed of a final product looking at shape and accuracy of workmanship and its impact on speed 	<ul style="list-style-type: none"> ◦ Existing products – Evaluate electrical products and consider how well they have been designed/made and how they achieve a purpose ◦ Existing products - Look at how significant individuals have made an impact in Design and Technology ◦ Test and evaluate the success of a final product against design criterion and identify what is the same/different in comparison to original design. 	<ul style="list-style-type: none"> ◦ Testing and evaluating an end product against the original design criteria ◦ Suggesting modifications for improvement ◦ Verbally discuss the advantages and disadvantages of different fastening types
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ To understand that all moving things have kinetic energy ◦ To understand that kinetic energy is the energy that something (object/person) has by being in motion ◦ To know that air resistance is the level of drag on an object as it is forced through the air ◦ To understand that the shape of a moving object will affect how it moves due to air resistance. 	<ul style="list-style-type: none"> ◦ Define electrical conductors/insulators ◦ Understand that a battery contains stored electricity that can be used to power products ◦ Understand the importance of an electrical circuit being complete ◦ Understand that switch can complete/break a circuit 	<ul style="list-style-type: none"> ◦ Understand what a fastening is e.g. a zipper, toggle, button, press stud and velcro ◦ Understand the purpose of different fastening types ◦ Understand that a prototype of their design is useful for checking ideas/proportions

Year 5

Term	Autumn	Spring	Summer
Topic and Project	<u>Anglo Saxons</u> Structures – Create a Bridge	<u>Explorers</u> Mechanical systems – Create a pop-up book based on a familiar story	<u>One World</u> Electrical systems – Doodlers, Create a Doodler for a friend in your class.
Design	<ul style="list-style-type: none"> ◦ Designing a stable structure showing tools/materials used to support weight ◦ Create frame structure with focus on triangulation 	<ul style="list-style-type: none"> ◦ Design a pop-up book which uses a mixture of structures and mechanisms ◦ Use interviews/surveys/questionnaires to determine the requirements of product – chn could speak to Year 1 children as part of the design process ◦ Use ICT to design product ◦ Naming each mechanism, input and output accurately as part of the design process 	<ul style="list-style-type: none"> ◦ Identify what could be changed on existing products explaining how these would alter the form and function of the product ◦ Develop design criteria based on investigating existing products (through images if needed) ◦ Clarify target user when creating design criterion
Make	<ul style="list-style-type: none"> ◦ Make a range of different shaped beam bridges and triangles to create truss bridges ◦ Build a wooden bridge structure ◦ Independently measure and mark wood accurately ◦ Selecting appropriate tools and equipment ◦ Using the correct techniques to saws safely ◦ Identify where a structure needs reinforcement 	<ul style="list-style-type: none"> ◦ Follow a design brief to make a pop-up book, focussing on neatness and accuracy ◦ Make mechanisms and/or structures using sliders, pivots and folds to produce movement ◦ Use layers and spacers to hide the workings of mechanical parts 	<ul style="list-style-type: none"> ◦ Make a functional series circuit, incorporating a motor ◦ Construct a product with consideration for the design criteria ◦ Break down the construction process into steps so that others can make the product

<p>Evaluate</p>	<ul style="list-style-type: none"> ◦ Adapt and improve own bridge structure by identifying points of weakness and make necessary adjustments ◦ Suggest points of improvement for own bridge and the bridges of others 	<ul style="list-style-type: none"> ◦ Evaluate own work and the work of others ◦ Suggest points for improvement and make necessary changes. 	<ul style="list-style-type: none"> ◦ Existing products - Carry out a product analysis to look at the purpose of a product along with its strengths/weaknesses ◦ Existing products - Analyse whether changes in configuration positively or negatively affect an existing product ◦ Peer evaluate a set of instructions to build a product
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ Find different ways to reinforce structures ◦ Understand how triangles can be used to reinforce bridges ◦ Understand that properties are words that describe the form and function of materials ◦ Understand how to choose materials based on their properties ◦ To understand the difference between arch, beam, truss and suspension bridges ◦ To understand how to carry and use a saw safely 	<ul style="list-style-type: none"> ◦ Understand which mechanisms control movement ◦ To understand how to use sliders, pivots and folds to create paper-based mechanisms ◦ To know that a design brief is a description of what I am going to design and make ◦ To know that designers often want to hide mechanisms to make a product more aesthetically pleasing 	<ul style="list-style-type: none"> ◦ To know series circuits only have one direction for the electricity to flow ◦ To know when there is a break in a series circuit, all components turn off ◦ To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin ◦ To know a motorised product is one which uses a motor to function

Year 6			
Term	Autumn 1	Summer	Summer
Topic and Project	Food Week – Come Dine with me!	<u>Structure – Playgrounds</u>	Titanic Textiles – Waistcoats
Design	<ul style="list-style-type: none"> ◦ Write a recipe, explaining the key steps, method and ingredients ◦ Include facts and drawings from research undertaken 	<ul style="list-style-type: none"> ◦ Design a playground featuring a variety of different structures ◦ Consider effective and ineffective designs 	<ul style="list-style-type: none"> ◦ Designing a waistcoat in accordance to design criteria to fit Titanic era ◦ Annotate designs as appropriate
Make	<ul style="list-style-type: none"> ◦ Follow a recipe and include the correct quantities of each ingredient ◦ Adapt a recipe based on research ◦ Work to a given timescale ◦ Work safely and hygienically with independence 	<ul style="list-style-type: none"> ◦ Build a range of play apparatus structures drawing upon new and prior knowledge of structures ◦ Measure, mark and cut ◦ Use a range of materials to reinforce and add decoration to structures 	<ul style="list-style-type: none"> ◦ Use a template when pinning panels onto fabric ◦ Mark and cut fabric accurately, in accordance with a design ◦ Sew a running stitch, making small, neat stitches and following the edge ◦ Tie strong knots ◦ Decorate a waistcoat - attaching objects using thread and adding a secure fastening ◦ Learn different decorative stitches

<p>Evaluate</p>	<ul style="list-style-type: none"> ◦ Evaluate a recipe, considering: taste, smell, texture and origin of the food group ◦ Taste test and scoring final products ◦ Evaluate how to minimise cross contamination 	<ul style="list-style-type: none"> ◦ Improve a design plan based on peer evaluation ◦ Test and adapt a design to improve it as it is developed and justify why changes have been made ◦ Identify what makes a successful structure 	<ul style="list-style-type: none"> ◦ Evaluate work continually as it is created
<p>Technical knowledge</p>	<ul style="list-style-type: none"> ◦ To know that 'flavour' is how a food or drink tastes ◦ To know that many countries have 'national dishes' which are recipes associated with that country ◦ To know that 'processed food' means food that has been put through multiple changes in a factory ◦ To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides ◦ To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork) 	<ul style="list-style-type: none"> ◦ To know that structures can be strengthened by manipulating materials and shapes 	<ul style="list-style-type: none"> ◦ Understand that it is important to design clothing with the client/ target customer in mind ◦ To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric

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