Design Technology

Design and Technology prepares children to deal with tomorrow's rapidly changing world. It encourages children to become independent, creative problem solvers and thinkers. It enables them to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems. Through the study of Design and Technology, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industry. This allows them to reflect on and evaluate past and present technology, its uses and impacts. We encourage Year groups to use Design and Technology in a cross curricular approach, covering specific areas in History and Geography alongside skills progression in building, making, manipulating and construction skills.
In addition, each year group will incorporate units on food and cooking.
Children learn to build and apply a repertoire of knowledge and careful evaluation and discussion of works helps to ensure all designs are valued and learned from.

The Key objectives in Design and Technology are:

- Products are to be made for a purpose.
- Individuality should be ensured in children's design and construction of products.
- Delivery of the two strands: Designing and Making and Cooking and Nutrition.
- More emphasis to be given on creating 'innovative' products in KS2.
- Teaching the importance of making on-going changes and improvements during making stages.
- Looking into seasonality of ingredients and how they are grown, caught or reared.
- The introduction of computing and coding of products in KS2.
- Researching key events and individual designers in the History of Technology in KS2.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**30 -50 Month Statements (Expressive Arts and Design)** ● **Understands that they can use lines to enclose a space, and then begin to use these shapes to represent objects.** ● **Beginning to be interested in and describe the texture of things.** ● **Uses various construction materials.** ● **Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.** ● **Joins construction pieces together to build and balance.** ● **Realises tools can be used for a purpose** Provision -Junk Modelling -Planning, doing and reviewing -Exploring different textures and materials. -Constructing: Learning to construct with a purpose in mind, some children use scissors, glue, string and a hole punch to make things. -Structure and joins construction materials. -Using a range of tools eg. in forest school we learn how to use peelers safely. -Cooking techniques: e,g, take turns stirring the mixture for a cake and then watch with fascination as it rises while cooking. They will practise stirring, mixing, pouring and blending ingredients during cookery activities. -Exploration: Children will dismantle things and learn about how everyday objects work. For example dismantling things and discovering how to put it back together and the materials different parts are made of.					
Reception	**MARVELLOUS ME** <u>Model making:</u> **Expressive Arts and Design** - Make models using a range of	**LET'S CELEBRATE** <u>Scissor skills:</u> **Physical Development** - Use tools and equipment in the	**ON THE MOVE** <u>Vehicle making</u> **Expressive Arts and Design** - Explore real life examples of vehicles (topic	**THE GRUFFALO** <u>Habitat making:</u> **Expressive Arts and Design** - Design animal habitats using simple drawings.	**IN MY LITTLE GARDEN** <u>Planting sessions and trip to allotments:</u> **Understanding the World**	**MINIBEASTS** <u>Clay minibeasts:</u> **Expressive Arts and Design** - Use clay to make minibeast

	junk materials. - Choose and select materials. - Adapt, improve and mend models. <u>Exploring musical instruments</u> **Expressive Arts and Design** - Explore a range of musical instruments. - Understand how to use and handle different instruments. <u>ICT activities</u> **Understanding the World** - Use IWB, ipads, printer, CD player. - Gain an understanding into different technologies and mechanisms.	classroom. - Gain an understanding about how to use equipment and tools safely.	hook). - Look closely at the different parts and mechanisms in each vehicle. - Draw vehicle designs using the Paint programme. - Make model egcles using a range of different materials. - Think about how to attach and put materials together. - Discuss what we like about our model vehicles. <u>Exploring ICT equipment:</u> **Understanding the World** - Explore different technologies and mechanisms through role play.	- Create and make animal habitats using a range of materials (junk modelling). - Select and choose appropriate materials. - Think about how to put materials together to create habitat. - Discuss what we like about our habitat models. <u>Cooking (Gruffalo crumble):</u> **Health and Self Care** - Discuss healthy food choices and balanced diet. - Discuss where different foods come from. <u>Beebots:</u> **Understanding the World** - Carry out simple	- First-hand experience of planting, gardening and growing. - Understand what a plant needs to grow. - Discuss different foods and where they come from. - Develop an understanding about where our food comes from and seasonality. <u>Beanstalk making:</u> **Expressive Arts and Design** - Create a class beanstalk using mixed media. - Select from a range of different materials. <u>Healthy choices:</u> **Health and Self Care** - Discuss healthy	models. - Learn how to handle clay and explore different techniques (e.g. shaping, moulding, smoothing). - Finish minibeasts with extra details. - Discuss what we like about our habitat models. <u>Costume making:</u> **Expressive Arts and Design** - Make costumes for the bug ball. - Use and select different materials and textiles.

				programming tasks using Beebots. - Gain an understanding about programming and technology.	food choices and balanced diet. - Discuss where different foods come from.	
Continuous Provision	- Boxes/tubes/tubs etc to make models - scissors , glue sticks, tape and string for joining and assembling - Enhancement of provision with items such as art straws/split pins etc - Malleable materials such as clay and playdough with moulding, mixing and shaping tools - Messy play and cooking opportunities - Block play and other construction toys such as Duplo, lego and mobilo - Large loose parts construction outside - Old ICT equipment eg. keyboards and phones for exploration of technology - Access to IWB, iPads, beebots, camera's and cd player - Gardening - digging, planting and growing opportunities					
NC Skills **Development Matters Statements**	**30-50 months** **Expressive Arts and Design** -Understands that they can use lines to enclose a space, and then begin to use these shapes to represent objects. -Beginning to be interested in and describe the texture of things. -Uses various construction materials. -Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces. -Joins construction pieces together to build and balance. -Realises tools can be used for a purpose **Understanding the World - Technology** •Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. •Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.					

	•Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. •Knows that information can be retrieved from computers **40-60 months** **<u>Expressive Arts and Design</u>** -Manipulates materials to achieve a planned effect. -Uses simple tools and techniques competently and appropriately. -Selects tools and techniques needed to shape, assemble and join materials they are using. -Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. **<u>Understanding the World - Technology</u>** •Completes a simple program on a computer. •Uses ICT hardware to interact with age-appropriate computer software.		
Year 1	**EXPLORERS** <u>Sculptures:</u> - Explore sculptures by Andy Goldsworthy. - Choose and select a range of natural materials (from outside) to create sculptures. - Consider how to arrange and put sculptures together, as well as how to strengthen and reinforce them. - <u>Pop-up Christmas cards:</u>	**OUR PLANET** <u>Junk modelling:</u> - Explore a range of musical instruments through observation and discussion. - Choose and select from a range of junk materials through which to make musical instruments. - Make musical instruments using different tools/equipment (e.g. scissors) and selecting appropriate materials.	**FITZ AND WILL** <u>Making waterproof coats for a cat (link to Science materials)</u> ● Research and consider materials and design features that will be needed to make a functional coat. ● Develop ideas through discussion and creating a mock-up. Create design criteria. ● Select tools and equipment that will be needed to create a

	- Look at and explore examples of pop-up Christmas cards. - Discuss and plan how to make cards. - Discuss what materials and tools/equipment will be needed. - Make Christmas cards using appropriate tools accurately (e.g. scissors, circular templates) and selecting the necessary materials (e.g. card, glue, pens etc). - Follow step by step instructions carefully in order to make pop-up cards. - Evaluation of finished cards. <u>Diwali lamps:</u> - Explore examples of real-life diwali lamps. - Make a diwali lamp using clay and exploring different techniques (e.g. shaping, moulding, smoothing. - Finish lamps using paint and different patterns.	- Consider how to construct and put junk materials together to make instruments. - Use finished musical instruments in performance. <u>Biodegradable plant pots:</u> - Use newspaper, and other materials, to make plant pots. - Consider how to strengthen and reinforce pots to make them fit for purpose.	successful model. ● Create models. ● Evaluate each other's coats against the design criteria. <u>Graduation Hats</u> ● Consider design criteria for a purposeful, appealing and functional hat. ● Explore and evaluate different materials for making hats. ● Use information technology to generate and develop their ideas. ● Create planned examples. ● Select from tools and materials, according to their characteristics, to create their hat.
Skills	**Design:** ● Have my own ideas ● Explain what I want my	**Design:** ● Have my own ideas ● Explain what I want my product	**Design:** ● Have my own ideas ● Explain what I want my product

	product to do and how it will work. ● Use pictures and words to plan and begin to use models. **Make:** ● Explain what I am making and why, considering my next steps. ● Select tools and equipment to cut, join and finish, and explain choices. ● Measure, mark out, cut and shape with support. ● Choose suitable materials and explain choices. ● Work in a safe manner. **Evaluate:** ● Talk about my work, linking it to what I was asked to do. **Technical Knowledge:** ● Begin to measure and join materials, with some support. ● Describe differences in materials.	to do and how it will work. ● Use pictures and words to plan and begin to use models. ● Design a product for myself following design criteria. **Make:** ● Explain what I am making and why, considering my next steps. ● Select tools and equipment to cut, join and finish, and explain choices. ● Measure, mark out, cut and shape with support. ● Choose suitable materials and explain choices. ● Try to use finishing techniques to make my product look good. ● Work in a safe manner. **Evaluate:** ● Talk about existing products, considering their use, materials, how they work, their audience and where they might be used. **Technical Knowledge**: ● Begin to measure and join materials, with some support. ● Describe differences in materials.	to do and how it will work. ● Use pictures and words to plan and begin to use models. ● Design a product for myself following design criteria. ● Research similar existing products. **Make**: ● Explain what I am making and why, considering my next steps. ● Select tools and equipment to cut, join and finish, and explain choices. ● Measure, mark out, cut and shape with support. ● Choose suitable materials and explain choices. ● Try to use finishing techniques to make my product look good. ● Work in a safe manner. **Evaluate**: ● Talk about existing products, considering their use, materials, how they work, their audience and where they might be used. ● Talk about things other people have made and how products could be made better. **Technical Knowledge**:

		• Suggest ways to make the product stronger or more stable.		• Select, measure, cut and join different materials to make a product with some support.
Year 2	**STORIES PEOPLE TELL** <u>Animal habitat dioramas:</u> - Design and plan dioramas of different animal habitats through drawing and sketching. - Make diorama, selecting and choosing appropriate materials and tools (e.g. shoeboxes, card, cardboard, glue, scissors, paints, brushes). - Construct and attach 3D objects to go inside dioramas. - Experiment using different methods to attach objects inside dioramas (e.g. sticking, hanging). - Evaluation of finished dioramas. <u>'Perfect world' models:</u> **Cross curricular: English/PSHE**	**GREAT FIRE OF LONDON** <u>Tudor houses:</u> - Explore and investigate examples of real-life Tudor houses. Discuss and name features. - Plan Tudor house designs through annotated drawings, thinking about the specific steps/instructions to make this and the materials needed. - Construct Tudor houses selecting appropriate	**WHERE IN THE WORLD?** <u>Food tasting:</u> **Hook day** - Taste different foods/dishes from around the world (e.g. Australian fairy bread, Sri Lankan ceylon tea, Mexican corn/wheat wraps, Italian gelato). - Evaluate, discuss and compare the different tastes.	**GIANTS, BEANSTALKS AND CASTLES** <u>Medieval shields</u> - Explore and investigate examples of shields and coats of armour. - Plan shield designs through annotated drawings, thinking about the materials needed. - Make shields selecting appropriate materials. - Finish and add final detailing using paint. - Evaluate and discuss finished shields.

	(based on "Here We Are" book) - Plan and discuss how to make 'perfect worlds' using papier mache, thinking about necessary materials, size, shape and colours. - Select from different materials and tools in order to make papier mache worlds (e.g.paper, newspaper, PVA glue, paint, brushes). - Finish and add final details using paints. <u>Food and nutrition:</u> **Cross-curricular: Science** - Unit of work looking at nutrition and the importance of a balanced, healthy diet. - Identify and understand different food groups, as well as healthy v. unhealthy foods. - Write recipes for healthy smoothies. - Prepare and taste smoothies.	materials and using planning to guide. - Finish and add final detailing using paint. <u>Baking bread rolls:</u> **Cross-curricular: Hook day** - Follow a recipe to make bread rolls. - Taste bread and evaluate the final product. <u>Paper bridges:</u> **Cross-curricular: Science** - Design a paper bridge using drawings, considering how to make it strong enough to hold a toy car. - Make paper bridges, testing out different		

		materials and techniques to strengthen. - Test and evaluate the strength of paper bridges.		
Skills	**Design:** ● Have my own ideas and plan what to do next. ● Explain what I want to do and how I may do it. ● Describe design using pictures, words, models and diagrams. ● Choose the best tools and materials and explain these choices. **Make:** ● Explain what I am making and how it fits the purpose. ● Join materials and components together in different ways. ● Measure, mark out, cut and shape materials and components, with support. ● Choose suitable materials and explain choices depending on circumstances.	**Design:** ● Have my own ideas and plan what to do next. ● Explain what I want to do and how I may do it. ● Explain the purpose of my creation, how it will work and how it will be suitable for the user. ● Describe design using pictures, words, models and diagrams. ● Choose the best tools and materials and explain these choices. ● Use knowledge and learning (including through ICT) about existing examples to produce ideas. **Make:** ● Explain what I am making and how it fits the purpose. ● Join materials and components together in different ways.		**Design:** ● Have my own ideas and plan what to do next. ● Explain what I want to do and how I may do it. ● Explain the purpose of my creation, how it will work and how it will be suitable for the user. ● Describe design using pictures, words, models and diagrams. ● Choose the best tools and materials and explain these choices. ● Use knowledge and learning (including through ICT) about existing examples to produce ideas. **Make:** ● Explain what I am making and how it fits the purpose. ● Join materials and components together in different ways.

	• Work safely and hygienically. **Evaluate:** • Describe what went well, thinking about design criteria. • Talk about what I would do differently if I were to do it again and why. **Technical Knowledge:** • Measure materials. • Describe some different characteristics of materials. • Join materials in different ways. • Use joining or folding to make structures stronger. • Explain hygiene and how to keep a hygienic kitchen. • Describe properties of ingredients and the importance of a varied diet. • Describe differences between some food groups. • Say where food comes from. • Draw the eat well plate and explain that there are different groups of food. • Describe the concept of 'five a day'.	• Describe which tools I'm using and why. • Measure, mark out, cut and shape materials and components, with support. • Choose suitable materials and explain choices depending on circumstances. • Work safely and hygienically. **Evaluate:** • Describe what went well, thinking about design criteria. • Talk about existing products considering use, materials, how they work, audience, where they might be used and express a personal opinion. • Talk about what I would do differently if I were to do it again and why. **Technical Knowledge:** • Measure materials. • Describe some different characteristics of materials. • Join materials in different ways. • Use joining or folding to make structures stronger. • Use own ideas to try and make product stronger. • Wash hands and clean surfaces as needed.	• Describe which tools I'm using and why. • Measure, mark out, cut and shape materials and components, with support. • Choose suitable materials and explain choices depending on circumstances. • Use finishing techniques to make the product look good. • Work safely and hygienically. **Evaluate:** • Describe what went well, thinking about design criteria. • Talk about existing products considering use, materials, how they work, audience, where they might be used and express a personal opinion. • Talk about what I would do differently if I were to do it again and why. **Technical Knowledge:** • Measure materials. • Describe some different characteristics of materials. • Join materials in different ways. • Use joining or folding to make structures stronger. • Use own ideas to try and make product stronger.

		• Work with food with increasing confidence. .	
Year 3	**AWESOME ANCIENT BRITAIN** <u>Iron Age roundhouses:</u> - Explore and investigate real-life examples of Iron Age roundhouses considering design and materials. - Create initial designs for roundhouses using planning proformas and annotated drawings. - Think about and record specific requirements for roundhouses(design, shape, strength, aesthetic qualities) - Make roundhouses using different materials (e.g. cardboard,tissue, newspaper, glue, tape) - Consider how to strengthen the construction of the design. - Consider construction elements of the roundhouse, such as attaching the handle securely. - Finish roundhouse through the use of paint and extra	**ANCIENT EGYPT** <u>Egyptian canopic jars:</u> - Explore and investigate real-life examples of Egyptian canopic jars considering design and materials. - Design canopic jars considering materials and aesthetic aspects (e.g. colour, engravings, pattern and symmetry). - Make canopic jars using different materials (eg clay). - Consider how to embellish and add detail to the design (through use of paint, scoring etc). - Evaluate finished canopic jars. <u>Egyptian meal</u> - Discuss different foods and ingredients available to Egyptians. - Discuss the seasonality and source of different foods, as well what makes a healthy and	**ACTIVE PLANET/OUR ISLAND** <u>Design and sew a soft toy</u> - Design a soft toy through detailed drawing. - Consider several points when designing and planning such as: necessary textiles and fabrics, aesthetic aspects (patterns), how fabric will be attached together and proposed audience (who will play with the cat). - Make toys - Evaluation of finished toys. <u>Mod-roc volcanoes:</u> - Design and build a mod-roc exploding volcano

	detailing. - Evaluate finished roundhouses. <u>Pop-Up Books</u> **Cross-curricular: English** ● Use research and develop design criteria for a pop-up book, looking at different ways to create the effect, ● Investigate and analyse existing products. ● Consider materials and methods that would help create a strong book. ● Evaluate their pop-up book against their own design criteria and consider the views of others to improve their work. <u>Shadow puppets:</u> **Cross-curricular: Science** - Make shadows puppets using templates. - Opportunities to explore and experiment with shadow puppets in order to work out how they work.	varied diet. - Plan and create an Egyptian meal thinking about healthy, balanced food choices. <u>Prop and set making</u> - Make props and sets for Year LKS2 Performance. - Select and choose appropriate materials. - Consider construction and how to reinforce and stiffen props to ensure they are effective, long-lasting and fit for purpose.	
Skills	**Design:**	**Design:** .	**Design:** .

	• Follow a given design criteria. • Have at least one idea how to create a product. • Create a plan which shows order, equipment and tools. • Describe design using an accurately labelled sketch and words. • Explain how a product will work. • Make a prototype. **Make:** • Select suitable tools and equipment and begin to use them accurately. • Select appropriate materials, fit for purpose. • Work through the plan in order. • Begin to measure, mark out, cut and shape materials and components with some accuracy. **Evaluate:** • Look at the design criteria whilst designing and making. • Use the design criteria to evaluate the finished product. • Learn about some designers of important products. **Technical Knowledge:**	• Begin to research the needs of a product. • Show that design meets a range of requirements. • Describe design using an accurately labelled sketch and words. • Make design decisions. **Make:** • Select appropriate materials, fit for purpose. • Work through the plan in order. • Consider how good the product will be. • Begin to assemble, join and combine materials and components with some accuracy. • Begin to apply a range of finishing techniques with some accuracy. **Evaluate:** • Say what I would change to make design better. • Begin to evaluate work, considering how well they have been made and whether they are fit for purpose.	• Begin to research the needs of a product. • Describe the purpose of a product. • Show that design meets a range of requirements. • Describe design using an accurately labelled sketch and words. • Make design decisions. **Make:** • Select appropriate materials, fit for purpose. • Select suitable tools and equipment, explain those choices and begin to use them accurately. • Work through the plan in order. • Consider how good the product will be. • Begin to measure, mark out, cut and shape materials with some accuracy. • Begin to assemble, join and combine materials and components with some accuracy. • Begin to apply a range of finishing techniques with some accuracy. **Evaluate:** • Say what I would change to

	• Use appropriate materials, • Work accurately to make cuts. • Join materials. • Begin to make strong structures.	**Technical Knowledge:** • Use appropriate materials, • Work accurately to make cuts and holes. • Join materials. • Begin to make strong structures. • Carefully select ingredients and use equipment safely. • Begin to understand that food comes from the UK and the wider world. • Describe how a healthy diet needs a balance of food and drink, and is needed for active bodies. • Prepare and cook some food safely and hygienically. • Begin to use techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	make the design better. • Begin to evaluate existing products, considering how well they have been made, whether they are fit for purpose and the materials that have been used. • Begin to understand by whom, when and where products are designed. **Technical Knowledge:** • Use appropriate materials, • Work accurately to make cuts and holes. • Join textiles in different ways and explain this. • Explains choices of textiles, considering appearance and functionality. • Understand that a simple fabric shape can be used to make a 3D textiles structure. • Begin to make strong structures.
Year 4	**ANCIENT GREECE/MEDITERRANEAN** <u>Persephone Figures:</u> - Design a clay figure through annotated sketches and drawings.	**ANGLO-SAXONS** <u>Anglo-Saxon brooches:</u> - Explore a range of Anglo-Saxon arts and crafts, with a specific focus on the patterns and designs of	**RAVISHING RIVERS** <u>Dioramas:</u> - Designing a diorama (based on a scene from Barnaby Brocket book) using annotated sketches and drawings.

	- Make a figure using clay and exploring different techniques (e.g. shaping, moulding, smoothing). - Finish figure through extra detailing. - Evaluation of finished figure. <u>Greek feast:</u> **Cross-curricular: Topic day** - Taste different foods/dishes from Greece during Greek Day topic celebration. - Evaluate, discuss and compare the different tastes. - <u>Greek temples:</u> **Homework project** - Design and make a Greek temple. - Choose and select appropriate materials. - Consider construction elements such as reinforcing, strengthening and attaching parts.	brooches. - Design an Anglo-Saxon brooch through exploration of patterns and detailed, annotated drawings. - Use and choose a range of materials through which to make brooches (e.g. cardboard, paper, glue, string, tin-foil, split pins). - Consider how to attach brooches to clothing and ensure they are strengthened and reinforced. - Evaluation of finished brooches. <u>Anglo-Saxon lyres:</u> **Cross-curricular: Music** - Explore examples of real-life Anglo-Saxon lyres. - Choose and select appropriate materials and tools to make lyre (e.g. cardboard, shoe box, glue, scissors, elastic bands) - Consider how to put elements of lyre together. <u>Anglo-Saxon Weaving</u> **Cross-curricular: History** - Use different techniques to	- Make dioramas, selecting and choosing the most appropriate materials (e.g cardboard, paper, glue, string, textiles). - Consider how to construct, strengthen and reinforce their dioramas and how to attach key elements of their design. - Consider the use of some mechanical systems (e.g. pulleys). - Evaluation of final product. <u>Irish soda bread:</u> **Cross curricular: English** (linked to instruction, recipe writing) - Follow recipe to make Irish soda bread. - Taste bread and evaluate the final product. <u>Pizza making:</u> **Hook day** - Follow a recipe to make pitta pizzas. - Discuss different elements and ingredients. - Taste pizzas and evaluate the final product. <u>History of flight:</u> **Cross curricular: History**

		weave wool to create a finished weaved product. - Consider colour and design when producing weaved techniques. - Continue to develop weaving over multiple lessons, evaluating the success of the product. <u>Electrical circuits:</u> **<u>Cross-curricular: Science</u>** - Make and test electrical circuits. - Select different electrical components (e.g. bulbs, wires, buzzers, switches). - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. - Design and evaluate how to incorporate these circuits into a functioning product. <u>Prop and set making:</u> - Make props and sets for Year LKS2 Performance. - Select and choose appropriate	- Children learn about the history of flight in a one-off lesson. - Discussing and considering changes over time, children learn about the first attempts of aviation through to modern-day examples. - Discussion and analysis of different aviation attempts and designs.

		materials. - Consider construction and how to reinforce and stiffen props to ensure they are effective, long-lasting and fit for purpose.	
Skills	**Design:** ● Develop ideas for a design and say how realistic the plan is. ● Include an annotated sketch as part of the plan. **Make:** ● Select suitable tools and equipment, explain the choices in relation to the required techniques. ● Use tools precisely and accurately. ● Realise if the model is going to be good quality. ● Apply different finishing techniques with some accuracy. **Evaluate:** ● Evaluate models considering how well they've been made. ● Discuss how and when models like these have been produced previously.	**Design:** ● Use research for design ideas. ● Show that design meets a range of requirements and is fit for purpose. ● Begin to create own design criteria. ● Make and explain design decisions considering the availability of resources. ● Make a prototype. **Make:** ● Select suitable tools and equipment, explain the choices in relation to the required techniques. ● Select appropriate materials, fit for purpose and can explain the choices made. ● Measure, mark out, cut and shape components with some accuracy. ● Use tools precisely and accurately. **Evaluate:**	**Design:** ● Use research for design ideas. ● Show that design meets a range of requirements and is fit for purpose. ● Begin to create own design criteria. ● Have at least one idea about how to create a product and suggest improvements for the design. ● Make and explain design decisions considering the availability of resources. ● Explain how the product will work. **Make:** ● Select suitable tools and equipment, explain the choices in relation to the required techniques. ● Select appropriate materials, fit for purpose and can explain the choices made.

	Technical Knowledge: ● Attempt to make product strong. ● Use a strong, stiff structure effectively. ● Select most appropriate tools and techniques. ● Consider how to reinforce parts of the model. ● Explain how to be safe and hygienic and how to present food in an attractive way. ● Understand ingredients can be fresh, pre-cooked or processed. ● Explain the importance of a varied diet for active, healthy bodies. ● Prepare and cook some dishes safely and hygienically. ● Develop techniques used (eg kneading, baking, peeling, chopping, slicing, grating, mixing, spreading.)	● Refer to design criteria while designing and making. ● Use criteria to evaluate the product. ● Begin to explain how the original design could be improved. ● Consider whether products can be reused or recycled. **Technical Knowledge:** ● Measure carefully to avoid mistakes. ● Continue working on product even if the original didn't work. ● Explain how to join things in different ways.	● Work through plan carefully to produce finished product. ● Measure, mark out, cut and shape components with some accuracy. ● Assemble, join and combine materials and components with some accuracy. ● Apply a range of finishing techniques with some accuracy. **Evaluate:** ● Refer to design criteria while designing and making. ● Use criteria to evaluate the product. ● Begin to explain how the original design could be improved. ● Evaluate others' work - including how well they've been made, the materials, whether they work, how they have been made and how they are fit for purpose. **Technical Knowledge:** ● Use a number of components in a design, including some

			electrical components. • Understand and use a series circuit in a product. • Grow in confidence trying new or different ideas. • Use levers and linkages to create movement. • Explain alterations to product after checking it. • Make a strong, stiff structure. • Measure carefully to avoid mistakes. • Explain how to be safe and hygienic and how to present food in an attractive way. • Begin to understand about how food can be grown, reared or caught in the UK (and the wider world). • Prepare and cook some dishes safely and hygienically. • Develop techniques used (eg kneading, baking, peeling, chopping, slicing, grating, mixing, spreading.)
Year 5	**MAGIC IN THE MAKING** <u>Building bridges:</u> - Plan and test ideas to construct bridges considering	**OUR UNIVERSE** <u>Space Vehicles (based on Mars Rovers)</u> - Plan how to make space	**ROMAN BRITAIN** <u>Roman aqueducts</u> - Explore and analyse examples of Roman aqueducts

	use and purpose of materials and construction issues (how to put together, strength of bridges). - Investigate and explore different types of bridges discussing the different structures and mechanisms - Plan and design final bridge designs through annotated diagrams and careful consideration of materials needed. - Construct and make bridges using a range of chosen materials. - Consider how to strengthen and reinforce bridges. - Evaluation of finished bridges, including discussion about how best to strengthen and reinforce structures.	rovers, thinking about necessary materials, size, shape and colours. - Select from different materials and tools in order to make space rovers. - Finish and add final details to rovers using paints and different tools (e.g. paintbrushes, sponges) - Evaluation of finished vehicles. <u>Building on above - Space Rovers (link to Computing curriculum)</u> ● Research vehicles that function on the moon and develop design criteria. ● Generate models and ideas through discussion and computer-aided design (children will use Lego WeDo and simulation) ● Build their rover, considering design and practicality. ● Use computing knowledge to program and control their product.	considering their purpose and how they were constructed and functioned. - Plan ideas to construct own aqueducts through discussion, drawings/sketches and prototypes. - Construct and make aqueducts using a range of chosen materials. - Consider how to strengthen and reinforce aqueducts. - Evaluation of finished aqueducts, including discussion about how best to strengthen and reinforce structures and how this relates to what they know about the Roman's building techniques. <u>Roman drawstring purses:</u> - Explore and analyse examples of Roman clothing including purses. - Plan and design drawstring purses through discussion and annotated drawings/ sketches, considering materials needed. - Make drawstring purses using different sewing techniques using chosen materials (e.g. thread, textiles, string) and appropriate equipment/tools

			(e.g. needles, scissors). - Evaluation of finished drawstring purses.
Skills	**Design:** ● Begin to consider the needs and wants of individuals or groups when designing and ensure design is fit for purpose. ● Collaboratively create design criteria. ● Have a range of ideas. ● Produce a logical, realistic plan and explain it to others. ● Use annotated sketches. ● Make design decisions considering time and resources. ● Model and refine design ideas by making prototypes. **Make:** ● Produce suitable lists of tools, equipment and materials needed. ● Select appropriate materials, fit for purpose, explaining their choices and considering the functionality. ● Mainly accurately, assemble, join and combine materials and components.	**Design:** ● Take a user's view into account when designing. ● Produce a logical, realistic plan and explain it to others. ● Use annotated sketches. ● Make design decisions considering time and resources. ● Clearly explain how parts of the product will work. ● Use computer-aided designs. **Make:** ● Use selected tools and equipment with a good level of precision. ● Create and follow a detailed step-by-step plan. ● Explain how a product will appeal to an audience. ● Mainly accurately, measure, mark out, cut and shape materials and components. ● Mainly accurately, assemble, join and combine materials and components. ● Mainly accurately, apply a range of finishing techniques.	**Design:** ● Use internet and questioning for research and design ideas. ● Begin to consider the needs and wants of individuals or groups when designing and ensure design is fit for purpose. ● Produce a logical, realistic plan and explain it to others. ● Use annotated sketches. ● Make design decisions considering time and resources. ● Model and refine design ideas by making prototypes. **Make:** ● Produce suitable lists of tools, equipment and materials needed. ● Select appropriate materials, fit for purpose, explaining their choices and considering the functionality. ● Consider waterproofing and overcome challenges by altering an approach. ● Mainly accurately, assemble,

	• Begin to be resourceful with practical problems. **Evaluate:** • Evaluate the quality of design while designing and making. • Evaluate ideas and finished product against the specification, considering purpose and appearance. • Test and evaluate the final product. • Evaluate how much products cost to build and some innovative examples. • Talk about some key designers and architects and some of their ground-breaking designs. **Technical Knowledge:** • Select materials carefully, considering the intended use of the product. • Explain how the product meets design criteria. • Measure accurately enough to ensure precision. • Ensure the product is strong and fit for purpose. • Begin to reinforce and strengthen a 3D frame.	• Use techniques that involve a small number of steps. **Evaluate:** • Evaluate the quality of design while designing and making. • Evaluate ideas and finished product against the specification, considering purpose and appearance. • Test and evaluate the final product. • Evaluate and discuss existing products, considering how well they've been made, materials, whether they work, how they have been made, whether they are fit for purpose. **Technical Knowledge:** • Select materials carefully, considering the intended use of the product. • Explain how the product meets design criteria. • Measure accurately enough to ensure precision. • Ensure the product is strong and fit for purpose. • Begin to reinforce and strengthen a 3D frame. • Incorporate a switch into the product. • Confidently use electrical	join and combine materials and components. • Begin to be resourceful with practical problems. **Evaluate:** • Evaluate the quality of design while designing and making. • Evaluate ideas and finished product against the specification, considering purpose and appearance. • Test and evaluate the final product. • Evaluate how much products cost to build and some innovative examples. • Talk about some key designers and architects and some of their ground-breaking designs. • Begin to consider the sustainability of some materials. **Technical Knowledge:** • Select materials carefully, considering the intended use of the product. • Explain how the product meets design criteria. • Measure accurately enough to ensure precision. • Ensure the product is strong and fit for purpose.

		components within a product. ● Begin to be able to program a computer to control a product.	● Begin to reinforce and strengthen a 3D frame. ● Think about user and aesthetics when selecting textiles. ● Think about how to make product strong and look better. ● Consider how to join different textiles. ● Begin to understand that a single textiles project can be made from a combination of fabric shapes.
Year 6	**BLOOD, SWEAT AND TEARS** <u>Model planes:</u> - Explore and investigate examples of planes from WWI, as well as examples of model planes (using popsicles). - Design a plane through an annotated diagram, considering choice of materials and construction (how to attach different elements). - Make planes using and choosing from a range of materials (e.g. PVA glue, different sized popsicle sticks, cork disks, cocktail sticks,	**I'M A PUPIL, GET ME OUT OF HERE!** <u>Dream catchers:</u> **Cross-curricular: Art** - Explore and investigate examples of dream catchers. - Consider design elements relating to dream catchers such as the use of materials and colours. - Make dream catchers using and choosing from a range of materials (e.g. wool, scissors, hole punch, paper plates, beads, feathers).	**LIGHTS, CAMERA, ACTION** <u>Macbeth dioramas:</u> - Explore and analyse examples of dioramas (artist focus on Su Blackwell). - Design diorama through an annotated diagram, considering choice of materials and construction. - Apply knowledge of electrical circuits to consider how to incorporate a light element to their designs. - Test and evaluate finished dioramas.

	masking tape). - Evaluation of final product. <u>Anderson shelters:</u> **<u>Cross-curricular: History</u>** - Design and test an Anderson shelter. - Select and choose from different materials (e.g. matchsticks, blue tac, cardboard) - Consideration of how to construct and reinforce shelters. - Test and evaluate effectiveness of shelters.	<u>Candombe drums</u> **Cross-curricular: Art** - Consider design elements relating to candombe drums such as the use of materials, colours and patterns. - Make drums using and choosing from a range of materials (e.g. balloons, tin cans, scissors, rulers, glue, masking tape. - Finish drums adding extra detailing, colours and patterns. <u>Mayan masks:</u> **Cross-curricular: Art** - Explore a range of real-life examples of Mayan masks. Discuss and investigate features, colours and patterns. - Design and make masks using templates. - Use mosaic techniques to finish the masks considering aesthetic aspects (e.g. colour, patterns). <u>Stepped pyramids:</u> **Homework project** - Design and make a stepped	<u>Mini enterprise project:</u> - Perform market research to inform planning of mini enterprise projects - baking and selling biscuits. - Design logo, name, packaging and advert for biscuits. - Consider how to construct and put biscuit packaging together (e.g. using nets). - Follow a recipe and bake biscuits. - Taste and sell biscuits, providing an opportunity for evaluation and reflection of enterprise success. <u>Prop and costume making:</u> - Make props and costumes for Year 6 Performance. - Select and choose appropriate materials. - Consider construction and how to reinforce and stiffen props to ensure they are effective, long-lasting and fit for purpose. <u>Electrical circuits:</u> **Cross curricular: Science** - Make and test electrical circuits.

		pyramid. - Choose and select appropriate materials. - Consider construction elements such as reinforcing, strengthening and attaching parts.	- Select different electrical components (e.g. bulbs, wires, buzzers, switches). - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. - Design and create ways in which to incorporate these circuits into a functioning product.
Skills	**Design:** ● Come up with innovative design ideas. ● Use annotated sketches and exploded diagrams. ● Make design decisions, considering resources and materials. ● Clearly explain how parts of the design will work and how they are fit for purpose. ● Independently model and refine design ideas. **Make:** ● Use selected tools and equipment precisely. ● Produce suitable lists of tools, equipment, materials needed,	**Design:** ● Come up with innovative design ideas. ● Clearly explain how parts of the design will work and how they are fit for purpose. ● Independently model and refine design ideas. ● Identify features of the design that will appeal to the intended user. ● Create own design criteria and specification. **Make:** ● Use selected tools and equipment precisely. ● Produce suitable lists of tools, equipment, materials needed,	**Design:** ● Draw on market research to inform the design. ● Use research of the user's individual needs, wants, and requirements for the design. ● Identify features of the design that will appeal to the intended user. ● Follow and refine a logical plan. ● Make design decisions, considering resources and cost. **Make:** ● Use selected tools and equipment precisely.

	considering constraints. • Select appropriate materials which are fit for purpose, explaining their choices and considering functionality and aesthetics. • Use techniques that involve a number of steps. • Be resourceful and resilient when faced with practical problems. **Evaluate:** • Evaluate the quality of the design while designing and making. • Evaluate ideas and finished product against the specification, stating if it's fit for purpose. • Test and evaluate final product; explain what would improve it and the effect different resources may have had. • Discuss some key inventors, designers and engineers of ground-breaking products. **Technical Knowledge:** • Select materials carefully, considering intended use of	considering constraints. • Select appropriate materials which are fit for purpose, explaining their choices and considering functionality and aesthetics. • Explain how the product will appeal to its audience, making changes to improve the quality. • Accurately measure, mark out, cut and shape materials and components. • Accurately assemble, join and combine materials and components. • Accurately apply a range of finishing techniques. **Evaluate:** • Evaluate the quality of the design while designing and making. • Complete thorough evaluations of existing products considering how well they've been made, materials, whether they work, how they've been made and whether they are fit for purpose. • Consider how sustainable materials are. **Technical Knowledge:** • Select materials carefully,	• Produce suitable lists of tools, equipment, materials needed, considering constraints. • Select appropriate materials which are fit for purpose, explaining their choices and considering functionality and aesthetics. • Explain how the product will appeal to its audience, making changes to improve the quality. • Accurately measure, mark out, cut and shape materials and components. • Accurately assemble, join and combine materials and components. • Accurately apply a range of finishing techniques. **Evaluate:** • Keep checking that the design is the best it can be. • Evaluate ideas and finished product against the specification, stating if it's fit for purpose. • Evaluate how much products cost to make and how innovative they are. • Consider the impact of products beyond their intended purpose.

	the product, the aesthetics and the functionality. ● Reinforce and strengthen a 3D frame.	considering intended use of the product, the aesthetics and the functionality. ● Make products attractive and strong. ● Use a range of joining techniques.	**Technical Knowledge:** ● Understand that a recipe can be adapted by adding or substituting ingredients. ● Adapt recipe to change appearance, taste, texture or aroma. ● Describe some of the different substances in food and drink, and how they can affect health. ● Prepare and cook savoury or sweet food safely and hygienically including knowing how to safely use a heat source. ● Use a range of different techniques confidently such as peeling, chopping, slicing, mixing, spreading, kneading and baking. ● Use electrical circuits confidently in a product. ● Think of ways in which adding a circuit would improve the product.