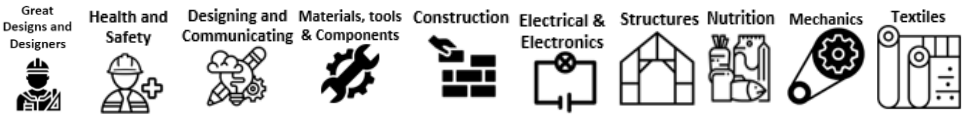
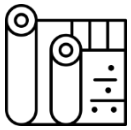
Concept Map – Design & Technology

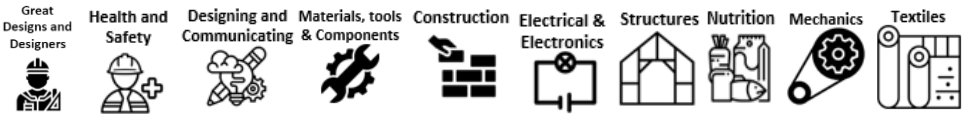
Concept	EYFS ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Great Designs and Designers 	Builders 'The three little pigs' Inventors 'Mechanimals'	-Pop-up Toy -Textiles 'Knotted manes'	- Rain stick - Bookmarks	-Puppet Show	-Pneumatic Vehicle -Greeting cards with circuits	- Textile: Recycled materials Travel pillows	-Christmas enterprise -Fairgrounds
Health & Safety 	-All	-All	-All	-All	-All	-All	-All
Designing and Communicating 	-All	-All	-All	-All	-All	-All	-All
Materials, tools & Components 	All (Craft and Construction area)	-Moving Pictures slider -Pop-up Toy	- Rain stick -Catapult for a Knight	-Puppet Show - Photo frames	- Pneumatic Vehicle -Greeting cards with circuits	-Caravans - Recycled materials Travel pillows	-Christmas Enterprise -Fairgrounds
Construction 	All (Large loose parts, Constructi on area)	-Pop-up Toy	- Rainstcks - Bookmarks	-Puppet Show -Photo frames	- Pneumatic Vehicle -Greeting cards with circuits	-Caravans	-Christmas Enterprise -Fairgrounds
Electrical & Electronics 					-Greeting cards with circuits	--	-Fairgrounds
Structures 	- 'Dear zoo' - 'The three little pigs' - 'Whatever next' - 'Billy's bucket' 'Captain Yellowbelly' - (Constructio n area)'	-Pop-up Toy	- Rain stick -Catapult for a knight	-Puppet Show - Photo frames	- Pneumatic Vehicle	-Caravans	-Christmas Enterprise -Fairgrounds
Nutrition 	'The Gingerbread Man' 'Jack and the beanstalk' (Snack area)	-Fruit salad	-Fruit Kebabs	-Indian Cuisine	-Chinese Cuisine	-Pumpkin Scones	-Food Festival
Mechanics 	'Tractor ted' (moving vehicles, lego) 'Meg and Mog' (Meg flying around the sky)	-Pop-up Toy	-	-	- Pneumatic Vehicle	-	-Fairgrounds



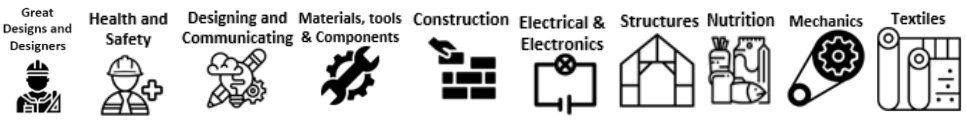
	'Whatever next' moving card Space suit, rocket boosters, Christmas cards						
Textiles 	Weaving	-Lion's manes =Drawstring pouches	- Binca Bookmarks	-Puppets		-Travel pillows	

Concept Curriculum Skills – Design & Technology

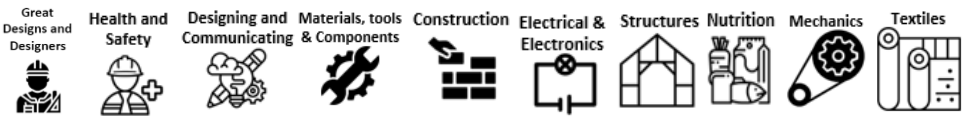
Concept	EYFS Curriculum ELG	KS1 Curriculum Skills	LKS2 Curriculum Skills	UKS2 Curriculum Skills
Great Designs and Designers 	**ELG: Past and Present** - Talk about the lives of the people around them and their roles in society; **ELG: Speaking** **ELG: Listening, Attention and Understanding** - Make comments about what they have heard and ask questions to clarify their understanding;	-To identify some simple facts about a famous structure or an important structural engineer and explain their importance -To identify some strong/stiff structures (i.e. climbing frame, tower). -To give reasons why designers use templates. -To identify the names of simple fabric products (i.e. cushion, jumper, blanket). -To give examples where sliders and levers are used in real life context. -To identify simple commercial products that use wheels and axels to move.	-To give reasons why engineers use certain structures for certain purposes. -To give examples of how engineers solve design problems. -To identify some simple facts about a famous structure or an important structural engineer and explain their importance (cultural context). -To give and explain reasons why designers use templates, patterns and prototypes. To reasons why designers evaluate their designs. -To explain reasons why designers might need to strengthen, stiffen and reinforce existing fabrics. -To identify a range of designers, who use fabrics in their work, or final product. -To know about one key chef and their contribution to healthy eating. -To give examples where pulleys and gears are used in commercial products and industry. -To give examples of simple commercial products that use pneumatics to move.	-To give and explain reasons why engineers use certain structures for certain purposes. -To give and/or explain examples of how engineers solve design problems. -To identify facts about a famous structure or an important structural engineer and explain their importance (cultural, environmental or economical context). -To identify some key dates in the development of fabric and textiles (i.e. 6000BC woven textiles used to wrap the dead, 500-1000AD spinning wheel invented in India, 1562 first use of purl stitch in Spanish tomb, 1890 first pair of jeans by Levi Strauss). -To know about a key chefs and their contribution to the food industry. -To give examples of where pulleys, gears and cams are used in commercial products and industry and explain their purpose. -To give examples of a range of commercial products that use electrical systems.



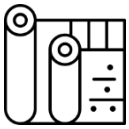
			-To identify a range of places electrical systems are used (i.e. lighting in a house, display signs, traffic lights).	
Health and Safety 	**ELG: Self-Regulation** - Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate; - Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions. **ELG: Managing Self** - Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; - Explain the reasons for rules, know right from wrong and try to behave accordingly; **ELG: Speaking** Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; **ELG: Creating with Materials** - Safely use and explore a variety of materials, tools and techniques.	-To use hand tools safely and appropriately. -To follow simple safe procedures for food safety and hygiene.	-To work safely and accurately with a rage of simple tools. -To demonstrate hygienic food preparation and storage	-To use tools and equipment safely and accurately. -To apply the rules for basic food hygiene and other safe practises, e.g. hazards relating to oven use.
Designing and Communicating 	**ELG: Listening, Attention and Understanding** - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding;	-To generate ideas by drawing on their own and other people's experiences. -To develop their design ideas through discussion, observation, drawing and modelling. -To make a design using appropriate techniques, including simple labelled drawings. -To develop their design ideas applying findings from their earlier research. -To identify a target group for what they intend to design and make	-To generate ideas, considering the purposes for which they are designing. -To think about their ideas as they make progress and be willing change things if this helps them improve their work. -To use simple graphical communication techniques, including labelled drawings showing specific features. -To plan the order of their work before starting. -To evaluate products and identify criteria that can be used for their designs.	-To develop own design specifications. -To explain what a questionnaire is and how it can help with product design (create a simple questionnaire to form a design brief). -To explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways, including detailed labelled drawings. -To plan the order of their work, choosing appropriate materials, tools and techniques.

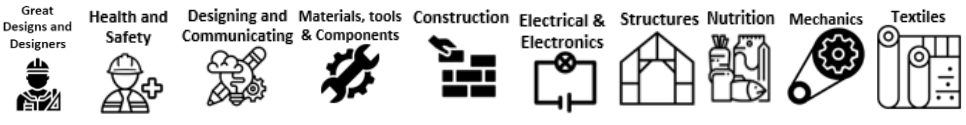


	- Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. **ELG: Speaking** - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; - Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher. **ELG: Fine Motor Skills** - Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; Begin to show accuracy and care when drawing	-Evaluate against their design criteria. -Evaluate their products as they are developed, identifying strengths and possible changes they might make. -Talk about their ideas, saying what they like and dislike about them.	-To identify a purpose and establish criteria for a successful product -Evaluate their work both during and at the end of the project. -Evaluate their products carrying out appropriate tests. -Disassemble and evaluate familiar products.	-To use results of investigations, information sources, including ICT when developing ideas. -To generate ideas through brainstorming and identify a purpose for their product. -Evaluate their products, during and at the end, identifying strengths and areas for development, carrying out appropriate tests. - Evaluate it personally and seek evaluation from others -Record their evaluations using drawings with labels.
Materials, tools & Components 	**ELG: Fine Motor Skills** - Use a range of small tools, including scissors, paint brushes and cutlery; **ELG: Listening, Attention and Understanding** - Make comments about what they have heard and ask questions to clarify their understanding; **ELG: Speaking** - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary;	-To begin to select tools and materials; use correct technical vocabulary to name and describe them.	-To select appropriate tools and techniques.	-To select appropriate materials, tools components and techniques.
Construction 	**ELG: Creating with Materials** - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;	-To, with help, measure, mark out, cut and shape a range of materials with some accuracy. -To cut, shape and join fabric to make a simple garment.	-To measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques	-To measure and mark out accurately. -To weigh and measure accurately (time, dry ingredients, liquids).



	- Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.	-To assemble, join, combine materials and components together using a variety of temporary methods e.g. glues or masking tape. -To choose and use appropriate finishing techniques to improve the appearance of their product.	-To join and combine materials and components in temporary and permanent ways. -To measure, tape or pin, cut and join fabric with some accuracy. -To use finishing techniques to strengthen and improve the appearance of their product using a range of equipment, including ICT.	-To join accurately to ensure a good-quality finish to the product. -To assemble components to make working models. -To construct products using permanent joining techniques.
Electrical & Electronics 			-To explain what an electrical circuit is. -To identify a range of simple electrical components and their functions, such as a bulb, buzzer and switch. -To explain that some components have positive and negative terminals. -Can demonstrate how to control and program a product using computing (i.e. beebots). -To demonstrate how to construct a simple series circuit. -To test components in a simple series circuit. -To identify and describe some simple conductors and insulators. -To explain how electricity is measured (volts and amps).	-To explain and demonstrate how to incorporate simple self-made switches in a circuit. -To test components in more complex circuits (series and parallel). -To explain and demonstrate how simple switches can be made. -To explain and/or demonstrate how to assess faults in their own electrical systems. -To identify and describe an electrical system used in their product. -To explain and demonstrate how to monitor and control their products. -To give reasons why materials make good conductors and insulators. -To recognise and discuss correlation between Energy, Ecology and Environment.
Structures 	**ELG: People, Culture and Communities** - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps; **ELG: The Natural World** - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; **ELG: Comprehension** - Use and understand recently introduced vocabulary during discussions about stories, non-fiction, rhymes and poems and during role-play.	-To explain what materials are useful for strengthening or stiffening structures and why this is. -To make freestanding structures stronger, stiffer and more stable Can identify and describe a simple order of making a structure. -To identify, describe and demonstrate some simple finishing techniques to complete their structure	-To test a material's strength. -To use some more sophisticated methods for stiffening/strengthening structures. -To use, with more confidence, some finishing techniques which, in their opinion, are best to complete their structure. -Can use CAD to develop a product.	-To choose materials that are best suited to stiffen and reinforce by selecting them due to their properties -To identify, describe and demonstrate how to stiffen, strengthen and reinforce a range of 3D frameworks. -To use, with confidence, some finishing techniques which, in their opinion, are best to complete their structure. -To choose and explain which shapes are the strongest and will support the most weight in a structure.

Nutrition 	**ELG: Managing Self** - Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. **ELG: The Natural World** - Explore the natural world around them, making observations and drawing pictures of animals and plants;	-To prepare simple dishes safely and hygienically, without using a heat source. -To use techniques such as cutting, peeling and grating with greater confidence and independency. -To demonstrate how to use simple cutting tools to prepare soft fruit and vegetables. -To know where a wide range of foods come from. -To know the principles of a healthy, varied diet.	-To chop a wider range of foods using different techniques i.e. claw grip, bridge grip. -To use sensory information to evaluate a variety of ingredients - To combine foods using different utensils (whisk, spatula). -To know about fresh and processed foods. -To know whether foods are grown, reared or caught -To know about fair-trade foods.	-To demonstrate how to chop a wider range of foods using different techniques i.e. claw grip, bridge grip with greater confidence and independency. -To know how to select appropriate utensils for specific jobs. -To use more advanced methods for mixing ingredients i.e. rubbing in. -To select appropriate utensils for specific purposes. -To cut, shape and knead dough. -To know about organic foods and their impact. -To know how to follow a recipe.
Mechanics 	**ELG: Creating with Materials** - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; **ELG: Listening, Attention and Understanding** - Make comments about what they have heard and ask questions to clarify their understanding; **ELG: Speaking** - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; **ELG: People, Culture and Communities** - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps;	-To explain what pivot, sliders and levers are. -To explain how to operate sliders and levers. -Can identify some simple fixing techniques and when to use them (i.e. masking tape to secure a lollipop stick slider). -To explain that different mechanisms create different types of movement. -To explain what wheels, axels and axel holders are. -To explain the difference between fixed and free moving axels. -To identify and give reasons which materials are best used for particular components (e.g. rubber covered wheels might provide more grip than plastic wheels).	-To explain that mechanical and electrical systems have an input, process and output. -To explain what a gear/pulley/pneumatic mechanism is. -To explain that gears and pulleys can be used to speed up, slow down or change the direction of movement. -To demonstrate how to make a simple pulley or a gear. -To explain the difference between a fixed and loose pivot. -To demonstrate how to use lever and linkage mechanisms. -To demonstrate how to make a simple pneumatic mechanism.	-To identify and explain that mechanical systems have an input, process and an output. -To explain how cams can be used to produce different types of movement and change the direction of movement. -To demonstrate how to use cams in their product. -To explain and demonstrate that gears and pulleys can be used to speed up, slow down or change the direction of movement. -To explain and/or demonstrate how ratio affects speed of rotation -To identify and/or explain what forces are acting on pulleys and gears (i.e. friction, gravity.
Textiles 	**ELG: Creating with Materials** - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; **ELG: People, Culture and Communities** - Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps; - Know some similarities and differences	-To use basic sewing techniques. -To explain when to use certain fabrics based on their suitability to the product -To explain how a simple 3D textile product is made. -To identify simple stitches -To demonstrate how to use simple stitch techniques. -To identify a range of finishing techniques. -To demonstrate some finishing techniques.	-To sew using a range of different stitches, weave and knit. -To explain how to combine multiple different fabrics to create a 3D product. -To explain how to strengthen, stiffen and reinforce existing fabrics -To identify and describe simple stitches -To demonstrate how to securely join two pieces of	-To explain that a 3D textile product can be made from a combination of accurately made pieces. -To explain how embroidery can embellish a product. -To explain when to use particular stitch types (including finishing stitches). -To demonstrate using particular stitch types in making 3D products -To demonstrate using finishing techniques



	between different religious and cultural communities in this country, drawing on their experiences and what has been read in class;	-Can explain where simple fabrics come from/are made of (i.e. wool from sheep, cotton from cotton plants, hessian made from fibres of jute plant).	fabric together using a range of stitches. -To explain what seam allowances are -To explain how different fabrics are constructed (i.e. woven materials, spun materials, knitted materials). -To explain how/when to use decorative stitches to finish a product.	depending upon the required effect. -To use seam allowances when making products. -To test fabrics in order to select them for use.