Progression of knowledge and skills in Design and Technology

Concept - Research: Take inspiration from designs									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
				Children can use a range of sentence stems to verbally describe a product. Children can verbally explain the components within a product and make links to describe how they were made.	**Children can use sentence stems to describe a product and gain a strong understanding of the purpose, audience and function of a it. Children can identify different materials that have been used to make a product with links to science learning. Children can express a like and dislike to a product and provide reasons and begin to record this in writing.**	**Children can begin to research a range of products, their purpose, audience, and function. Children can describe the look of a product and how this impacts the audience. Children can record their research in writing.**	**Children can conduct research about different products and evaluate their effectiveness (function). Children can evaluate different products and express an opinion. Children can take ideas from products that already exist and use these within their own independent designs.**	**Children are building upon their research skills and becoming more independent in reviewing different products against a given criteria. Children to make links with their history skills and understand key historical events which have impacted the product they are focusing on.**	**Children can look at work of different designers within the design and technology department and discuss their likes and dislikes – building upon their evaluation skills in previous years. Children develop their understanding of a product by making suggestions on how it could be improved and why.**
To use their imagination as they consider what they can do with different materials	To explore different materials freely, in order to develop their ideas about how to use them and what to make To develop their own ideas and then decide which materials to use to express them	To return to and build on their previous learning, refining ideas and developing their ability to represent them To create collaboratively sharing ideas, resources and skills To explore, use and refine a variety of artistic effects to express their ideas and feelings To create collaboratively sharing ideas, resources and skills	***Share their creations, explaining the process they have used; - (ELG)***	To discuss existing products and how they are made.	To discuss existing products: what they are and who/what they are for. To identify materials used in an existing product. To discuss likes/dislikes about an existing product.	To research existing products and discuss the overall purpose. To discuss the aesthetic qualities of an existing product. To understand how products work to achieve their purpose.	To research and evaluate existing products. To evaluate different products and take inspiration for their own design criteria.	To conduct research and use different sources to gather information about existing products. To discuss and analyse a range of existing products. To understand how key events in design and technology have helped to shape the world.	To discuss some of the great designers. To suggest improvements upon existing designs and products.
Concept – Design: Developing, planning and communicating ideas									

EYFS - Birth to Three Years	EYFS – Three & Four Years	EYFS - Reception	EYFS ELG	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
				Children can engage in discussions and make links to real life/personal experience of products and their purpose. Children begin to understand the purpose of a product and why it was made/how it is used. Children can draw a single design of their own product against a design criteria provided to them. Children have an opportunity to practise skills and create templates to support them during the independent making stage.	**Children begin to generate ideas through in-depth discussions and observations they have made from existing products. Children use their understanding of existing products to support them during their design stage. Children have a strong understanding of what they are making and why and who it is for (purpose, audience). Children can draw a single design and add simple labels. Children build upon their templating skills to support during the making stage.**	**Children have a strong understanding of the purpose of their product and use this to support them during the design stage. Children can identify and explain the audience of their product and why it needs to be appealing to others. Children can begin to formulate their own simple design criteria. Children can draw a single design with clear labels. Children can begin to identify the materials and equipment they will need. Children make more complex prototypes to support the practise of new skills.**	**Children can use the purpose and audience of their product to generate their own design ideas to make their product unique. Children gain a realistic view of what going to make and how. Children draw multiple designs from different angles of their product with clear labels and an outline of materials, component and equipment.**	**Children can generate a range of ideas through mind mapping. Children can create a detailed design specification with an essential and desirable criteria. Children can begin to add measurements to their designs if appropriate. Children can begin to think a head to the making stage of their product and outline a step-by-step guide to support them when working independently.**	**Children can use market research to generate their ideas by asking the opinion of others. Children understand the preferences of the user and use this to help them design their products. Children build on their design skills and use a range of CAD/CAM to design their product in a different format.**
To explore different materials, using all their senses to investigate them	To explore different materials freely, in order to develop their ideas about how to use them and what to make To develop their own ideas and then decide which materials to use to express them	To return to and build on their previous learning, refining ideas and developing their ability to represent them To create collaboratively sharing ideas, resources and skills	***Share their creations, explaining the process they have used; - (ELG)*** ***Make use of props and materials when role playing characters in narratives and stories (ELG)***	To draw on own experiences to generate ideas. To identify the purpose of a product. To design a product against a simple design criteria. To make a design drawing. To create a template out of paper to model ideas.	To develop ideas through discussion and observation. To take design inspiration from existing products in the design process. To identify the purpose and audience for what they intend to design and make. To identify a simple design criteria.	To generate ideas by considering the purpose of their design. To describe the purpose and intended audience of their product to design a purposeful and appealing product. To establish a simple design criteria for a functional product. To make design drawings with clear labelled aspects and	To generate ideas for a product by considering the purpose and audience. To generate realistic ideas that focus on the needs of the user. To make labelled designs from different viewpoints. To outline the making process alongside the materials, components and	To generate ideas through mind-mapping. To create a specification for their design criteria which identifies essential and desirable aspects. To draw a design with key label that explain how different parts of the design will work. To outline the making process with annotations.	To carry market research through interviews, surveys and questionnaires. To identify the needs, wants and preferences of the intended user. To develop their own specification against their own design criteria. To use CAD (Computer Aided Design) to design elements of a product.

					To make simple design drawings with labels. To create a template/mock-up of their design.	an outline of materials/equipment needed. To develop designs by modelling ideas in the form of a prototype.	appropriate tools needed.	To experiment with materials and equipment to make a functioning prototype.	To develop a design proposal through modelling their ideas in a variety of ways.
Concept – Make: Working with tools, equipment, materials and components									

EYFS - Birth to Three Years	EYFS – Three & Four Years	EYFS - Reception	EYFS ELG	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
				Children can verbally identify different tools and their purpose. Children can provide examples for what a specific tool can be used for e.g. scissors – cutting, glue – sticking. Children build upon their understanding of different materials and when to use them. Children can cut using scissors and join materials together (glue, staples). Children can use paper engineering, felt and paint to add finishing techniques to their product.	**Children can describe the materials and components and decide when and how to use them. Children can confidently select appropriate tools to support them. Children can explore with materials to strengthen a product. Children can cut with some accuracy and explore different joining techniques for a desired effect. Children can independently use scissors and glue with some accuracy.**	**Children can measure and mark with further accuracy before cutting and using a material. Children can work more independently with a range of tools and understand the safety needed and verbally explain this before using. Children can verbalise their making process – what came first, what they did next, what they did after that.**	**Children can explain their choice of materials, components and select these based their qualities. Children can measure and mark a range of different materials with further accuracy. Children can formulate a step-by-step guide to support them during the making process and outline what they need to do and when. Children can begin to record this.**	**Children can independently choose tools for a specific purpose. Children can cut and join materials accurately using a range of joining techniques, building upon prior learning of structures and strengthening. Children can outline their making process and make changes to the order if needed and explain why this happened. Children can use CAD to add ICT finishing touches to their final products.**	**Children continue to independently use tools for a desired purpose during the making stage. Children can make modification towards their product during this stage and ensure their product is successful. Children can build upon permanent joining techniques and experiment with different options. Children can carefully select appropriate finishing techniques to create a well-finished final product.**
To develop manipulation and control To explore with different materials and tools To manipulate and play with different materials	To join different materials and explore different textures To explore different materials freely, in order to develop their ideas about how to use them and what to make To develop their own ideas and then decide which materials to use to express them To use on Use one-handed tools and equipment, for example, making snips in paper with scissors	To develop their small motor skills so that they can use a range of tools competently, safely and confidently; glue stick, sellotape, masking tape, scissors To develop their small motor skills so that they can use a range of tools competently, safely and confidently; hole-punch, split-pins, treasury tags	***Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - (ELG)*** ***Make use of props and materials when role playing characters in narratives and stories (ELG)***	To identify different tools and know the correct name. To describe the purpose of different tools. To select and use a range of different materials and components for a particular purpose. To begin to measure and mark out onto different materials. To join materials using simple techniques.	To describe materials and components according to their characteristics. To select the correct tools and equipment for a project. To measure with some accuracy. To assemble, join and combine different materials. To use hand tools safely and appropriately. To cut or score with some accuracy.	To select tools and techniques to use with their product. To accurately mark out materials and components. To accurately cut materials and components. To work safely and accurately with a range of different tools. To use finishing techniques to improve the appearance of a product.	To explain their choice of materials and components based on their functional properties and aesthetic qualities. To select the most effective components for their product. To mark out and cut a range of different materials. To join and combine different materials and components accurately.	To use different tools to adopt differing techniques. To select appropriate tools, materials and techniques for desired effect. To cut and join materials together with accuracy to create a good quality product. To use finishing techniques that use ICT.	To select appropriate tools, materials and techniques for their product to create a desired effect. Use of materials and components to help make modifications as they go. To construct products using permanent joining techniques. To use finishing techniques that require more than one step.

				To safely use scissors to cut. To use glue and masking tape to join materials and components. To use simple finishing techniques to improve the appearance of the product.	To use finishing techniques to strengthen a product.	To identify each step in the making process.	To formulate a step-by-step guide on the making process.	To assemble components with working models.	

Concept – Evaluate									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
				Children can verbally evaluate their product using simple sentence stems. Children to identify simple improvements they could make – this could be based on an area they found difficult during the making stage. Children can verbally explain how they made their own product.	**Children can evaluate by recording it (written or with ICT). Children can describe the strengths and weaknesses of their product – once it has been tested. Children to identify changes that would improve their product and express any likes or dislikes.**	**Children to evaluate their product against their written design criteria with support. Children can articulate what went well during the making process. Children can evaluate the effectiveness of others and provide verbal feedback.**	**Children evaluate the making process and what they found simple and difficult. Children arrange appropriate tests to check the effectiveness of their product and if it works.**	**Children can independently evaluate against their written design criteria and essentials/desirable specification. Children to evaluate other products and provide purposeful feedback to help them recognise areas of improvements.**	**Children can identify strengths and weaknesses of their own product after determining and using appropriate checks to test their final product. Children can provide in depth evaluations by comparing their product to their original designs.**
To express ideas and feelings through making marks, and sometimes give a meaning to the marks they make	To develop their own ideas and then decide which materials to use to express them	To create collaboratively sharing ideas, resources and skills	***Share their creations, explaining the process they have used; - (ELG)***	To evaluate their product by discussing the overall purpose verbally. To identify the strengths of their product. To suggest simple improvements for their product. To explain what and how their product is made.	To identify and evaluate the strengths and weaknesses of their product. To identify possible changes they could make to their design/product. To discuss their product – their likes and dislikes.	To evaluate their product against their design criteria. To identify what worked well during the making stage. To identify the strengths and weaknesses of their product. To consider views of others with improvement suggestions. To dissemble and evaluate existing products.	To evaluate their work during and after they have made their product. To evaluate their product by carrying out appropriate tests to check its purpose.	To evaluate their product against their own design criteria and specification. To evaluate their product independently. To consider the views of others to extend developing of a product (further improvements).	To identify the strengths and weaknesses of their product by carrying out appropriate tests. To record their evaluations using detailed drawings with labels. To evaluate their product against their own specification and suggest areas of improvements. To evaluate their peers' products.

Concept – Nutrition									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
				Children understand the purpose of food hygiene and how to keep hands, surfaces, and equipment clean. Children can handle simple cooking equipment safely (cutlery knife, spoon). Children to begin to understand healthy foods to be eaten as a snack (fruit and vegetables)	**Children continue to practise food hygiene and safety. Children can clean their hands and surfaces effectively. Children can begin to use cutlery knives for cutting and spreading. Children can explain how foods are grown and where they come from to create an understanding of the origin of food that they eat. Children can build upon their understanding of healthy snacks and what is needed for a healthy lunch (sandwich and snacks).**	**Children can explain how to be safe around food and equipment. Children thoroughly wash their hands and prep surfaces with a level of independence. Children can experiment with new foods and ingredients and explore their origin and how it is sourced. Children can create a food product that is cooked using heat (oven).**	**Children can keep surfaces, equipment and hands clean and know how to clean after a cooking project is finished or in between stages. Children can use different cooking equipment for a desired effect (cutting, mixing). Children can use their hands to mould foods to create a shape and mixed ingredients together for a desired taste. Children can begin to use scales to weigh different ingredients.**	**Children can explain how to keep safe and practise food hygiene within a nutrition unit. Children can independently weigh ingredients. Children can choose which equipment they will need for a specific purpose whilst cooking. Children can use pans and a hot place to mix ingredients over heat. Children begin to gain an understanding of ingredients and their calorie intake to help make informed choices on ingredients.**	**Children can create a recipe with required ingredients for a specific product and taste. Children can experiment with ingredients and flavours. Children can handle food safely and adopt food hygiene routines independently. Children can use scales to weigh and measure ingredients accurately to ensure a recipe is successful. Children can experiment with ingredients to add finishing techniques to their product.**
To eat finger food and develop likes and dislikes To try a wider range of foods with different tastes and textures	To start to eat independently and learning how to use a knife and fork To make healthy choices about food, drink, activity and toothbrushing	To develop their small motor skills so that they can use a range of tools competently, safely and confidently; knives, forks and spoons To know and talk about the different factors that support their overall health and wellbeing: healthy eating	***Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - (ELG)***	To understand basic food hygiene. To understand how to be safe about cooking equipment. To understand the basics of a healthy diet. To understand the components of a healthy snack.	To follow safe procedures for food safety and hygiene. To understand where different foods come from. To identify the key principles for a healthy diet. To look at different foods from around the world.	To reinforce knowledge of basic food hygiene. To use all cooking equipment responsibly and safely. To begin to demonstrate hygienic food preparation. To understand the components for a healthy and varied diet. To understand how different foods are sourced.	To apply their understanding of basic food hygiene. To apply their understanding of how to be safe around cooking equipment. To demonstrate hygienic food preparation. To look at different cooking techniques. To begin to use different cooking techniques	To outline their understanding of basic food hygiene. To reinforce their understanding of how to be safe around cooking equipment. To look at more complex cooking techniques. To understand how foods are sourced and grown different times of year (based on the season).	To demonstrate a strong understanding of food handling and safety. To select suitable cooking techniques for a desired outcome. To select ingredients suitable for a particular purpose. To weigh and measure accurately. To use finishing techniques with a range of different ingredients.

Concept – Technical Knowledge Structures									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
				Children build on their understanding of materials that they see every day and their characteristics. Children can describe the properties verbally. Children understand what a structure is and what is needed to make them – based on the properties of a material.		**Children can apply their mathematical knowledge of measures and apply it to more complex products. Children know how to make a product more stiff and sturdy and can use specific vocabulary to describe these in spoken and written form.**			
To explore different materials, using all their senses to investigate them	To explore different materials freely, in order to develop their ideas about how to use them and what to make To join different materials and explore different textures	To return to and build on their previous learning, refining ideas and developing their ability to represent them To create collaboratively sharing ideas, resources and skills To create collaboratively sharing ideas, resources and skills	***Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - (ELG)*** ***Share their creations, explaining the process they have used; - (ELG)*** ***Make use of props and materials when role playing characters in narratives and stories (ELG)***	To understand the characteristics of different materials. To understand the characteristics of different components. To understand how structures are made. To understand how a structure can be made stronger, stiffer and more stable.		To apply their understand of measures (mm, cm, m). To understand the functional properties of a material. To understand the aesthetic qualities of a material. To use technical vocabulary to describe their product. To develop a good understanding of how structures work.			

Concept – Technical Knowledge Mechanisms (Substantive Knowledge)									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
					Children understand that a mechanism is a moving part. Children can experiment with components to make a specific mechanism and apply this to a product.		**Children can refer to mechanisms they have made in Year 2 and how they created their own moving part. Children can look at existing products and use technical vocabulary to describe the movement of the mechanism, making reference to lever, slider, oscillating, rotary mechanisms. Children can experiment with different mechanisms before adding them into their final product.**		
					To explore different mechanisms. To understand the purposes and uses of different mechanisms. To select and use a suitable mechanisms for their own design (e.g. levers, sliders, wheels, axles). To use the correct technical vocabulary based on their product.		To look at the different functions of mechanical systems. To understand the components within a mechanical system. To evaluate the purpose of a particular mechanical system. To understand the use of different mechanical systems for different existing products.		

Concept – Technical Knowledge Electrical Systems									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS – Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
								Children can make a working circuit and make links with their science learning. Children can build a working circuit and put it into a product to cause light, sound, or movement.	
								To make links with science and their understanding of a circuit. To apply their knowledge of what components a circuit needs. To design and make a product that incorporates a working electrical circuit.	

Concept – Technical Knowledge Computer Aided Design									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
									Children can incorporate elements of CAD within their designs and products. (to be added to after CB CAD/CAM training course).
									To understand what CAD is. To look at existing products with CAD. To understand the different forms of CAD. To begin to use different CAD resources. To incorporates CAD into a design.

Design and Technology – Technical Knowledge Textiles									
EYFS - Birth to Three Years	**EYFS – Three & Four Years**	**EYFS - Reception**	**EYFS ELG**	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**	**Year Six**
				To mark desired shapes onto fabric. To cut out simple 2D shapes made from fabric. To join material together using simple techniques to create a 3D textiles product: glue, staples, ribbon.		To plan and mark desired shapes and outlines onto fabric. To use fabric scissors to cut out different fabric materials with some accuracy. To attach 2D shapes together using pins. To thread a needle. To join identical material together using a running stitch.			To plan and design a 2D pattern piece. To use fabric scissors to cut out different fabric materials with accuracy. To join a combination of fabric shapes together. To use an invisible stitch. To decorate a product using embroidery stitch techniques: split, chain, back. To choose the correct needle for a desired purpose.