Whole School Medium Term Plan and QFL's

<table>
<tr><td colspan="3"><u>Purpose of Study</u>
In teaching children Design and technology, our intent is that they develop a passion for the subject and the ability to work constructively and productively independently and with others. Children will use their initiative and ask questions to become confident researchers.
The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The most relevant statements for Design Technology are taken from Physical Development and Expressive Arts and Design.</td></tr>
<tr><td>Birth to Three Skills</td><td>Physical Development
Sit without support.
Develop manipulation and control.
Explore different materials and tools.

Understanding the World
Repeat actions that have an effect.
Explore materials with different properties.</td><td>Expressive Arts and Design
Start to make marks intentionally.
Express ideas and feelings through making marks, and sometimes give a meaning to the marks they make.
Explore different materials, using all their senses to investigate them. Manipulate and play with different materials.
Use their imagination as they consider what they can do with different materials.
Make simple models which express their ideas.</td></tr>
<tr><td>Nursery Skills</td><td>Personal, social, emotional development
Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.

Physical Development
Use large-muscle movements to wave flags and streamers, paint and make marks.
Choose the right resources to carry out their own plan.
Use one-handed tools and equipment, for example, making snips in paper with scissors.</td><td>Understanding the World
Explore how things work.

Expressive Arts and Design
Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.
Explore different materials freely, in order to develop their ideas about how to use them and what to make.
Develop their own ideas and then decide which materials to use to express them.
Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</td></tr>
<tr><td>Reception Skills</td><td>Physical Development</td><td>Expressive Arts and Design</td></tr>
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	Progress towards a more fluent style of moving, with developing control and grace. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. **ELG: Fine Motor Skills** Use a range of small tools, including scissors, paintbrushes and cutlery	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. **ELG: Creating with Materials** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.

QFL's

Threshold Concepts	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Master practical skills This concept involves developing the skills needed to make high quality products (these skills can be added or changed)	**Food:** **Unit – Design and Make a Healthy Lunch.** QFL: Can I cut, peel or grate ingredients safely and hygienically? QFL: Can I assemble ingredients?	**Food:** **Objectives during Healthy Eating Week** QFL: Can I measure or weigh using measuring cups or electronic scales? QFL: Can I assemble or cook ingredients?	**Food:** **Unit - Food around the world – Cultural Food and eating seasonally** QFL: Can I prepare ingredients hygienically using appropriate utensils?	**Food:** **Objectives during Healthy Eating Week** QFL: Can I measure ingredients to the nearest gram accurately? QFL: Can I follow a recipe (steps) on how	**Food:** **Unit – Mini-enterprise. Making pizza.** QFL/SC: Can I measure accurately and calculate ratios of ingredients to scale up or down from a recipe? QFL/SC: Can I create and refine recipes, including ingredients, methods, cooking	**Food:** **Objectives during Healthy Eating Week** QFL: Can I demonstrate a range of baking and cooking techniques? QFL: Can I understand the importance of correct storage and handling of ingredients (using

			QFL: Can I assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking)?	to make a food item?	times and temperatures?	knowledge of micro-organisms)?
Materials	**Unit: Moving mechanisms** QFL: Can I measure and mark out to the nearest centimetre? QFL: Can I demonstrate a range of cutting and shaping techniques such as cutting and folding? QFL: Can I demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen)?	**Units: Pop-up books** **Moving Vehicles** **Make a Puppet** QFL: Can I cut materials safely using tools provided? QFL/SC: Can I demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling)? QFL/SC: Can I demonstrate a range of joining techniques (such as gluing?	**Unit: Box structure** **Pneumatics – make a mascot; pumping a syringe** QFL: Can I measure out and mark out to the nearest millimetre? QFL: Can I select appropriate joining techniques?	**Unit: Using CAD to make graphics** **Torch making – electrical systems** QFL: Can I cut materials accurately and safely by selecting appropriate tools? QFL: Can I apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs)?	**Unit: Make a bridge** QFL: Can I cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape)?	**Unit: Fairgrounds** QFL: Can I show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper)?

Textiles	**No textiles unit**	**Unit: Textiles – make a puppet** QFL: Can I shape textiles using templates? QFL: Can I join textiles using running stitch? QFL: Can I colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing)?	**No textiles unit**	**Unit: Textiles – make a pencil case** QFL: Can I understand the need for a seam allowance? QFL: Can I join textiles with appropriate stitching? QFL: Can I select the most appropriate techniques to decorate textiles?	**No textiles unit**	**Unit: Textiles – make a cushion** QFL: Can I create objects (such as a cushion) that employ a seam allowance? QFL: Can I join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration)? QFL: Can I use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion)?
Electricals and electronics	**No electrical unit for Years 1 and 2**	**No electrical unit for Years 1 and 2**	**No electrical unit**	**Unit: Having an electrical**	**No electrical unit**	**Unit: Operating a fairground using a battery**

				system in a torch QFL: Can I create series and parallel circuits? QFL: Can I diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage)? Skill from Years 1 and 2		**Alarms – Alarming a vehicle** QFL: Can I create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors, transistors and chips)?
Computing	**Unit: Year 4 Graphics – CAD based to cover these skills:** QFL: Can I control and monitor models using software designed for this purpose? QFL: Can I model designs using software? Skill from Years 1 and 2 QFL: Can I write code to control and monitor models or products? Skill from Years 5 and 6					
Construction	**Unit: Designing and making a castle**	**No construction unit.**	**Unit: Make a box structure**	**No construction unit.**	**Unit: Designing and making a bridge**	**No construction unit.**

	QFL: Can I use materials to practice drilling, screwing, gluing and nailing materials to make and strengthen products?		QFL: Can I choose suitable techniques to construct products or to repair items? QFL: Can I strengthen materials using suitable techniques?		QFL: Can I develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding)?	
Mechanics	**Unit: Moving monsters using sliders and levers Designing and making** QFL: Can I create products using lever mechanisms?	**Unit: Pop-up books Moving vehicles** QFL: Can I create products using wheels and winding mechanisms?	**Unit: Pneumatics. Pumping a syringe** QFL: Can I use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears)?	**No mechanical unit**	**No mechanical unit**	**Unit: Fairgrounds** QFL: Can I convert rotary motion to linear using cams? QFL: Can I use innovative combinations of electronics (or computing) and mechanics in product designs?

Design, make, evaluate and improve This concept involves developing the process of design thinking and seeing design as a process.	This thread will run through all units usually in lessons 1 and 2: QFL: Can I design products that have a clear purpose and an intended user? QFL: Can I make products, refining the design as work progresses? QFL: Can I use software to design?	This thread will run through all units usually in lessons 1-4: QFL: Can I design with purpose by identifying opportunities to design? QFL: Can I make products by working efficiently (such as by carefully selecting materials)? QFL: Can I refine work and techniques as work progresses, continually evaluating the product design? QFL: Can I use software to design and represent product designs?	This thread will run through all units usually in lessons 1 and 2: QFL: Can I design with the user in mind, motivated by the service a product will offer (rather than simply for profit)? QFL: Can I make products through stages of prototypes, making continual refinements? QFL: Can I ensure products have a high-quality finish, using art skills where appropriate? **For Year 5 mini-enterprise unit:** QFL: Can I use prototypes? **For Year 4 unit on CAD:** QFL: Can I use computer aided designs to represent designs? QFL: Can I use prototypes, cross-sectional diagrams and computer aided designs to represent designs?
Take inspiration from design throughout history This concept involves appreciating the design process that has influenced the products we use in	This thread will run through all units and will usually be lessons 5 and 6 – the evaluation of products made: QFL: Can I explore objects and designs to identify likes and dislikes of the designs? QFL: Can I suggest improvements to existing designs?	This thread will run through all units and will usually be lessons 5 and 6 – the evaluation of products made: QFL: Can I identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs?	This thread will run through all units and will usually be lessons 5 and 6 – the evaluation of products made: QFL: Can I combine elements of design from a range of inspirational designers throughout history, giving reasons for choices? **Year 5 mini-enterprise unit for pizza packaging:**

everyday life.	QFL: Can I explore how products have been created?	QFL: Can I improve upon existing designs, giving reasons for choices? QFL: Can I disassemble products to understand how they work?	QFL: Can I create innovative designs that improve upon existing products? QFL: Can I evaluate the design of products so as to suggest improvements to the user experience?