



The Orchard Lea Federation- Design Technology: Progression of knowledge and skills

Overview:

Design, make, evaluate and technical knowledge will be taught progressing through every year group - rehearsing, embedding, building and progressing skills year on year.

Cooking and nutrition: Year 2 4 and 6

Textiles/sewing: Year 2 4 and 6

Mechanisms: Year 1 3 and 5.

Designers/studying "the greats": Year 1 3 and 6.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	✓	✓	✓	✓	✓	✓	✓
Make	✓	mechanisms	textiles	mechanisms	textiles	mechanisms	textiles
Evaluate	✓	✓	✓	✓	✓	✓	✓
Technical Knowledge	✓	✓	✓	✓	✓	✓	✓
The Great designers		Mary Fergusson		Henry Ford		James Dyson	Vivienne Westwood
Cooking and Nutrition			✓		✓		✓

Assessment points

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	<u>Photo Frame</u> Design, make and evaluate a photo frame: Using tools and learning techniques, gluing and combining materials. Papier mache based with other materials added.	<u>Cooking - Teddy's Bear Picnic</u> <i>Cooking and nutrition</i>	<u>Fair ground ride mechanisms</u> Design, make, evaluate and use technical knowledge to create a moving fair ground ride. (Mechanics) <u>Henry Ford</u>		<u>Steady hand game</u> Design, make, evaluate and use technical knowledge to make a steady hand loop game (computing and electronics).	<u>Cooking - tortilla pizzas</u> <i>Cooking and nutrition</i>
Spring	<u>House with moving part mechanisms</u> Design, make evaluate a house with a moving part (levers and wheels and winding mechanisms/ technical knowledge) <u>Mary Fergusson</u>		<u>Light up</u> Design, make, evaluate and use technical knowledge to create an electrical working light.	<u>Making a purse/wallet textiles</u> Design, make, evaluate and use technical knowledge to create a purse/wallet.	<u>Moving toy James Dyson mechanisms</u> Design, make, evaluate and use technical knowledge to create a moving toy – CAM	
Summer		<u>Puppet making textiles</u> (Design, make, evaluate and use technical knowledge.)		<u>Cooking -The Great Orchard Lea Bake Off</u> <i>Cooking and nutrition</i>		<u>Device case design and make textiles</u> Design, make, evaluate and use technical knowledge to create a holder for a device. <u>Vivienne Westwood</u>



The Orchard Lea Federation - Design Technology: Progression of knowledge and skills (Infant)



	Reception	Year 1	Year 2	End of Key Stage Expectations
Design	<p>I can manipulate materials to achieve a planned effect. (EAD 40-60)</p> <p>I can construct with a purpose in mind, using a variety of resources. (EAD 40-60)</p>	<p><u>As a design and technologist:</u> Both terms: I am beginning to explore how products have been created. I can design products that have a clear purpose and an intended user with support. I can make simple diagrams to show my design. I can develop design criteria with a group.</p>	<p><u>As a design and technologist:</u> Summer term – Puppet I can explore how products have been created. I can design products that have a clear purpose and an intended user. I can use software to design. I can make diagrams to show my design. I can develop my own design criteria.</p>	<ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Make	<p>I can use simple tools and techniques competently and appropriately. (EAD 40-60)</p> <p>I can select appropriate resources and adapt work where necessary. (EAD 40-60)</p> <p>I can select tools and techniques needed to shape, assemble and join materials I am using. (EAD 40-60)</p>	<p><u>As a design and technologist:</u> Autumn term - Photo frame: I can cut safely using tools provided. I am beginning to demonstrate a range of cutting and shaping techniques such as tearing, cutting and folding. I am beginning to demonstrate a range of joining techniques such as gluing and combining materials to strengthen.</p> <p>Spring term - Mechanisms: I can create products using levers, wheels and winding mechanisms. I can make products, refining the design as my work progresses. I can choose the right materials for making a product according to the properties needed. Mary Fergusson</p>	<p><u>As a design and technologist:</u> Summer term – Puppet I can measure and mark out to the nearest centimetre. I can demonstrate a range of cutting and shaping techniques such as tearing, cutting, folding and curling. I can demonstrate a range of joining techniques: combining materials to strengthen. Textiles: I can join textiles using running stitch. I can colour and decorate textiles using a number of techniques such as dyeing, adding sequins or printing.</p>	<ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
Evaluate		<p><u>As a design and technologist:</u> Autumn term - Photo frame I am beginning to explore objects to identify likes and dislikes of the designs. I can evaluate my design or product against given design criteria.</p> <p>Spring term - Mechanisms: I am beginning to show an understanding of how historical events or people have helped shape the technological world today. I can evaluate my design or product against given design criteria. I am beginning to suggest improvements to existing designs.</p>	<p><u>As a design and technologist:</u> Summer term – Puppet I can explore objects to identify likes and dislikes of the designs. I can suggest improvements to existing designs. I can evaluate my design or product against my own design criteria. I can talk about how historical events or people have helped shape the technological world today.</p>	<ul style="list-style-type: none"> Investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world

Technical Knowledge		<p><u>As a design and technologist:</u></p> <p>Autumn term - Photo frame I am beginning to use my understanding of materials and their properties to strengthen, stiffen or reinforce products.</p> <p>Spring term Mechanisms: I am beginning to use my understanding of materials and their properties to strengthen, stiffen or reinforce products. I am beginning to develop my knowledge of computing to program, monitor or control my product.</p>	<p><u>As a design and technologist:</u></p> <p>Summer term – Puppet Textiles: I can model designs using software.</p>	<ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
Cooking and Nutrition			<p><u>As a design and technologist:</u></p> <p>Autumn term – cooking I can talk about how to be healthy. I can show understanding of a varied diet. I can talk about where different foods come from. I can cut, peel or grate ingredients safely and hygienically. I can measure or weigh using measuring cups or electronic scales. I can assemble or cook ingredients. I can show understanding of safety when cooking ingredients.</p>	<ul style="list-style-type: none"> • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.
Vocabulary	<p>Year R Vocab: Plan, Idea, Tear, Draw, Cut, Join, Build/Construct, Choose</p>	<p>Year 1 and 2 Vocab: purpose develop design model user evaluate join combine materials Lever slider join materials wheel axles fold fix decorate straight curve forwards backwards</p> <ul style="list-style-type: none"> • Names of basic materials • Names of basic shapes 		



The Orchard Lea Federation - Design Technology: Progression of knowledge and skills (Junior)



	Year 3	Year 4	Year 5	Year 6	End of Key Stage Expectations
Design	<p>As a design and technologist:</p> <p>Autumn Term – Fair ground ride Spring term – Battery operated light</p> <p>I can show that my design meets a range of requirements. I can put together a plan which shows the equipment and tools I need. I can describe a design using an accurately labelled diagram.</p>	<p>As a design and technologist:</p> <p>Spring term – wallet/purse</p> <p>I can design with purpose by identifying opportunities to design and re-design. I can create cross-sectional diagrams to demonstrate my design.</p>	<p>As a design and technologist:</p> <p>Autumn term – Alarm electronics</p> <p>I can produce a detailed step-by-step plan. I can produce prototypes to show my ideas.</p> <p>Spring term – CAM moving toy</p> <p>I can come up with a range of ideas after I have collected information. I can take a user's view into account when designing. I can use cross sectional planning to show my design</p>	<p>As a design and technologist:</p> <p>Summer term – clothing</p> <p>I can design with the user in mind, motivated by the service a product will offer (rather than simply for profit). I can use prototypes, cross-sectional diagrams and computer aided designs to represent designs. I can create innovative designs that improve upon existing products.</p>	<ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
Make	<p>As a design and technologist:</p> <p>Spring term – Battery operated light</p> <p>I can use a range of tools and equipment accurately. I can measure, mark out, assemble and join materials and components with some accuracy. I can refine designs as my work progresses and adapt accordingly.</p> <p>Autumn Term – Fair ground ride Mechanisms:</p> <p>I can create products using appropriate materials and mechanisms that allow movement; levers and linkages. I can refine designs as my work progresses and adapt accordingly. Henry Ford</p>	<p>As a design and technologist:</p> <p>Spring term – wallet/purse</p> <p>I can cut materials accurately and safely by selecting appropriate tools. I can measure and mark out to the nearest millimetre. I can understand the need for a seam allowance. Textiles: I can join textiles with appropriate stitching. I can make products by working efficiently (e.g. by carefully selecting materials).</p>	<p>As a design and technologist:</p> <p>Autumn term – Alarm electronics</p> <p>I can use a range of tools and equipment expertly. I can refine designs as my work progresses and adapt accordingly and explain/justify these adaptations (by using a prototype).</p> <p>Spring term –CAM moving toy Mechanisms:</p> <p>I can cut materials accurately and safely. I can measure and mark out accurately to the nearest millimetre. I can create a robust product using mechanisms that allow movement e.g pulleys and cams. I know what a cam is and I can incorporate one into my product. I have developed a greater understanding of how these work and I can explain this. James Dyson</p>	<p>As a design and technologist:</p> <p>Summer term – clothing Textiles:</p> <p>I can cut materials with precision and refine the finish with appropriate tools (such as a more precise scissor cut after roughly cutting out a shape). I can create objects that need a seam allowance. I can join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decorations). Vivienne Westwood & Louis Vuitton</p>	<ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate	<p>As a design and technologist:</p> <p><u>Autumn Term – Fair ground ride</u> <u>Spring term – Battery operated light</u> I am able to look at products and talk about how they work.</p> <p>I can practise my evaluation skills by evaluating existing products. I can evaluate my own products. I can suggest a change that could be made to improve a product.</p>	<p>As a design and technologist:</p> <p><u>Spring term – wallet/purse</u> I can disassemble products to understand how they work. I can refine work and techniques as my work progresses, continually evaluating the product design. I can improve upon existing designs, giving reasons for choices.</p>	<p>As a design and technologist:</p> <p><u>Spring term – CAM moving toy</u> I can test and evaluate my final product. I can evaluate the design to suggest improvements, considering the materials and methods that have been used. I can explain how my product will appeal to the audience.</p> <p><u>Autumn term – electronics</u> I can evaluate the appearance and function against the original criteria. I can practise my evaluation skills by evaluating existing products against criteria which I have set. I can explain why my finished product is going to be of good quality. I can explain how a product will appeal to the audience. I can think about the aesthetic qualities of work. I can think about the functionality of my work.</p>	<p>As a design and technologist:</p> <p><u>Summer term – clothing Textiles:</u> I can make products through stages of prototypes, making continual refinements. I can evaluate the design of products so as to suggest improvements to the user experience.</p> <p>I can combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</p>	<ul style="list-style-type: none"> • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical Knowledge</p>	<p>As a design and technologist: Spring term – Battery operated light I can think about how to make my product strong. I can devise a template. I can create series and parallel circuits. I can use software to design and represent product designs.</p> <p>Autumn Term – Fair ground ride Mechanisms: I am beginning to use scientific knowledge of the transferences of forces to choose appropriate mechanisms for a product (levers and linkages). I can control and monitor models using software designed for this purpose. I can join textiles of different types in a different ways.</p>	<p>As a design and technologist: Spring term – wallet/purse I can choose suitable techniques to construct products. I can strengthen materials using suitable techniques. Textiles: I can apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut-outs). I can select appropriate joining techniques. I can select the most appropriate techniques to decorate textiles. I can choose textiles for a purpose.</p>	<p>As a design and technologist: Spring term –CAM moving toy Mechanisms: I can choose appropriate tools to cut and shape and justify choices with my knowledge (such as the nature of fabric may require sharper scissors than would be used to cut paper). I am beginning to develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). I can convert rotary motion to linear using cams.</p> <p>Autumn term – electronics alarm I am beginning to use innovative combinations of electronics (or computing) and mechanics in product designs. I can write code to control and monitor models or products. I can use innovative combinations of electronics (or computing) and mechanics in product designs. I am beginning to create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p>	<p>As a design and technologist: Summer term – clothing Textiles: I can 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). I can use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles.</p>	<ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Cooking and Nutrition</p>		<p>As a design and technologist: I can choose the right ingredients for a product. I can prepare ingredients hygienically using appropriate utensils. I can use equipment safely. I can measure ingredients to the nearest gram accurately. I can follow a recipe. I can make sure that my product looks attractive. I can assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). I can describe how my combined ingredients come together.</p>		<p>As a design and technologist: I understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). I can measure accurately and calculate ratios of ingredients to scale up or down from a recipe. I can demonstrate a range of baking and cooking techniques. I can create and refine recipes, including ingredients, methods, cooking times and temperatures.</p>	<ul style="list-style-type: none"> • understand and apply the principles of a healthy and varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

