



# Design Technology Long Term Plan Cycles A and B

Cycle A							
Year	Term	Learning Challenge	Key Questions	National Curriculum	Key Concepts	Vocabulary	Links to Ludworth Areas of Need
Years 1 and 2	Autumn 2	Can we design a set of chairs for the three bears? (LC, Y1 Unit)  Construction	LC1: How many different kinds of chairs can we find, draw and label? LC2: What materials are used to make different chairs? LC3: What sort of chair would each of The Three Bears like and why LC4: Can we draw our designs for chairs for each of The Three Bears? LC5: How will we measure, cut and join different junk materials? LC6: Can we use junk materials to make models of our chairs? LC7: How could we make our chairs even better? Ref: Why are our chairs suitable for each of The Three Bears?	<u>Construction</u>  When designing and making, pupils should be taught to: Select from and use a wide range of materials and components, including construction materials and textiles, according to their characteristics.	<ul style="list-style-type: none"> <li>• They can talk with others about how they want to construct their product</li> <li>• They select appropriate resources and tools for their building projects</li> <li>• They make simple plans before making objects, e.g. drawings, arranging pieces of construction before building.</li> <li>• They make a structure/model using different materials.</li> <li>• Make their model stronger if it needs to be</li> <li>• They cut materials using scissors</li> <li>• They describe the materials using different words</li> <li>• They describe how different textiles feel</li> <li>• They make a product from textile by gluing?</li> </ul>	cut fold join fix structure framework	<p><b>Spoken language development</b> Talking about existing products and evaluating their work.</p> <p><b>Writing development</b> <b>Linking to literacy</b> Planning their own designs in words</p> <p><b>Experiential learning including through the outdoors</b> Exploring different products.</p>
		Year 1 and 2	Spring 2	Why might our Dinosaurs or Monsters bite you? (LC, Y2 Unit)  Mechanisms	LC1: What is a lever and a cam and can we practice making them using construction kits? LC2: What tools and materials can we use to cut and join cardboard? LC3: How can we make a monster or dinosaur out	<u>Mechanisms</u>  When designing and making, pupils should be taught to: Select from and use a wide range of materials and components according to their characteristics.	<ul style="list-style-type: none"> <li>• Think of ideas and plan what to do next</li> <li>• Choose the best tools and materials and give reasons why these are best</li> <li>• Describe their design by using pictures, diagrams, models and words.</li> <li>• Join things (materials/ components) together in different ways.</li> </ul>



## Design Technology Long Term Plan Cycles A and B

			<p>of cardboard and cardboard boxes?            LC4: Can we make parts of our monster or dinosaur move?            LC5: Could we improve our monster or dinosaur to make it even more ferocious?            LC6: How can we colour or decorate our model and make sure the moving parts still operate?            Ref: Can we explain how our monster or dinosaur can bite?</p>		<ul style="list-style-type: none"> <li>• Talk about what went well with their work and what they would do again improve.</li> <li>• Join materials together as part of a moving product and add some kind of design to their product</li> </ul>		<p><b>Writing development</b>  <b>Linking to literacy</b>            Planning their own designs in words</p> <p><b>Experiential learning including through the outdoors</b>            Exploring different products.</p>
Years 1 and 2	Summer 2	<p>What shall we have in our sandwiches today?            (LC, Y2 Unit)</p> <p style="color: #0070c0;">Cooking &amp; Nutrition</p>	<p>LC1: How is bread made?            LC2: Which types of bread could we use to make a sandwich?            LC3: Where do our favourite sandwich ingredients come from?            LC4: How do they make butter, mayonnaise and sandwich spread?            LC5: How should we prepare ingredients for our sandwiches?            LC6: Can we make our own sandwich filling?            Ref: Which ingredients will we use to make a really healthy sandwich?</p>	<p><u>Cooking and Nutrition</u></p> <p>Pupils should be taught to: Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.</p>	<ul style="list-style-type: none"> <li>• Think of ideas and plan what to do next</li> <li>• Choose the best tools and materials and give a reason why these are best.</li> <li>• Describe their design by using pictures and words.</li> <li>• Talk about what went well with their work and what they would do again improve.</li> <li>• Describe the properties of the ingredients they are using.</li> <li>• Explain what it means to be hygienic and that they are hygienic in the kitchen.</li> </ul>	<p>Grate            Crush            Mix            Peel            Chop            Slice            The bridge            The claw</p>	<p><b>Spoken language development</b>            Explain their ideas and sharing what they think about different products.</p> <p><b>Writing development</b>            Writing instructions</p> <p><b>Healthy eating</b>            Exploring a healthy plate in terms of their own personal health.</p>



## Design Technology Long Term Plan Cycles A and B

							<p><b>Developing positive learning behaviours</b> Learning in a safe manner with different equipment.</p> <p><b>Experiential learning</b> Creating new products.</p> <p><b>Reading</b> Product labels and instructions</p>
Years 3 and 4	Autumn 1	<p>Can we all go and fly a kite? (LC, D&amp;T Y4 Unit)</p> <p style="color: #4682b4;">Construction</p>	<p>LC1: What kinds of kite are there and what materials are they made from?</p> <p>LC2: What are the design criteria for a kite?</p> <p>LC3: What kind of kite will we design and why?</p> <p>LC4: What materials will we need and how will we cut and join them?</p> <p>LC5: Can we construct our kite so it is strong, light and looks good too?</p> <p>LC6: s a tail on a kite really necessary?</p> <p>Ref: Did our kite work and what could we do to improve it?</p>	<p><u>Construction</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including textiles.</p>	<ul style="list-style-type: none"> <li>• Come up with at least one idea about how to create their product and take account of the ideas of others when designing.</li> <li>• Produce a plan and explain it to others. Suggest some improvements and say what was good and not so good about their original design.</li> <li>• Show a good level of expertise when using a range of tools and equipment.</li> <li>• Have they thought of how they will check if their design is successful?</li> <li>• Begin to explain how they can improve their original design and evaluate their product, thinking of both appearance and the way it works.</li> <li>• Finding was to make a product strong and explain how to join things in a different way.</li> <li>• Devise a template and present their product in an interesting way</li> <li>• Measure carefully so as to make sure they have not made mistakes.</li> </ul>	<p>Prototype functional innovative function planning design criteria appealing evaluating design brief design</p>	<p><b>Spoken Language Development</b> Explain design to the rest of the class using technical vocabulary, full sentences and standard English. Ask and answer questions about design.</p> <p><b>Experiential Learning</b> Practical design and make project.</p> <p><b>Gem Project</b> Collaboration – amethyst and topaz.</p>



## Design Technology Long Term Plan Cycles A and B

							<p><b>Writing Development</b> Keep process diary of all the stages of the project, including final evaluation</p>
Years 3 and 4	Spring 2	<p>How can we recreate the beauty of Greek Sculpture? (Making Greek Pots/Jewellery container) (LC D&amp;T, Y3 Unit)</p> <p style="color: #4682b4;">Mouldable materials</p>	<p>LC1: What jewellery boxes and containers are available to buy and what are their features? LC2: What tools and techniques can we use when we are making a product out of coloured modelling clay? LC3: How will we incorporate compartments and a lid? LC4: Can we draw our designs first and include measurements? LC5: How will we make our container look great? Ref: Does our jewellery box compare well against those you can buy?</p>	<p><u>Mouldable Materials</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials according to their functional properties and aesthetic qualities</p> <p>Pupils will learn how to make a simple coil pot from clay and decorate it in the style of the Greeks.</p>	<ul style="list-style-type: none"> <li>• Show that their design meets a range of requirements.</li> <li>• Put together a step-by step plan which shows the order and also what equipment and tools they need.</li> <li>• Describe their design using an accurately labelled sketch and words.</li> <li>• Use equipment and tools accurately and select the most appropriate materials.</li> <li>• Use a range of techniques to shape and mould.</li> <li>• Use finishing techniques.</li> </ul>	<p>shell structure three-dimensional (3-D) shape marking out scoring shaping joining assemble accuracy</p>	<p><b>Spoken Language Development</b> Explain design to the rest of the class using technical vocabulary, full sentences and standard English.</p> <p><b>Experiential Learning</b> Practical design and make project.</p> <p><b>Gem Project</b> Collaboration – amethyst and topaz.</p> <p><b>Writing Development</b> Keep process diary of all the stages of the project, including final evaluation.</p>



# Design Technology Long Term Plan Cycles A and B

Years 3 and 4	Summer 2	<p>How interactive can we make our book? (LC D&amp;T, Y3 Unit)</p> <p><b>Mechanisms</b></p> <p>Link to creating a book of the Lambton Worm</p>	<p>LC1: What techniques can we learn for making pop-up books? LC2: Can we build prototypes to test ways of making pop-up features? LC3: What pop-up features will we include in our own book for younger children in our school? LC4: Can we include any features that use electrical circuits and switches? LC5: How will we make our books robust enough for younger children to use? LC6: Do our front cover and our illustrations suit the audience for our book and are they of high quality? Ref: What do the younger children think of our products?</p>	<p><b>Mechanisms</b></p> <p>Electrical and Mechanical Components When designing and making, pupils should be taught to: Select from and use a wider range of materials and components.</p>	<ul style="list-style-type: none"> <li>• Show that their design meets a range of requirements.</li> <li>• Put together a step-by step plan which shows the order and also what equipment and tools they need.</li> <li>• Describe their design using an accurately labelled sketch and words.</li> <li>• Use equipment and tools accurately and select the most appropriate materials.</li> <li>• Make a product which uses both electrical and mechanical components.</li> <li>• Use a simple circuit</li> <li>• Use a number of components?</li> </ul>	<p>series circuit fault connection toggle switch push-to-make switch push-to-break switch battery battery holder bulb bulb holder wire insulator conductor crocodile clip control program system input device output device</p>	<p><b>Spoken Language Development</b> Explain design to the rest of the class using technical vocabulary, full sentences and standard English.</p> <p><b>Experiential Learning</b> Practical design and make project.</p> <p><b>Gem Project</b> Collaboration – amethyst and topaz.</p> <p><b>Writing Development</b> Keep process diary of all the stages of the project, including final evaluation.</p>
	Autumn 1	<p>Why would birds hatch their eggs here? (Links to Science) (LC, D&amp;T, Y5 Unit)</p> <p><b>Construction</b></p>	<p>LC1: What kind of birds live in or visit our school grounds? LC2: What do the species of birds that might nest here need? LC3: Can we design a box that meets the needs of species of local birds?</p>	<p><b>Construction</b></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including textiles.</p>	<ul style="list-style-type: none"> <li>• Come up with a range of ideas after they have collected information.</li> <li>• Take a user’s view into account when designing.</li> <li>• Produce a detailed step-by-step plan, suggest some alternative plans and say what the good points and drawbacks are about each.</li> </ul>	<p>frame structure stiffen strengthen reinforce triangulation stability shape join temporary</p>	<p><b>Spoken Language:</b> Discuss ideas using correct vocabulary</p> <p><b>Developing Writing:</b></p>

## Design Technology Long Term Plan Cycles A and B

			<p>LC4: How will we cut and join the materials?          LC5: How will our design be stable and weatherproof?          LC6: How will we securely attach our nest box to a tree, post, wall or fence?          Ref: Can we produce instructions and plans so other people can make our nest box?</p>		<ul style="list-style-type: none"> <li>• Explain why their finished product is going to be of good quality and explain how their product will appeal to the audience.</li> <li>• Use a range of tools and equipment expert.</li> <li>• Keep checking that their design is the best it can be and check whether anything could be improved.</li> <li>• Evaluate appearance and function against the original criteria.</li> <li>• Are their measurements accurate enough to ensure that everything is precise?</li> <li>• Use a range of joining techniques.</li> <li>• Ensure that their product is strong and fit for purpose.</li> </ul>	permanent	<p>Write instructions and evaluation</p> <p><b>Gem Project:</b>          Resilience (Emerald) Group collaboration (Topaz) Partner collaboration (Amethyst)</p> <p><b>Experiential Learning:</b>          Design, create and test a bird box.</p>
Year 5 and 6	Spring 2	<p>How can you create a Viking long ship from a range of materials?          (LC5 from History unit on Vikings)</p>	<p>LC1: What makes a good long boat?          LC2: Which material would be the best for a long boat?          LC3: How will we join wood, textiles and other materials to make our boat storm proof?          LC4: Can we plan our designs first before construction?          LC5: Can we plan our designs first before construction?          LC6: Can we make a Viking long boat?          LC7: How can we improve our design?          Ref: Did our boats sail to sea?</p>	<p><u>Materials</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including construction materials according to their functional properties.</p>	<ul style="list-style-type: none"> <li>• Come up with a range of ideas after collecting information from different sources</li> <li>• Produce a detailed, step-by-step plan and explain how a product will appeal to a specific audience.</li> <li>• Know which tool to use for a specific practical task.</li> <li>• Know how to use any tool correctly and safely.</li> <li>• Know what each tool is used for.</li> <li>• Explain why a specific tool is best for a specific action</li> <li>• Suggest alternative plans; outlining the positive features and draw backs</li> <li>• Evaluate appearance and function against original criteria</li> </ul>	<p>Frame structure stiffen strengthen reinforce triangulation stability shape join temporary permanent</p>	<p><b>Spoken Language:</b>          Discuss ideas using correct vocabulary</p> <p><b>Developing Writing:</b>          Write instructions and evaluation</p> <p><b>Gem Project:</b>          Resilience (Emerald) Group collaboration (Topaz) Partner collaboration (Amethyst)</p> <p><b>Experiential Learning:</b></p>



## Design Technology Long Term Plan Cycles A and B

							Design, create and test a Viking longboat
Year 5 and 6	Summer 1	<p>How far will our model plane fly? (Links to science unit) (LC, Y5, Unit)</p> <p>Materials</p>	<p>LC1: How many designs for paper planes can we research and which fly the furthest? LC2: Will we design a model glider or a model elastic band powered plane? LC3: What materials will be best to use and why? LC4: How will we join our materials and still ensure our plane is light and aerodynamic? LC5: What techniques will we use during construction? LC6: What modifications will improve the performance of our plane? Ref: How will we test our designs?</p>	<p><u>Materials</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including construction materials according to their functional properties.</p>	<ul style="list-style-type: none"> <li>• Come up with a range of ideas after they have collected information.</li> <li>• Take a user's view into account when designing.</li> <li>• Produce a detailed step-by-step plan, suggest some alternative plans and say what the good points and drawbacks are about each.</li> <li>• Explain why their finished product is going to be of good quality and explain how their product will appeal to the audience.</li> <li>• Use a range of tools and equipment expert.</li> <li>• Keep checking that their design is the best it can be and check whether anything could be improved.</li> <li>• Evaluate appearance and function against the original criteria.</li> <li>• Are their measurements accurate enough to ensure that everything is precise?</li> <li>• Use a range of joining techniques.</li> <li>• Ensure that their product is strong and fit for purpose.</li> </ul>	<p>Frame structure stiffen strengthen reinforce triangulation stability shape join temporary permanent</p>	<p><b>Spoken Language:</b> Discuss ideas using correct vocabulary</p> <p><b>Developing Writing:</b> Write instructions and evaluation</p> <p><b>Gem Project:</b> Resilience (Emerald) Group collaboration (Topaz) Partner collaboration (Amethyst)</p> <p><b>Experiential Learning:</b> Design, create and test to see how far a model plane will fly.</p>



## Design Technology Long Term Plan Cycles A and B

Cycle B							
Year	Term	Learning Challenge	Key Questions	National Curriculum	Key Concepts	Vocabulary	Links to Ludworth Areas of Need
Years 1 and 2	Autumn 2	What could be in our fruit salad? (LC, D&T Y1 Unit)  <span style="color: #4f81bd;">Cooking &amp; Nutrition</span>	LC1: How many different fruit can we identify? LC2: Which fruit grows in this country and which fruit grows in other countries? LC3: Why is fruit so good for us? LC4: What are the ingredients in fruit salads from a supermarket? LC5: How do we prepare different fruit so they are ready to eat? LC6: Which fruits taste the best? LC7: What will be in our fruit salad so that it tastes nice and looks good too? Ref: What do other people think of our fruit salads?	<u>Cooking and nutrition</u>  As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Pupils should be taught to: <ul style="list-style-type: none"> <li>• use the basic principles of a healthy and varied diet to prepare dishes</li> <li>• understand where food comes from.</li> </ul>	<ul style="list-style-type: none"> <li>• Think of some ideas of their own and explain what they want to do, using words to plan.</li> <li>• Explain which tools they are using what they are making</li> <li>• They talk about their own work and things that other people have done.</li> <li>• Cut food safely.</li> <li>• Describe the texture of foods</li> <li>• Importance of washing their hands and make sure that surfaces are clean.</li> <li>• They think of interesting ways of decorating food they have made, e.g., cakes.</li> </ul>	Grate Crush Peel Chop Slice Layered The bridge The claw	<p><b>Spoken language development</b> Talking about likes and dislikes.</p> <p><b>Writing development</b> Writing the recipes for the salads.</p> <p><b>Healthy eating</b> Making healthy salad and learning about ways to stay healthy.</p> <p><b>Developing positive learning behaviours and mental health through Gem Project</b> Development of independent skills.</p> <p><b>Experiential learning including through the outdoors</b></p>





## Design Technology Long Term Plan Cycles A and B

							Children will have the opportunities to explore food they may not have tried.
Year 1 and 2	Spring 2	<p>How can we make a picture move? (LC, D&amp;T Y1 Unit)</p> <p><u>Mechanisms</u></p>	<p>LC1: How can we cut and join paper and card?            LC2: How can we use slots in the picture to allow parts of the picture to move up and down?            LC3: How can we use split pins to allow parts of the picture to go round?            LC4: Which picture shall we choose and why?            LC5: What parts of our picture do we want to move and how will this happen?            LC6: Can we create our product so that it works?            Ref: Can we explain how the mechanisms we used work?</p>	<p><u>Mechanisms</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wide range of materials and components according to their characteristics.</p>	<ul style="list-style-type: none"> <li>• Think of some ideas of their own and explain what they want to do, using words to plan.</li> <li>• Explain which tools they are using what they are making</li> <li>• They talk about their own work and things that other people have done.</li> <li>• Describe how things work.</li> <li>• Make a product which moves</li> <li>• Cut materials using scissors.</li> <li>• Describe the materials using different words</li> <li>• Say why they have chosen moving parts.</li> </ul>	<p>mechanism            wheel            disc            split pin            lever            pivot            slider</p>	<p><b>Spoken language development</b>            Talking about existing products and evaluating their work.</p> <p><b>Writing development Linking to literacy</b>            Planning their own designs in words</p> <p><b>Experiential learning including through the outdoors</b>            Exploring different products.</p>
Years 1 and 2	Summer 2	<p>How can we put on a finger puppet show? (LC, Y2 D&amp;T Unit)</p> <p><u>Textiles</u></p>	<p>LC1: What makes a good finger puppet? LC2: What will our own finger puppets look like?            LC3: Which textiles will we use and why?</p>	<p><u>Textiles</u></p> <p>When designing and making, pupils should be taught to: select from and use a wide range of materials including textiles</p>	<ul style="list-style-type: none"> <li>• Think of some ideas of their own and explain what they want to do, using words to plan.</li> <li>• Choose the best tools and materials and give a reason why these are best.</li> <li>• Describe their design by using pictures, diagrams, models and words.</li> </ul>	<p>Felt            Needle            Tread            Running            Stich            Fabrics            Sew            Seam</p>	<p><b>Spoken language development</b>            Talking about existing products and evaluating their work.</p>

## Design Technology Long Term Plan Cycles A and B

			<p>LC4: How can we cut our textiles to the correct size and shape?</p> <p>LC5: Which materials can we use to make the features of our puppets?</p> <p>LC6: How can we join our textiles and other materials together?</p> <p>LC7: How do we know our finger puppets work?</p> <p>Ref: Can we use our finger puppets to tell a story?</p>	<p>according to their characteristics</p>	<ul style="list-style-type: none"> <li>• Join things (materials/ components) together in different ways.</li> <li>• What went well with their work and if they did it again, what would they want to improve?</li> <li>• Measuring, cutting and joining textiles together to make something?</li> <li>• Explain why they chose a certain textile?</li> </ul>		<p><b>Experiential learning</b> Using different materials to create a puppet.</p>
Years 3 and 4	Autumn 2	<p>What would my dinner be back in Ancient Egypt? (LC, D&amp;T, Y3 Unit)</p> <p style="color: #4682b4;">Cooking &amp; Nutrition</p>	<p>LC1: What was a typical weekly menu?</p> <p>LC2: Where did the ingredients come from?</p> <p>LC3: How were the ingredients prepared and what tools were used?</p> <p>LC4: Can we write a recipe for a meal from that time?</p> <p>LC5: Can we prepare food as people did in the past?</p> <p>LC6: How will we cook our food and how was it cooked in the past?</p> <p>Ref: Was our diet healthier now or then and why?</p>	<p><u>Cooking and Nutrition</u></p> <p>Pupils should be taught to: 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.</p>	<ul style="list-style-type: none"> <li>• They choose the right ingredients for a product.</li> <li>• They use equipment safely.</li> <li>• They make sure that their product looks attractive.</li> <li>• Describe how their combined ingredients come together.</li> <li>• They can set out to grow plants such as cress and herbs from seed with the intention of using them for their food product.</li> </ul>	<p>Utensils techniques ingredients texture taste sweet sour hot spicy appearance smell preference greasy moist cook fresh savoury hygienic edible grown reared caught frozen tinned processed</p>	<p><b>Spoken language development</b> Explain their ideas and sharing what they think about different products.</p> <p><b>Writing development</b> Writing instructions</p> <p><b>Healthy eating</b> Exploring a healthy plate in terms of their own personal health.</p> <p><b>Developing positive learning behaviours</b> Learning in a safe manner</p>



## Design Technology Long Term Plan Cycles A and B

							with different equipment.  <b>Experiential learning</b> Creating new products.  <b>Reading</b> Product labels and instructions
<b>Years 3 and 4</b>	<b>Spring 1</b>	<p>Will our 'Bag for life' last that long? (LC, Y4 D&amp;T Unit)</p> <p style="color: #0070c0;">Textiles</p>	<p>LC1: What materials are used to make shopping bags and which are best?</p> <p>LC2: Which textiles are used to make fabric shopping bags?</p> <p>LC3: How are both the fabric and the handles joined together to ensure strength?</p> <p>LC4: Can we design our own bag for life and what textiles will we use?</p> <p>LC5: What pattern or motif will help make our bag attractive to users?</p> <p>LC6: What techniques will we use to assemble our bag?</p> <p>Ref: How will we evaluate our bag?</p>	<p><u>Textiles</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including textiles.</p>	<ul style="list-style-type: none"> <li>• Come up with at least one idea about how to create their product and take account of the ideas of others when designing.</li> <li>• Produce a plan and explain it to others. Suggest some improvements and say what was good and not so good about their original design.</li> <li>• Show a good level of expertise when using a range of tools and equipment.</li> <li>• Have they thought of how they will check if their design is successful?</li> <li>• Begin to explain how they can improve their original design and evaluate their product, thinking of both appearance and the way it works.</li> <li>• Finding was to make a product strong and explain how to join things in a different way.</li> <li>• Devise a template and present their product in an interesting way</li> <li>• Measure carefully so as to make sure they have not made mistakes.</li> <li>• Do they think what the user would want when choosing textiles?</li> <li>• Have they thought about how to make their product strong?</li> </ul>	<p>Fabric names of fabrics fastening compartment zip button structure finishing technique strength weakness stiffening templates stitch seam seam</p>	<p><b>Spoken Language Development</b> Explain design to the rest of the class using technical vocabulary, full sentences and standard English.</p> <p><b>Experiential Learning</b> Practical design and make project.</p> <p><b>Gem Project</b> Collaboration – amethyst and topaz.</p> <p><b>Writing Development</b> Keep process diary of all the stages of the project, including final evaluation.</p>

# Design Technology Long Term Plan Cycles A and B

Years 3 and 4	Summer 1	<p>How will we bridge that gap? (LC, D&amp;T, Y3 Unit)</p> <p><b>Construction</b></p> <p>LC1: How many types of bridges can we investigate? LC2: Can we copy different bridge structures using construction kits LC3: Which shapes do engineers use for their strength? LC4: Can we design a bridge made of card, paper and string to span a gap between two tables? LC5: If we have a limited budget to 'buy' card, paper and string can we modify our designs and what will we choose to build our model bridge? LC6: How will we cut and join the materials we are using? LC7: How will we test our bridge? LC8: What type of bridge was most successful and why? Ref: How could we improve our designs?</p>	<p><u>Construction</u></p> <p>When designing and making, pupils should be taught to: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>	<ul style="list-style-type: none"> <li>• Show that their design meets a range of requirements.</li> <li>• Put together a step-by step plan which shows the order and also what equipment and tools they need</li> <li>• Describe their design using an accurately labelled sketch and words.</li> <li>• Use equipment and tools accurately.</li> <li>• Talk about what they changed that made their design even better.</li> <li>• Use the most appropriate materials</li> <li>• Work accurately to make cuts and holes.</li> <li>• Join materials?</li> </ul>	<p>structure three-dimensional (3-D) shape, length width scoring adhesives joining assemble accuracy material stiff strong reduce reuse recycle corrugating</p>	<p><b>Spoken Language Development</b> Explain design to the rest of the class using technical vocabulary, full sentences and standard English.</p> <p><b>Experiential Learning</b> Practical design and make project.</p> <p><b>Gem Project</b> Collaboration – amethyst and topaz.</p> <p><b>Writing Development</b> Keep process diary of all the stages of the project, including final evaluation.</p>
	Autumn 1	<p>How could you create a moon surface and a moon buggy? (LC5 from Science unit)</p> <p>LC1: Can we describe the terrain and physical features of the Moon? LC2: How can we make our own papier mache to the correct consistency to make a moon surface? LC3: How do vehicles move on the moon? LC4: How will we evaluate our final 3D model?</p>	<p><u>Mouldable Materials</u></p> <p>When designing and making, pupils should be taught to: Select from and use a wider range of materials according to their functional properties and aesthetic qualities.</p>	<ul style="list-style-type: none"> <li>• Come up with a range of ideas after collecting information from different sources.</li> <li>• Know which tool to use for a specific practical task.</li> <li>• Know how to use any tool correctly and safely.</li> <li>• Know what each tool is used for.</li> <li>• Explain why a specific tool is best for a specific action.</li> </ul>	<p>Pulley drive belt gear rotation spindle driver follower ratio transmit axle motor</p>	<p><b>Spoken Language:</b> Discuss ideas using correct vocabulary</p> <p><b>Developing Writing:</b> Write instructions and evaluation</p>



## Design Technology Long Term Plan Cycles A and B

		<p><b>Mouldable Materials &amp; mechanisms</b></p> <p>Ref: Did the moon buggy move on the moon?</p> <p><i>Pupils will be creating a moon buggy that has certain specifications and then creating a moon surface to test it works</i></p>		<ul style="list-style-type: none"> <li>• Produce a detailed, step-by-step plan and explain how a product will appeal to a specific audience.</li> <li>• Design a product that may require pulleys or gears.</li> <li>• Use a range of tools and equipment competently.</li> <li>• Make a prototype before making a final version.</li> <li>• Suggest alternative plans; outlining the positive features and draw backs.</li> <li>• Evaluate appearance and function against original criteria.</li> <li>• Know how to test and evaluate designed products.</li> <li>• Evaluate product against clear criteria</li> <li>• Use knowledge to improve a made product by strengthening, stiffening or reinforcing</li> </ul>	<p>circuit switch circuit diagram annotated drawings exploded diagrams mechanical system electrical input process output</p>	<p><b>Gem Project:</b> Resilience (Emerald) Group collaboration (Topaz) Partner collaboration (Amethyst)</p> <p><b>Experiential Learning:</b> Design, create and test moving toy.</p>
<b>Year 5 and 6</b>	<b>Spring 1</b>	<p>Who will win the Great Ludworth Bread Bake Off? (LC, Y5 D&amp;T Unit)</p> <p><b>Cooking &amp; Nutrition</b></p> <p>LC1: What are the main ingredients in bread and how are they produced? LC2: How are different types of bread made around the world? LC3: What cookery techniques will we use and why are they important? LC4: Which recipes will we choose to bake and why? LC5: How will we evaluate our bread? Ref: What do other people think of our bread and would it win the Bake-Off?</p>	<p><u>Cooking and Nutrition</u></p> <p>Pupils should be taught to: 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.</p>	<ul style="list-style-type: none"> <li>• Come up with a range of ideas after they have collected information.</li> <li>• They take a user's view into account when designing and can they suggest some alternative plans and say what the good points and drawbacks are about each.</li> <li>• Explain why their finished product is going to be of good quality and explain how their product will appeal to the audience.</li> <li>• Use a range of tools and equipment expertly.</li> <li>• Evaluate appearance and function against the original criteria.</li> <li>• Describe what they do to be both hygienic and safe</li> <li>• Presenting their product well.</li> </ul>	<p>Ingredients Yeast Dough Bran flour wholemeal unleavened baking soda spice herbs fat sugar carbohydrate protein vitamins nutrients nutrition healthy varied gluten dairy</p>	<p><b>Spoken language development</b> Explain their ideas and sharing what they think about different products.</p> <p><b>Writing development</b> Writing instructions</p> <p><b>Healthy eating</b> Exploring a healthy plate in terms of their own personal health.</p>



## Design Technology Long Term Plan Cycles A and B

						<p>allergy intolerance</p> <p>savoury source</p> <p>seasonality</p> <p>utensils</p> <p>combine</p> <p>fold</p> <p>knead</p> <p>stir</p> <p>pour</p> <p>mix</p> <p>rubbing in</p> <p>whisk</p> <p>beat</p> <p>roll out</p> <p>shape</p> <p>sprinkle</p> <p>crumble</p>	<p><b>Developing positive learning behaviours</b></p> <p>Learning in a safe manner with different equipment.</p> <p><b>Experiential learning</b></p> <p>Creating new products.</p> <p><b>Reading</b></p> <p>Product labels and instructions</p> <p><b>Gem Project:</b></p> <p>Resilience (Emerald)</p> <p>Group collaboration (Topaz) Partner collaboration (Amethyst)</p>
<b>Year 5 and 6</b>	<b>Summer 2</b>	<p>Can you design a board game that makes use of an electric circuit? (LC5 from Science Unit)</p> <p style="color: blue; text-align: center;"><b>Mechanisms</b></p>	<p>LC1: What do we already know about board games?</p> <p>LC2: Why do games have features: switch; buzzer; motor?</p> <p>LC3: How can we make a prototype board game using an electrical circuit?</p> <p>LC4: Can you design a board game that makes use of an electric circuit and at least one of the features looked at in LC1 (science challenge)?</p>	<p><u>Mechanisms</u></p> <p>Electrical and Mechanical Components When designing and making, pupils should be taught to: Select from and use a wider range of materials and components, including textiles.</p>	<ul style="list-style-type: none"> <li>• Use a range of information to inform their design.</li> <li>• Use market research to inform plans and work within constraints.</li> <li>• Follow and refine their plan if necessary.</li> <li>• Justify their plan to someone else and consider culture and society in their designs.</li> <li>• Use tools and materials precisely.</li> <li>• Test and evaluate their final product to see if it is fit for purpose.</li> <li>• Talk about improvements;             <ul style="list-style-type: none"> <li>➤ Would different resources have improved their product?</li> </ul> </li> </ul>	<p>reed switch</p> <p>toggle switch</p> <p>push-to-make switch</p> <p>push-to-break switch</p> <p>light dependent resistor (LDR)</p> <p>tilt switch</p> <p>light emitting diode (LED)</p> <p>bulb</p>	<p><b>Spoken Language:</b></p> <p>Discuss ideas using correct vocabulary</p> <p><b>Developing Writing:</b></p> <p>Write instructions and evaluation</p>



## Design Technology Long Term Plan Cycles A and B

			<p>LC5: How can we test our games and improve based on an audience?          Ref: How can we evaluate and improve our board games?</p>		<ul style="list-style-type: none"> <li>➤ Would they need more or different information to make it even better?</li> <li>➤ Can they use different kinds of circuit in their product?</li> <li>➤ Can they think of ways in which adding a circuit would improve their product?</li> </ul>	<p>bulb holder          battery          USB cable          wire          insulator          conductor          crocodile clip          control          program          system          input device          output          device          series circuit          parallel          circuit</p>	<p><b>Gem Project:</b>          Resilience          (Emerald)          Group          collaboration          (Topaz) Partner          collaboration          (Amethyst)</p> <p><b>Experiential Learning:</b>          Design, create          and test moving          toy.</p>
--	--	--	--	--	---	---	---