<table>
<tr><td>Cycle B</td><td colspan="6"><u>Design Technology Knowledge Progression</u></td></tr>
<tr><td>Willow EYFS</td><td>Term 1: Minibeasts and Ourselves in our Wonderful World
I can explore different textures and materials to create simple models using my imagination and to express my ideas.
I know how to use different materials to build models and create minibeast habitats.
I can use junk modelling materials and joining materials.
I know how to use threading materials independently to make models.</td><td>Term 2: People Who Help Us (Bonfire Night/Christmas)
I know how to keep safe and use a cane to safely cook marshmallows over an open fire.
I can use large materials and objects to construct safely outside and in the Forest School, building for different purposes and using my imagination.
I can explore using different tools, such as hammers and nails to create pictures using tac boards.
I can explore how things work.</td><td>Term 3: Dinosaurs
I know how to make a jam sandwich. I know how to spread butter and cut bread, holding and using a knife correctly.
I can explore using different techniques for joining materials, with different adhesives and discuss which one works best.
I can talk about what I have made, how I made it and what materials I have used and why.</td><td>Term 4: Castles and Fairy tales
I know how to use a junior hacksaw to create jewellery. I can cut sections of wood and use a tool to poke out the middle of the wood to help me thread wool through.
I know how to use scissors to cut materials and wool.
I can use a sharp knife, wearing gloves to cut through vegetables safely and with control to make a healthy vegetable soup.</td><td>Term 5: Eric Carle Art (animals/Under the Sea/Plants)
Junk model animals. I can talk about what I have made and what I like and dislike about my creation.
I can talk about how I could make my model better and what I might do differently next time.
I can create collaboratively using inside and outside construction equipment and materials.</td><td>Term 6: Space
I can design and create a rocket.
I know how to think about form and function.
I know how to choose the best shapes/materials for different purposes.</td></tr>
<tr><td>Beech</td><td colspan="2"><u>Mechanisms: Moving Card</u>

Skills:
Explaining how to adapt mechanisms, using bridges or guides to control the movement.
Designing a moving story book for a given audience.
Following a design to create moving models that use levers and sliders.
Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.
Reviewing the success of a product by testing it with its intended audience.</td><td colspan="2"><u>Cooking and Nutrition: a balanced diet</u>

Skills:
Designing a healthy wrap based on a food combination which work well together.
Slicing food safely using the bridge or claw grip.
Constructing a wrap that meets a design brief.
Describing the taste, texture and smell of fruit and vegetables.
Taste testing food combinations and final products.
Describing the information that should be included on a label.
Evaluating which grip was most effective.</td><td colspan="2"><u>Textiles: Puppets</u>

Skills:
Using a template to create a design for a puppet.
Cutting fabric neatly with scissors.
Using joining methods to decorate a puppet.
Sequencing steps for construction.
Reflecting on a finished product, explaining likes and dislikes.
Knowledge</td></tr>
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	Knowledge • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slot, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider. • To know that in Design and Technology we call a plan a 'design'.	Knowledge • To know that 'diet' means the food and drink that a person or animal usually eats. • To understand what makes a balanced diet. • To know where to find the nutritional information on packaging. • To know that the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that nutrients are substances in food that all living things need to make energy, grow and develop. • To know that 'ingredients' means the items in a mixture or recipe. • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'. Suggested significant designers, inventors and developments: Jamie Oliver	• To know that joining techniques means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.
Maple	**Electrical Systems: Electric Posters** Skills: • Carry out research based on a given topic to develop a range of initial ideas. • Generate a final design for the electric poster with consideration to the client's needs and design criteria. • Design an electric poster that fits the requirement of a given brief. • Plan the positioning of the bulb and its purpose. • Create a final design for the electric poster.	**Mechanisms: Pneumatics** Skills: • Design a toy which uses a pneumatic system. • Develop a design criteria from a design brief. • Generate ideas using thumbnail sketches and exploded diagrams. • Learn that different types of drawing are used in design to explain ideas clearly. • Create a pneumatic system that creates a desired motion. • Build secure housing for a pneumatic system.	**Textiles: Egyptian Collars** Skills: • Design and make a template from an existing product and apply individual design criteria. • Follow design criteria to create an Egyptian Collar. • Select and cut fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to join fabric.

	• Mount the poster onto corrugated cart to improve its strength and allow it to withstand the weight of the circuit on the rear. • Measure and mark materials out using a template or ruler. • Fit an electrical component. • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge). • Learn to give and accept constructive criticism on own work and the work of others. • Testing the success of initial ideas against the design criteria and justifying opinions. • Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs. • Knowledge • To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. • To understand common features of an electric product (switch, battery or plug, dials, buttons.) • To list examples of common electric products (kettle, remote control) • To understand that an electric product uses an electrical system to work (function). • To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits. • To understand the importance and purpose of information design. • To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).	• Use syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. • Select materials due to their functional and aesthetic characteristics. • Manipulate materials to create different effects by cutting, creasing, folding and weaving. • Use the view of others to improve designs. • Test and modify the outcome, suggesting improvements. • Understand the purpose of exploded diagrams through the eyes of a designer and their client. • Manipulate materials to create different effects by cutting, creasing, folding and weaving. • Use the view of others to improve designs. • Test and modify the outcome, suggesting improvements. • Understand the purpose of exploded diagrams through the eyes of a designer and their client. Knowledge • To understand how pneumatic systems work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air. • To understand how sketches, drawings and diagrams can be used to communicate design ideas. • To know that exploded diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches are small drawings to get ideas down on paper quickly.	• Decorating fabric using applique • Complete design ideas with embellishing the collars based on design ideas. • Evaluating an end product and thinking of other ways in which to create similar items. Knowledge • To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. • To know that when two edges of fabric have been joined together it is called a seam. • To know that it is important to leave space on the fabric for the seam. • To understand that some products are turned inside out after sewing so the stitching is hidden.
Hazel	**Cooking and Nutrition: Adapting a recipe**	**Electrical Systems: Doodlers**	**Structures: Roman structures**

	Skills: • Design a biscuit within a given budget, drawing upon previous taste testing judgements. • Follow a baking recipe, from start to finish, including preparation of ingredients. • Cook safely, following basic hygiene rules. • Adapt a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet). • Evaluate a recipe, considering: taste, smell, texture and appearance. • Describe the impact of the budget on the selection of ingredients. • Evaluate and compare a range of food products. • Suggest modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins). Knowledge • To know that the amount of an ingredient in a recipe is known as the 'quantity'. • To know that it is important to use oven gloves when removing hot food from an oven. • To know the following cooking techniques: sieving, creaming, rubbing method, cooling. • To understand the importance of budgeting while planning ingredients for biscuits.	Skills: • Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user. • Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product. • Carry out a product analysis to look at the purpose of a product along with its strength and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect and existing product. • Peer evaluating a set of instructions to build a product. Knowledge • To know that a series circuits on has one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function. • To know that product analysis is critiquing the strengths and weaknesses of a product.	Skills: • Design a stable pavilion structure that is aesthetically pleasing and select materials to create a desired effect. • Building frame structures designed to support weight. • Create a range of different shaped frame structures. • Make a variety of free-standing frame structures of different shapes and sizes. • Select appropriate materials to build a strong structure and cladding. • Reinforce corners to strengthen a structure. • Create a design in accordance with a plan. Learn to create different textural effects with materials. Evaluate structures made by the class. Describe what characteristics of a design and construction made it the most effective. Consider effective and ineffective designs. Knowledge • To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.

		• To know that 'configuration' means how the parts of a product are arranged.	
Oak	**Electrical Systems: Steady Hand Game** Skills: • Design a steady hand game – identify the components required. • Draw a design from three different perspectives. • Generate ideas through sketching and discussion. • Model ideas through prototypes. • Understand the purpose of products, including what is meant by 'fit for purpose' and 'form over function'. • Construct a stable base for a game. • Accurately cut, fold and assemble a net. • Decorate the base of the game to a high quality finish. • Make and test a circuit. • Incorporate a circuit into a base. • Test own and others finished games, identifying what went well and making suggestions for improvement. • Gather images and information about existing children's toys. • Analyse a selection of existing children's toys. Knowledge • To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer. • To know that 'form' means the shape and appearance of an object. • To know the difference between form and function. • To understand that 'fit for purpose' means that a product looks good but does not work very well.	**Structures: Bridges** Skills: • Design a stable structure that is able to support weight. • Create a frame structure with a focus on triangulation. • Make a range of different shaped beam ridges. • Use triangles to create truss bridges that span a given distance and support a load. • Build a wooden bridge structure. • Independently measure and mark wood accurately. • Select appropriate tools and equipment for particular tasks. • Use the correct techniques to saw safely. • Identify where a structure needs reinforcement and use card corners for support. • Explain why selecting appropriating materials is an important part of the design process. • Understanding basic wood functional properties. • Adapt and improve own bridge structure by identifying points of weakness and reinforcing them as necessary. • Suggest points for improvements for own bridges and those designed by others. Knowledge • To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on properties.	**Cooking and Nutrition: Come Dine with Me** Skills: • Writing a recipe, explaining the key steps, method and ingredients. • Include facts and drawings from research undertaken. • Follow a recipe, including using the correct quantities of each ingredient. • Adapt a recipe based on research. • Work to a given timescale. • Work safely and hygienically with independence. • Evaluate a recipe, considering: taste, smell, texture and origin of the food group. • Taste test and score final products. • Suggest and write up points of improvements when scoring others' dishes and when evaluating their own throughout the planning, preparation and cooking process. • Evaluate health and safety in production to minimise cross contamination. Knowledge • To know that 'flavour' is how a food or drink tastes. • To know that many countries have national dishes which are recipes associated with that country. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides.

	• To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'.	• To understand the material (functional and aesthetic) properties of wood. • To understand the difference between arch, beam, truss, and suspension bridges. • To understand how to carry and use a saw safely.	• To understand what happens to a certain food before it appears on the supermarket shelf (farm to fork).