

LOSTOCK HALL PRIMARY SCHOOL - WHOLE SCHOOL PROGRESSION AND SKILLS MAP

DT	Reception	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Unit 1	<p><u>Structures: Junk Modelling</u></p> <p>In this unit, pupils explore and learn about various types of permanent and temporary join. They are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.</p>	<p><u>Food: Fruit and vegetables</u></p> <p>Pupils who are secure will be able to: Describe fruits and vegetables and explain why they are a fruit or a vegetable. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.</p>	<p><u>Mechanisms: Fairground Wheel</u></p> <p>Pupils who are secure will be able to: Design and label a wheel. Consider the designs of others and make comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel. Label their designs. Build a stable structure with a rotating wheel. Test and adapt their designs as necessary. Follow a design plan to make a completed model of the wheel.</p>	<p><u>Textiles: Cross Stitch and applique</u></p> <p><u>Cushions</u></p> <p>Pupils who are secure will be able to: Use a cross-stitch to join two pieces of fabric together. Design and cut the template for a cushion. Use cross-stitch and appliqué to decorate a cushion face. Make a cushion that includes appliqué and cross-stitch.</p>	<p><u>Mechanical systems: Making a slingshot car</u></p> <p>Pupils who are secure will be able to: Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape. Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Conduct a trial accurately and draw conclusions and improvements from the results.</p>	<p><u>Food: What could be healthier?</u></p> <p>Pupils who are secure will be able to: Understand how beef gets from the farm to our plates. Present a subject as a poster with clear information in an easy to read format. Contribute ideas as to what a 'healthy meal' means. Notice the nutritional differences between different products and recipes. Recognise nutritional differences between two similar recipes and give some justification as to why this is. Amend a bolognese recipe with healthy adaptations. Follow a recipe to produce a healthy bolognese sauce. Design packaging that promotes the ingredients of the bolognese.</p>	<p><u>Structure: Playgrounds</u></p> <p>Pupils who are secure will be able to: Create five apparatus designs, applying the design criteria to their work. Make suitable changes to their work after peer evaluation. Make roughly three different structures from their plans using the materials available. Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. Secure their apparatus to a base. Make a range of landscape features using a variety of materials which will enhance their apparatus.</p>

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Unit 2	<p><u>Textiles: Bookmarks</u></p> <p>Pupils develop and practise threading and weaving techniques using various materials and objects. They look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.</p>	<p><u>Structures: Constructing Windmills</u></p> <p>Pupils who are secure will be able to: Identify some features that would appeal to the client (a mouse) and create a suitable design. Explain how their design appeals to the mouse. Make stable structures, which will eventually support the turbine, out of card, tape and glue. Make functioning turbines and axles that are assembled into the main supporting structure. Say what is good about their windmill and what they could do better.</p>	<p><u>Food: A balanced diet</u></p> <p>Pupils who are secure will be able to: Name the main food groups and identify foods that belong to each group. Describe the taste, texture and smell of a given food. Think of four different wrap ideas, considering flavour combinations. Construct a wrap that meets the design brief and their plan</p>	<p><u>Structures: Constructing a Castle</u></p> <p>Pupils who are secure will be able to: Draw and label a simple castle that includes the most common features. Recognise that a castle is made up of multiple 3D shapes. Design a castle with key features which satisfy a given purpose. Score or cut along lines on the net of a 2D shape. Use glue to securely assemble geometric shapes. Utilise skills to build a complex structure from simple geometric shapes. Evaluate their work by answering simple questions.</p>	<p><u>Textiles: Fastenings</u></p> <p>Pupils who are secure will be able to: Identify the features, benefits and disadvantages of a range of fastening types. Write design criteria and design a sleeve that satisfies the criteria. Make a template for their book sleeve. Assemble their case using any stitch they are comfortable with.</p>	<p><u>Electrical systems: Doodlers</u></p> <p>Pupils who are secure will be able to: Identify simple circuit components (battery, bulb and switch) with a basic explanation of their function. Explain that a series circuit is assembled in a loop to allow the electricity to flow along one path. Describe a motor as a circuit component that changes electrical energy into movement. Provide examples of motorised products that use movement to rotate or spin different parts. Remove and replace different parts of a Doodler, as part of a team. Suggest ways to switch the configuration to amend the form or function of the Doodler. Explain, in an investigation report, each of the changes they made and the effect this had on the Doodler's ability to</p>	<p><u>Mechanical systems: Automata toys</u></p> <p>Pupils who are secure will be able to: Mark, saw and cut out the components and supports of their toy with a varying degree of accuracy to the intended measurements. Follow health and safety rules, taking care with the equipment. Attempt a partial assembly of their toys using an exploded-diagram, following a teacher's demonstration. Develop a design idea with some descriptive notes. Explore different cam profiles and choose three for their follower toppers with an explanation of their choices. Create neat, decorated follower toppers with some accuracy. Measure and cut panels that fit with some inaccuracies to conceal the inner</p>
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						to identify if it is functional or not. Provide suggestions to improve a peer's set of instructions after testing how effective they are at guiding someone.	
Unit 3	<p><u>Structures: Boats</u></p> <p>In this unit, children explore what is meant by 'waterproof', 'floating' and 'sinking', then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of boats and ships before investigating their shape and structures to build their own.</p>	<p><u>Mechanisms: Moving story Book</u></p> <p>Pupils who are secure will be able to: Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. Clearly label drawings to show which parts of their design will move and in which direction. Make a picture, which meets the design criteria, with parts that move purposefully as planned. Evaluate the main strengths and weaknesses of their design and suggest alterations.</p>	<p><u>Structures: Baby bear's chair</u></p> <p>Pupils who are secure will be able to: Identify man-made and natural structures. Identify stable and unstable structural shapes. Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.</p>	<p><u>Food: Eating seasonally</u></p> <p>Pupils who are secure will be able to: Explain that fruits and vegetables grow in different countries based on their climates. Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. Know that eating seasonal fruit and vegetables has a positive effect on the environment. Design their own tart recipe using seasonal ingredients. Understand the basic rules of food hygiene and safety. Follow the instructions within a recipe.</p>	<p><u>Structures: Pavilions</u></p> <p>Pupils who are secure will be able to: Produce a range of free-standing frame structures of different shapes and sizes. Design a pavilion that is strong, stable and aesthetically pleasing. Select appropriate materials and construction techniques to create a stable, free-standing frame structure. Select appropriate materials and techniques to add cladding to their pavilion.</p>	<p><u>Mechanical systems: Making a pop-up book</u></p> <p>Pupils who are secure will be able to: Produce a suitable plan for each page of their book. Produce the structure of the book. Assemble the components necessary for all their structures/mechanisms. Hide the mechanical elements with more layers using spacers where needed. Use a range of mechanisms and structures to illustrate their story and make it interactive for the users. Use appropriate materials and captions to illustrate the story.</p>	<p><u>Electrical systems: Steady hand game</u></p> <p>Pupils who are secure will be able to: Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). State what they like or dislike about an existing children's toy and why. Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. Identify the components of a steady hand game. Design a steady hand game of their own according to their design criteria, using four different perspective drawings.</p>

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							<p>Create a secure base for their game, with neat edges, that relates to their design. Make and test a functioning circuit and assemble it within a case.</p>
Unit 4		<p><u>Mechanisms: Wheels and Axles</u></p> <p>Pupils who are secure will be able to: Explain that wheels move because they are attached to an axle. Recognise that wheels and axles are used in everyday life, not just in cars. Identify and explain vehicle design flaws using the correct vocabulary. Design a vehicle that includes functioning wheels, axles and axle holders. Make a moving vehicle with working wheels and axles. Explain what must be changed if there are any operational issues.</p>	<p><u>Textiles: Pouches</u></p> <p>Pupils who are secure will be able to: Sew a running stitch with regular-sized stitches and understand that both ends must be knotted. Prepare and cut fabric to make a pouch from a template. Use a running stitch to join the two pieces of fabric together. Decorate their pouch using the materials provided.</p>	<p><u>Digital world: Electronic Charm</u></p> <p>Pupils who are secure will be able to: Give a brief explanation of the digital revolution and/or remember key examples. Suggest a feature from the Micro:bit that is suitable for an eCharm. Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed. Identify errors, if testing is unsuccessful, by comparing their code to a correct example. Explain the basic functionality of their finished program. Suggest key features for a pouch, with some consideration for the</p>	<p><u>Food: Adapting a recipe</u></p> <p>Pupils who are secure will be able to: Follow a recipe, with some support. Describe some of the features of a biscuit based on taste, smell, texture and appearance. Adapt a recipe by adding extra ingredients to it. Plan a biscuit recipe within a budget.</p>	<p><u>Digital world: Monitoring Devices</u></p> <p>Pupils who are secure will be able to: Describe what is meant by monitoring devices and provide an example. Explain briefly the development of thermometers from thermoscopes to digital thermometers. Research a chosen animal's key information to develop a list of design criteria for an animal monitoring device. Write a program that monitors the ambient temperature and alerts someone when the temperature moves from a specified range. Identify errors (bugs) in the code and ways to fix (debug) them.</p>	<p><u>Digital world: Navigating the World</u></p> <p>Pupils who are secure will be able to: Incorporate key information from a client's design request such as 'multifunctional' and 'compact' in their design brief. Write a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen. Identify errors (bugs) in the code and suggest ways to fix (debug) them. Self and peer evaluate a product concept against a list of design criteria with basic statements. Identify key industries that use 3D CAD modelling and why.</p>

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				<p>overall theme and the user.</p> <p>Use a template when cutting and assembling a pouch, with some support.</p> <p>Describe what is meant by 'point of sale display' with an example.</p> <p>Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration.</p> <p>Evaluate their design.</p>		<p>State one or two facts about the history and development of plastic, including how it is now affecting planet Earth.</p> <p>Build a variety of brick models to invent Micro:bit case, housing and stand ideas, evaluating the success of their favourite model.</p> <p>Explain key pros and cons of virtual modelling vs physical modelling.</p> <p>Recall and describe the name and use of key tools used in Tinkercad (CAD) software.</p>	<p>Recall and describe the name and use of key tools used in Tinkercad (CAD) software.</p> <p>Combine more than one object to develop a finished 3D CAD model in Tinkercad.</p> <p>Complete a product pitch plan that includes key information.</p>
Unit 5		<p><u>Textiles: Puppets</u></p> <p>Pupils who are secure will be able to: Join fabrics together using pins, staples or glue. Design a puppet and use a template. Join their two puppets' faces together as one. Decorate a puppet to match their design.</p>	<p><u>Mechanisms: Moving monster</u></p> <p>Pupils who are secure will be able to:</p> <p>Identify the correct terms for levers, linkages and pivots. Analyse popular toys with the correct terminology. Create functional linkages that produce the desired input and output motions. Design monsters suitable for children,</p>	<p><u>Mechanical system: Pneumatic toys</u></p> <p>Pupils who are secure will be able to:</p> <p>Draw accurate diagrams with correct labels, arrows and explanations. Correctly identify definitions for key terms. Identify five appropriate design criteria. Communicate two ideas using thumbnail sketches.</p>	<p><u>Electrical systems: Torches</u></p> <p>Pupils who are secure will be able to: Identify electrical products and explain why they are useful. Help to make a working switch. Identify the features of a torch and how it works. Describe what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria.</p>	<p><u>Structures: Bridges</u></p> <p>Pupils who are secure will be able to: Identify stronger and weaker shapes. Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. Identify beam, arch and truss bridges and describe their differences. Use triangles to create simple truss bridges</p>	<p><u>Food: Come dine with me</u></p> <p>Pupils who are secure will be able to: Find a suitable recipe for their course. Record the relevant ingredients and equipment needed. Follow a recipe, including using the correct quantities of each ingredient. Write a recipe, explaining the process taken. Explain where certain key foods come from</p>

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			<p>which satisfy most of the design criteria. Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design.</p> <p>Select and assemble materials to create their planned monster features.</p> <p>Assemble the monster to their linkages without affecting their functionality.</p>	<p>Communicate and develop one idea using an exploded diagram.</p> <p>Select appropriate equipment and materials to build a working pneumatic system.</p> <p>Assemble their pneumatic system within the housing to create the desired motion.</p> <p>Create a finished pneumatic toy that fulfills the design brief.</p>	<p>Create a functioning torch with a switch according to their design criteria.</p>	<p>that support a load (weight).</p> <p>Cut beams to the correct size, using a cutting mat.</p> <p>Smooth down any rough cut edges with sandpaper.</p> <p>Follow each stage of the truss bridge creation as instructed by their teacher.</p> <p>Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher.</p> <p>Identify some areas for improvement, reinforcing their bridges as necessary.</p>	<p>before they appear on the supermarket shelf.</p>

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				<p><i>Unit 1 alternative</i></p> <p><u>Textiles: Cross Stitch and applique</u></p> <p><u>Egyptian collars</u></p> <p>Textiles: Egyptian collars Having learnt the basics of sewing and decorating fabric in key stage one, this unit builds on the children's repertoire by introducing two new skills: cross-stitch and appliqué. After learning these techniques, the children apply their knowledge to the design, decoration and assembly of their very own Egyptian Usekh /Wesekh collars to represent their unique personalities.</p>			
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