

Stoneferry Primary Medium Term Plan – Design and Technology

Year 1 Autumn	Year 1 Spring	Year 1 Summer
<p><b>Units covered</b> Wheels and axles</p> <p>Making a moving story book</p>	<p><b>Units covered</b> Constructing a windmill</p> <p>Textiles: puppets</p>	<p><b>Units covered</b> Fruit and vegetables</p>
<p><b>Key Concepts</b> Design, make evaluate, technical knowledge</p>	<p><b>key concepts</b> Design, make evaluate, technical knowledge</p>	<p><b>Key concepts</b> Design, make evaluate, technical knowledge</p>
<p><b>Prior learning (Technical Skills)</b> Exploring moving toys, selecting and manipulating tools for appropriate tasks, using glue and sticky tape to join materials</p>	<p><b>Prior learning (Technical Skills)</b> Using large construction resources such as crates and wooden blocks, exploring materials such as boxes and tube, using scissors with care</p>	<p><b>Prior learning (Technical Skills)</b> Exploring and tasting foods from around the world, using tools such as knives to manipulate materials such as playdough, knowing that washing hands is important for hygiene.</p>
<p><b>Objectives</b></p> <p><b>Design</b> Explaining how to adapt mechanisms, using bridges or guides to control the movement • Designing a moving story book for a given audience • Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move • Creating clearly labelled drawings which illustrate movement</p> <p><b>Make</b> • Following a design to create moving models that use levers and sliders • Adapting mechanisms</p> <p><b>Evaluate</b> • 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 • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move.</p> <p><b>Technical knowledge</b></p>	<p><b>Objectives</b></p> <p><b>Design</b> • Learning the importance of a clear design criteria • Including individual preferences and requirements in a design • Using a template to create a design for a puppet</p> <p><b>Make</b> • Making stable structures from card, tape and glue • Following instructions to cut and assemble the supporting structure of a windmill • Making functioning turbines and axles which are assembled into a main supporting structure • Cutting fabric neatly with scissors • Using joining methods to decorate a puppet • Sequencing steps for construction</p> <p><b>Evaluate</b> • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements</p>	<p><b>Objectives</b></p> <p><b>Design</b> • Designing smoothie carton packaging by-hand or on ICT software</p> <p><b>Make</b> • Chopping fruit and vegetables safely to make a smoothie • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow</p> <p><b>Evaluate</b> • Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging</p> <p><b>Technical Knowledge</b> • Understanding the difference between fruits and vegetables • Describing and grouping fruits by texture and taste</p>

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<ul style="list-style-type: none"> <li>• Learning that levers and sliders are mechanisms and can make things move</li> <li>• Identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make</li> <li>• Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement</li> <li>• Identifying what mechanism makes a toy or vehicle roll forwards</li> <li>• Learning that for a wheel to move it must be attached to an axle.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Reflecting on a finished product, explaining likes and dislikes</b></li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Describing the purpose of structures, including windmills</li> <li>• Learning how to turn 2D nets into 3D structures</li> <li>• Learning that the shape of materials can be changed to improve the strength and stiffness of structures</li> <li>• Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses</li> <li>• Understanding that windmill turbines use wind to turn and make the machines inside work</li> <li>• Understanding that axles are used in structures and mechanisms to make parts turn in a circle</li> <li>• Developing awareness of different structures for different purposes.</li> <li>• <b>Learning different ways in which to join fabrics together: pinning, stapling, gluing</b></li> </ul>	
<p>Expected End Points</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-the key parts of a wheeled vehicle</li> <li>-how wheels, axles and axle holders work.</li> </ul> <p><b>Children will know how to:</b></p> <p>Design and make a moving vehicle.</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-<b>what a slide mechanism is and how they work</b></li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-<b>design, make and evaluate a moving storybook from a range of templates.</b></li> </ul>	<p>Expected End Points</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-There are different types of windmill</li> <li>-A windmill’s key features</li> <li>-How a windmill works</li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-design and construct a windmill in accordance with given criteria</li> </ul> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-<b>a range of different ways to join fabrics</b></li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-<b>join fabrics</b></li> <li>-<b>Design and make a hand puppet using a preferred joining technique, and decorate</b></li> </ul>	<p>Expected End Points</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-The difference between fruit and vegetable</li> <li>-Where these items grow</li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-Design a fruit and vegetable smoothie</li> <li>-Design accompanying packaging.</li> </ul>
<p>Vocabulary</p>	<p>Vocabulary</p>	<p>Vocabulary</p>

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<p>Axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel  <i>Assemble, design, evaluation, mechanism, model, sliders, stencil, target audience, template test.</i></p>	<p>Clients, design, evaluation, net, stable, strong, test, week, windmill.  <i>decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template.</i></p>	<p>Blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable.</p>
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Year 2 Autumn	Year 2 Spring	Year 2 Summer
<p><b>Units covered</b>                      Fairground wheel  <i>A balanced diet</i></p>	<p><b>Units covered</b>                      Making a moving monster  <i>Baby bear's chair</i></p>	<p><b>Units covered</b>                      Textiles pouches</p>
<p><b>Key Concepts</b>                      Design, make evaluate, technical knowledge</p>	<p><b>Key Concepts</b>                      Design, make evaluate, technical knowledge</p>	<p><b>Key Concepts</b>                      Design, make evaluate, technical knowledge</p>
<p><b>Prior learning (Technical Skills)</b>                      Learning that levers and sliders are mechanisms and can make things move • Identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make • Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement • Identifying what mechanism makes a toy or vehicle roll forwards • Learning that for a wheel to move it must be attached to an axle.</p>	<p><b>Prior learning (Technical Skills)</b>  <i>• Describing the purpose of structures, including windmills • Learning how to turn 2D nets into 3D structures • Learning that the shape of materials can be changed to improve the strength and stiffness of structures • Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses •</i>                      • Learning that levers and sliders are mechanisms and can make things move • Identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make • Using the</p>	<p><b>Prior learning (Technical Skills)</b>  <i>• Learning different ways in which to join fabrics together: pinning, stapling, gluing</i></p>

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<ul style="list-style-type: none"> <li>• Understanding the difference between fruits and vegetables</li> <li>• Describing and grouping fruits by texture and taste</li> </ul>	<p>vocabulary: up, down, left, right, vertical and horizontal to describe movement</p> <ul style="list-style-type: none"> <li>• Identifying what mechanism makes a toy or vehicle roll forwards</li> <li>• Learning that for a wheel to move it must be attached to an axle.</li> </ul>	
<p><b>Objectives</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Generating and communicating ideas using sketching and modelling</li> <li>• Designing a wheel</li> <li>• Selecting appropriate materials based on their properties</li> <li>• Designing a healthy wrap based on a food combination which work well together</li> </ul> <p><b>Make</b></p> <p>Making a structure according to design criteria</p> <ul style="list-style-type: none"> <li>• Creating joints and structures from paper/card and tape</li> <li>• Slicing food safely using the bridge or claw grip</li> <li>• Constructing a wrap that meets a design brief</li> </ul> <p><b>Evaluate</b></p> <p>Exploring the features of structures</p> <ul style="list-style-type: none"> <li>• Comparing the stability of different shapes</li> <li>• Testing the strength of own structures</li> <li>• Identifying the weakest part of a structure</li> <li>• Evaluating the strength, stiffness and stability of own structure</li> <li>• Describing the taste, texture and smell of fruit and vegetables</li> <li>• Taste testing food combinations and final products</li> <li>• Describing the information that should be included on a label</li> <li>• Evaluating which grip was most effective</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Learning that mechanisms are a collection of moving</li> </ul>	<p><b>Objectives</b></p> <p><b>Design</b></p> <p>Creating a class design criteria for a moving monster</p> <ul style="list-style-type: none"> <li>• Designing a moving monster for a specific audience in accordance with a design criteria</li> <li>• Selecting a suitable linkage system to produce the desired motions</li> <li>• Learning about different types of structures, found in the natural world and in everyday objects</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Making linkages using card for levers and split pins for pivots</li> <li>• Experimenting with linkages adjusting the widths, lengths and thicknesses of card used</li> <li>• Cutting and assembling components neatly</li> <li>• Selecting materials according to their characteristics</li> <li>• Following a design brief</li> <li>• Making a structure according to design criteria</li> <li>• Creating joints and structures from paper/card and tape</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Evaluating own designs against design criteria</li> <li>• Using peer feedback to modify a final design</li> <li>• Evaluating different designs</li> <li>• Testing and adapting a design feedback to modify a final design</li> <li>• Evaluating different designs</li> <li>• Testing and adapting a design</li> <li>• Exploring the features of structures</li> <li>• Comparing the stability of different shapes</li> <li>• Testing the strength of own structures</li> <li>• Identifying the weakest part of a structure</li> <li>• Evaluating the strength, stiffness and stability of own</li> </ul>	<p><b>Objectives</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing a pouch</li> </ul> <p><b>Make</b></p> <p>Selecting and cutting fabrics for sewing</p> <ul style="list-style-type: none"> <li>• Decorating a pouch using fabric glue or running stitch</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Troubleshooting scenarios posed by teacher</li> <li>• Evaluating the quality of the stitching on others' work</li> <li>• Discussing as a class, the success of their stitching against the success criteria</li> <li>• Identifying aspects of their peers' work that they particularly like and why</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Joining items using fabric glue or stitching</li> <li>• Identifying benefits of these techniques</li> <li>• Threading a needle</li> <li>• Sewing running stitch, with evenly spaced, neat, even stitches to join fabric</li> <li>• Neatly pinning and cutting fabric using a template</li> </ul>

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<p>parts that work together in a machine • Learning that there is an input and output in a mechanism • Identifying mechanisms in everyday objects • Learning that a lever is something that turns on a pivot • Learning that a linkage is a system of levers that are connected by pivots • Exploring wheel mechanisms • Learning how axels help wheels to move a vehicle</p> <p>Understanding what makes a balanced diet • Knowing where to find the nutritional information on packaging • Knowing the five food groups</p>	<p>structure • Evaluating own designs against design criteria • Using peer</p> <p><b>Technical Knowledge</b></p> <p>Learning that mechanisms are a collection of moving parts that work together in a machine • Learning that there is an input and output in a mechanism • Identifying mechanisms in everyday objects • Learning that a lever is something that turns on a pivot • Learning that a linkage is a system of levers that are connected by pivots.</p> <p>Identifying natural and man-made structures • Identifying when a structure is more or less stable than another • Knowing that shapes and structures with wide, flat bases or legs are the most stable • Understanding that the shape of a structure affects its strength • Using the vocabulary: strength, stiffness and stability • Knowing that materials can be manipulated to improve strength and stiffness • Building a strong and stiff structure by folding paper</p>	
<p>Expected End Points</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what a Ferris wheel is</li> <li>-the component parts of the mechanism</li> </ul> <p><b>Children will know how to:</b></p> <p>Combine component parts to make a Ferris wheel Design and make own Ferris wheel</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-the different food groups (carbohydrates, proteins, fruits and vegetables, dairy, oils and spreads)</li> <li>-understand the term balanced diet</li> </ul> <p><b>Children will know how to:</b></p>	<p>Expected End Points</p> <p><b>Children will know:</b></p> <p>What a lever, linkage and pivot is and label these on existing products</p> <p><b>Children will know how to:</b></p> <p>use this research of levers, linkages and pivots to construct and assemble a moving monster.</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what stability means</li> <li>-ways of strengthening a structure</li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-find a solution to improve the stability of a chair</li> </ul>	<p>Expected End Points</p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what a template is</li> <li>-what a stitch is</li> <li>-Why a stitch is used</li> <li>-what a running stitch is</li> </ul> <p><b>Children will know how to:</b></p> <ul style="list-style-type: none"> <li>-use a running stitch to make a pouch from a template</li> </ul>

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-use the balanced diet idea to develop a healthy wrap		
Vocabulary - Axle, decorate, evaluation, Ferris wheel, mechanism, stable, strong, test, waterproof, weak Alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute.	Vocabulary evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, Rotary motion, survey. Function, man-made, mould, natural, stable, stiff, strong, structure, test, weak.	Vocabulary Accurate, fabric, knot, pouch, running stitch, sew, shape, stencil, template, thimble.

Year 3 Autumn	Year 3 Spring	Year 3 Summer
<b>Units covered</b> Textiles cushions Static electricity	<b>Units covered</b> Pneumatic toys Electronic charm	<b>Units covered</b> Eating seasonally Constructing a castle
<b>Key Concepts</b> Design, make evaluate, technical knowledge	<b>key concepts</b> Design, make evaluate, technical knowledge	<b>Key concepts</b> Design, make evaluate, technical knowledge
<b>Prior learning (Technical Skills)</b> <ul style="list-style-type: none"> <li>Joining items using fabric glue or stitching</li> <li>Identifying benefits of these techniques</li> <li>Threading a needle</li> <li>Sewing running stitch, with evenly spaced, neat, even stitches to join fabric</li> <li>Neatly pinning and cutting fabric using a template</li> </ul>	<b>Prior learning (Technical Skills)</b> Learning that mechanisms are a collection of moving parts that work together in a machine Learning that there is an input and output in a mechanism Identifying mechanisms in everyday objects Learning that a lever is something that turns on a pivot Learning that a linkage is a system of levers that are connected by pivots	<b>Prior learning (Technical Skills)</b> Understanding what makes a balanced diet Knowing where to find the nutritional information on packaging Knowing the five food groups Identifying natural and man-made structures Identifying when a structure is more or less stable than another Knowing that shapes and structures with wide, flat bases or legs are the most stable Understanding that the shape of a structure affects its strength Using the vocabulary: strength, stiffness and stability Knowing that materials can be manipulated to improve strength and stiffness Building a strong and stiff structure by folding paper

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<p>Objectives</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing and making a template from an existing cushion and applying individual design criteria</li> <li>• <b>Designing a game that works using static electricity, including the instructions for playing the game</b></li> <li>• <b>Identifying a design criteria and a target audience</b></li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Following design criteria to create a cushion</li> <li>• Selecting and cutting fabrics with ease using fabric scissors</li> <li>• Sewing cross stitch to join fabric</li> <li>• Decorating fabric using appliqué</li> <li>• Completing design ideas with stuffing and sewing the edges</li> <li>• <b>Making an electrostatic game, referring to the design criteria</b></li> <li>• <b>Using a wider range of materials and equipment safely</b></li> <li>• <b>Using electrostatic energy to move objects in isolation as well as in part of a system</b></li> </ul> <p><b>Evaluate</b></p> <p>Evaluating an end product and thinking of other ways in which to create similar items</p> <ul style="list-style-type: none"> <li>• <b>Learning to give constructive criticism on own work and the work of others</b></li> <li>• <b>Testing the success of a product against the original design criteria and justifying opinions</b></li> </ul> <p><b>Technical Knowledge</b></p> <p>Threading needles with greater independence</p> <ul style="list-style-type: none"> <li>• Tying knots with greater independence</li> <li>• Sewing cross stitch and appliqué</li> <li>• Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance</li> <li>• Understanding that fabrics can be layered for affect</li> </ul>	<p>Objectives</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing a toy which uses a pneumatic system</li> <li>• Developing design criteria from a design brief</li> <li>• Generating ideas using thumbnail sketches and exploded diagrams</li> <li>• Learning that different types of drawings are used in design to explain ideas clearly</li> <li>• <b>Problem solving by suggesting potential features on a Micro: bit and justifying my ideas</b></li> <li>• <b>Developing design ideas for a technology pouch</b></li> <li>• <b>Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge</b></li> </ul> <p><b>Make</b></p> <p>Creating special features for individual designs</p> <ul style="list-style-type: none"> <li>• Creating a pneumatic system to create a desired motion</li> <li>• Building secure housing for a pneumatic system</li> <li>• Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy</li> <li>• Selecting materials due to their functional and aesthetic characteristics</li> <li>• Manipulating materials to create different effects by cutting, creasing, folding, weaving</li> <li>• <b>Using a template when cutting and assembling the pouch</b></li> <li>• <b>Following a list of design requirements</b></li> <li>• <b>Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch</b></li> <li>• Applying functional features such as using foam to create soft buttons</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Testing and modifying the outcome, suggesting improvements</li> <li>• Learning to give constructive criticism on own work and the work of others</li> <li>• Testing the</li> </ul>	<p>Objectives</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish</li> <li>• <b>Designing a castle with key features to appeal to a specific person/ purpose</b></li> <li>• <b>Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials need and colours</b></li> </ul> <p><b>Make</b></p> <p>Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination</p> <ul style="list-style-type: none"> <li>• Following the instructions within a recipe</li> <li>• <b>Constructing a range of 3D geometric shapes using nets</b></li> <li>• <b>Creating special features for individual designs</b></li> <li>• <b>Making facades from a range of recycled materials</b></li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Establishing and using design criteria to help test and review dishes</li> <li>• Describing the benefits of seasonal fruits and vegetables and the impact on the environment</li> <li>• Suggesting points for improvement when making a seasonal tart</li> <li>• <b>Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design</b></li> <li>• <b>Suggesting points for modification of the individual designs</b></li> </ul> <p><b>Technical Knowledge</b></p>
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<p>Understanding what static electricity is and how it moves objects through attraction or repulsion • Generating static electricity independently • Using static electricity to make objects move in a desired way</p>	<p>success of a product against the original design criteria and justifying opinions</p> <ul style="list-style-type: none"> <li>Analysing and evaluating an existing product</li> <li>Identifying the key features of a pouch</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>Understanding how pneumatic systems work • Learning that mechanisms are a system of parts that work together to create motion • Understanding that pneumatic systems can be used as part of a mechanism • Learning that pneumatic systems force air over a distance to create movement</li> <li>Identifying key product developments that occurred as a result of the digital revolution • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm • Understanding what a loop is in programming • Explaining the basic functionality of my eCharm program • Understanding what is meant by ‘point of sale display’</li> </ul>	<ul style="list-style-type: none"> <li>Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart</li> <li>Identifying features of a castle • Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension • Extending the knowledge of wide and flat based objects are more stable • Understanding the terminology of strut, tie, span, beam • Understanding the difference between frame and shell structure</li> </ul>
<p><b>Expected End Points</b></p> <p><b>Children will know:</b> -The terms cross stitch and applique</p> <p><b>Children will know how to:</b> -use these 2 techniques to create a cushion Learn and apply two new sewing techniques – cross-stitch and appliqué. Utilise these new skills to design and make a cushion</p> <p><b>Children will know:</b> -</p> <p><b>Children will know how to:</b></p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b> -the term pneumatic -the term system -what an exploded diagram is</p> <p><b>Children will know how to:</b> -draw a design sketch -to draw an exploded diagram -use pneumatics to make a pneumatic toy</p> <p><b>Children will know:</b> -how Micro:bits work -</p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b> -the names of a range of fruits and vegetables -the countries in which foods are grown -the seasons when different foods are grown -how colour can have health benefits</p> <p><b>Children will know how to:</b> -research and investigate key questions</p> <p><b>Children will know:</b> -the key features of a castle -the term recycled</p>



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<p>Explore the science behind static electricity and apply this new knowledge to generate ideas for and make a static-electricity game.</p>	<p><b>Children will know how to:</b> Design, develop a program, house and promote a Micro: bit electronic charm</p>	<p><b>Children will know how to:</b> -design a castle -make a material recycled castle structure</p>
<p>Vocabulary – Accurate, applique’, cross stitch, cushion, decorate, detail, fabric, patch, running stitch, seam, stencil, stuffing, target audience, targets customer, templates. Attract, components, constructive criticism, design criteria, electrostatic, evaluation, feedback, motion, repel, target audience, test.</p>	<p>Vocabulary exploded diagram, function, input, lever, linkage, mechanism, motion, net , output, pivot, pneumatic system, thumbnail sketch. Smart wearables, product design, digital revolution, technology, analogue, digital, feature, function, digital world, micro:bit, Electronic products, Program, Loops, Initiate, Electronic, Simulator, Control, Monitor, Sense, Template, Develop, Fasten, Test, User, Key features. computer-aided design, Point of sale, Display, Badge, Stand, <u>Net</u>, Product, Design requirements, Layers,</p>	<p>Vocabulary Climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate. 2D shapes, 3D shapes, castle, design criteria, of valuate, for cared, feature, flag, net, recyclable , scoring, stable, strong, structure, tab, weak.</p>

Year 4 Autumn	Year 4 Spring	Year 4 Summer
<p><b>Units covered</b> Making a slingshot car Torches</p>	<p><b>Units covered</b> Mindful moments timer Adapting a recipe</p>	<p><b>Units covered</b> Pavilions Textiles fastenings</p>
<p><b>Key Concepts</b> Design, make evaluate, technical knowledge</p>	<p><b>key concepts</b> Design, make evaluate, technical knowledge</p>	<p><b>Key concepts</b> Design, make evaluate, technical knowledge</p>

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<p><b>Prior learning (Technical Skills)</b></p> <ul style="list-style-type: none"> <li>• Understanding how pneumatic systems work • Learning that mechanisms are a system of parts that work together to create motion • Understanding that pneumatic systems can be used as part of a mechanism • Learning that pneumatic systems force air over a distance to create movement</li> </ul> <p>Understanding what static electricity is and how it moves objects through attraction or repulsion • Generating static electricity independently • Using static electricity to make objects move in a desired way</p>	<p><b>Prior learning (Technical Skills)</b></p> <ul style="list-style-type: none"> <li>• Identifying key product developments that occurred as a result of the digital revolution • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm • Understanding what a loop is in programming • Explaining the basic functionality of my eCharm program • Understanding what is meant by ‘point of sale display’</li> </ul> <p>Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart</p>	<p><b>Prior learning (Technical Skills)</b></p> <ul style="list-style-type: none"> <li>• Identifying features of a castle • Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension • Extending the knowledge of wide and flat based objects are more stable • Understanding the terminology of strut, tie, span, beam • Understanding the difference between frame and shell structure</li> </ul> <p>Threading needles with greater independence • Tying knots with greater independence • Sewing cross stitch and appliqué • Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance • Understanding that fabrics can be layered for affect</p>
<p><b>Objectives</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing a shape that reduces air resistance • Drawing a net to create a structure from • Choosing shapes that increase or decrease speed as a result of air resistance • Personalising a design</li> </ul> <p>Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas</p> <p><b>Make</b></p> <p>Measuring, marking, cutting and assembling with increasing accuracy • Making a model based on a chosen design</p> <p>Making a torch with a working electrical circuit and switch • Using appropriate equipment to cut and</p>	<p><b>Objectives</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit) • Exploring different mindfulness strategies • Applying the results of my research to further inform my design criteria • Developing a prototype case for my mindful moment timer • Using and manipulating shapes and clipart, using computer-aided design (CAD), to produce a logo • Following a list of design requirements</li> </ul> <p>Designing a biscuit within a given budget, drawing upon previous taste testing</p> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Developing a prototype case for my mindful moment timer • Creating a 3D structure using a net</li> </ul>	<p><b>Objectives</b></p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Building frame structures designed to support weight</li> </ul> <p>Writing design criteria for a product, articulating decisions made • Designing a personalised Book sleeve</p> <p><b>Make</b></p> <p>Creating a range of different shaped frame structures • Making a variety of free standing frame structures of different shapes and sizes • Selecting appropriate materials to build a strong structure and for the cladding • Reinforcing corners to strengthen a</p>

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<p>attach materials • Assembling a torch according to the design and success criteria</p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance</li> </ul> <p>Evaluating electrical products • Testing and evaluating the success of a final product and taking inspiration from the work of peers</p> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Learning that products change and evolve over time</li> <li>• Learning that all moving things have kinetic energy</li> <li>• Understanding that kinetic energy is the energy that something (object person) has by being in motion</li> </ul> <p>Learning how electrical items work • Identifying electrical products • Learning what electrical conductors and insulators are • Understanding that a battery contains stored electricity and can be used to power products • Identifying the features of a torch • Understanding how a torch works • Articulating the positives and negatives about different torches</p>	<ul style="list-style-type: none"> <li>• Following a baking recipe • Cooking safely, following basic hygiene rules • Adapting a recipe</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Evaluating electrical products • Testing and evaluating the success of a final product and taking inspiration from the work of peers</li> </ul> <p>Evaluating a recipe, considering: taste, smell, texture and appearance • Describing the impact of the budget on the selection of ingredients • Evaluating and comparing a range of products • Suggesting modifications</p> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit) • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press • Testing my program for bugs (errors in the code) • Finding and fixing the bugs (debug) in my code</li> </ul> <p>Understanding the impact of the cost and importance of budgeting while planning ingredients for biscuits • Understanding the environmental impact on future product and cost of production</p>	<p>structure • Creating a design in accordance with a plan</p> <ul style="list-style-type: none"> <li>• Learning to create different textural effects with materials</li> </ul> <p>Making and testing a paper template with accuracy and in keeping with the design criteria • Measuring, marking and cutting fabric using a paper template • Selecting a stitch style to join fabric, working neatly sewing small neat stitches • Incorporating fastening to a design</p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective • Considering effective and ineffective designs</li> </ul> <ul style="list-style-type: none"> <li>• Testing and evaluating an end product against the original design criteria • Deciding how many of the criteria should be met for the product to be considered successful • Suggesting modifications for improvement</li> </ul> <p><b>Technical Knowledge</b></p> <p>Learning what pavilions are and their purpose • Building on prior knowledge of net structures and broadening knowledge of frame structures • Learning that architects consider light, shadow and patterns when designing • Implementing frame and shell structure knowledge • Considering effective and ineffective designs</p> <p>Understanding that there are different types of fastenings and what they are • Articulating the benefits and disadvantages of different fastening types</p>
<p><b>Expected End Points</b></p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what a slingshot mechanism is</li> <li>-what a housing is</li> </ul>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what design criteria is</li> </ul>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b></p> <ul style="list-style-type: none"> <li>-what a model frame structure is</li> <li>-the term stability (revised)</li> </ul>

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<p>-a range of materials</p> <p><b>Children will know how to:</b>                  -design a slingshot mechanism                  -create a range of housing nets</p> <p><b>Children will know:</b>                  -The difference between electrical and electronic products                  -the features of a torch</p> <p><b>Children will know how to:</b>                  -Evaluate a range of existing products                  - develop a new functional torch design.</p>	<p><b>Children will know how to:</b>                  Develop design criteria for a set purpose e.g. timing a mindful moment</p> <p><b>Children will know:</b>                  -the term budget</p> <p><b>Children will know how to:</b>                  -work in a group                  -work within budget constraints to adapt existing products</p>	<p>-what a pavilion is</p> <p><b>Children will know how to:</b>                  -research existing structures                  -design and create a stable, decorated structure</p> <p><b>Children will know:</b>                  -what a fastening does</p> <p><b>Children will know how to:</b>                  -analyse and evaluate existing products                  -devise design criteria                  -generate templates                  -make a book sleeve</p>
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Year 5 Autumn	Year 5 Spring	Year 5 Summer
<p><b>Units covered</b>                  Making a pop-up book                  Monitoring devices</p>	<p><b>Units covered</b>                  Food: What could be healthier?                  Bridges</p>	<p><b>Units covered</b>                  Textiles: Stuffed toys                  Electronic greetings cards</p>
<p><b>Key Concepts</b>                  Design, make evaluate, technical knowledge</p>	<p><b>key concepts</b>                  Design, make evaluate, technical knowledge</p>	<p><b>Key concepts</b>                  Design, make evaluate, technical knowledge</p>
<p><b>Prior learning (Technical Skills)</b>                  • Learning that levers and sliders are mechanisms and can make things move • Identifying whether a</p>	<p><b>Prior learning (Technical Skills)</b></p>	<p><b>Prior learning (Technical Skills)</b>                  Understanding that there are different types of fastenings and what they are • Articulating the</p>

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<p>mechanism is a lever or slider and determining what movement the mechanism will make • Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement • Identifying what mechanism makes a toy or vehicle roll forwards • Learning that for a wheel to move it must be attached to an axle.</p> <ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit) • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press • Testing my program for bugs (errors in the code) • Finding and fixing the bugs (debug) in my code</li> </ul>	<p>Understanding the impact of the cost and importance of budgeting while planning ingredients for biscuits • Understanding the environmental impact on future product and cost of production</p> <ul style="list-style-type: none"> <li>Learning what pavilions are and their purpose • Building on prior knowledge of net structures and broadening knowledge of frame structures • Learning that architects consider light, shadow and patterns when designing • Implementing frame and shell structure knowledge • Considering effective and ineffective designs</li> </ul>	<p>benefits and disadvantages of different fastening types</p> <ul style="list-style-type: none"> <li>Learning how electrical items work • Identifying electrical products • Learning what electrical conductors and insulators are • Understanding that a battery contains stored electricity and can be used to power products • Identifying the features of a torch • Understanding how a torch works • Articulating the positives and negatives about different torches</li> </ul>
<p><b>Objectives</b> <b>Design</b></p> <ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit) • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press • Testing my program for bugs (errors in the code) • Finding and fixing the bugs (debug) in my code</li> <li>• Researching (books, internet) for a particular (user’s) animal’s needs • Developing design criteria based on research • Generating multiple housing ideas using building bricks • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD</li> </ul>	<p><b>Objectives</b> <b>Design</b></p> <ul style="list-style-type: none"> <li>• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Writing an amended method for a recipe to incorporate the relevant changes to ingredients • Designing appealing packaging to reflect a recipe</li> <li>• Designing a stable structure that is able to support weight • Creating frame structure with focus on triangulation</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Cutting and preparing vegetables safely • Using equipment safely, including knives, hot pans and hobs</li> <li>• Knowing how to avoid cross-contamination • Following a step by step method carefully to make a recipe</li> </ul>	<p><b>Objectives</b> <b>Design</b></p> <ul style="list-style-type: none"> <li>• Designing a stuffed toy considering the main component shapes required and creating an appropriate template • Considering the proportions of individual components</li> <li>• Designing an electronic greetings card with a copper track circuit and components • Creating a labelled circuit diagram showing positive and negative parts in relation to the LED and the battery • Writing design criteria for an electronic greeting card • Compiling a moodboard relevant to my chosen theme, purpose and recipient</li> </ul> <p><b>Make</b></p>

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### Make

- Following a design brief to make a pop up book, neatly and with focus on accuracy
- Making mechanisms and/or structures using sliders, pivots and folds to produce movement
- Using layers and spacers
- Understanding the functional and aesthetic properties of plastics to hide the workings of mechanical parts for an aesthetically pleasing result

### Evaluate

- Evaluating the work of others and receiving feedback on own work
- Suggesting points for improvement
- Evaluating the work of others and receiving feedback on own work
- Suggesting points for improvement
- Stating an event or fact from the last 100 years of plastic history
- Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices

### Technical Knowledge

- Knowing that an input is the motion used to start a mechanism
- Knowing that output is the motion that happens as a result of starting the input
- Knowing that mechanisms control movement
- Describing mechanisms that can be used to change one kind of motion into another
- Describing key developments in thermometer history
- Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range
- Explaining key functions in my program (audible alert, visuals)
- Explaining how my product would be useful for an animal carer including programmed features

- Making a range of different shaped beam bridges
- Using triangles to create truss bridges that span a given distance and supports a load
- Building a wooden bridge structure
- Independently measuring and marking wood accurately
- Selecting appropriate tools and equipment for particular tasks
- Using the correct techniques to saws safely
- Identifying where a structure needs reinforcement and using card corners for support
- Explaining why selecting appropriating materials is an important part of the design process
- Understanding basic wood functional properties

### Evaluate

- Identifying the nutritional differences between different products and recipes
- Identifying and describing healthy benefits of food groups
- Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary
- Suggesting points for improvements for own bridges and those designed by others

### Technical Knowledge

- Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed
- Understanding what constitutes a balanced diet
- Learning to adapt a recipe to make it healthier
- Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option
- Exploring how to create a strong beam
- Identifying arch and beam bridges and understanding the terms: compression and tension
- Identifying stronger and weaker structures
- Finding different ways to reinforce structures
- Understanding how triangles can be used to reinforce bridges
- Articulating the difference between beam, arch, truss and suspension bridges

- Creating a 3D stuffed toy from a 2D design
- Measuring, marking and cutting fabric accurately and independently
- Creating strong and secure blanket stitches when joining fabric
- Using applique to attach pieces of fabric decoration
- Making a functional series circuit
- Creating an electronics greeting card, referring to a design criteria
- Mapping out where different components of the circuit will go

### Evaluate

- Testing and evaluating an end product and giving point for further improvements
- Evaluating a peer's product against design criteria and suggesting modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of circuit component
- Stating what Sir Rowland Hill invented and why it was important for greeting cards
- Analysing and evaluating a range of existing greeting cards.

### Technical Knowledge

- Learning to sew blanket stitch to join fabric
- Applying blanket stitch so the space between the stitches are even and regular
- Threading needles independently
- Learning the key components used to create a functioning circuit
- Learning that copper is a conductor and can be used as part of a circuit
- Understanding that breaks in a circuit will stop it from working
- Explaining how a series circuit will work in my card
- Identifying the negative and positive leg of an LED
- Drawing a series circuit diagram and symbols

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<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -the features of a pop up book          -know the term lever, slider, layer and spacer</p> <p><b>Children will know how to:</b>          -Make and use levers, sliders, layers and spacers          -use paper to make a 4 page pop up book</p> <p><b>Children will know:</b>          -how a Microbit program works          - the basic functions of a 3D CAD package</p> <p><b>Children will know how to:</b>          -program a Microbit to perform a task          -Use 3D CAD to model objects</p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -welfare issues with rearing cattle          -some foods have different nutritional values</p> <p><b>Children will know how to:</b>          -Compare foods          -Develop a recipe to make it healthier</p> <p><b>Children will know:</b>          -different types of bridges          -the terms stability and strength          -a range of materials used in construction</p> <p><b>Children will know how to:</b>          -select appropriate materials based on their properties          -use a range of tools safely and accurately          -assemble components to make an end product.</p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -different materials used in making soft toys          -what components are used to decorate soft toys          -the term appendage</p> <p><b>Children will know how to:</b>          -sew a blanket stitch</p> <p><b>Children will know:</b>          -the history and development of exchanging personal messages</p> <p><b>Children will know how to:</b>          -how to construct a simple electronic circuit          -integrate the circuit into a product – greeting card</p>
<p><b>Vocabulary -</b>          Aesthetic, computer aided design (CAD), caption, design, design brief, design criteria, exploded diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template.</p>	<p><b>Vocabulary</b>          Beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe , research, substitute, supermarkets, vegan, vegetarian, welfare.          Abutment, accurate, arched bridge, beam bridge, bridge, compression, coping saw, evaluation, file, forces, Mark out, measure, predict, reinforce, research, right angle, sandpaper, set square,</p>	<p><b>Vocabulary</b>          Accurate, annotate, appendage, blanket stitch, design criteria, detail, evaluation, fabric, Sew, shape, stuffed toy, stuffing, template.          Battery, buzzer, circuit, components, conductor, copper, design, design criteria, function, graphite, innovative, insulator, LED, modify, parallel circuit, series circuits, switch, target audience, test, wire.</p>

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	shape, strong structure, suspension bridge, Tenon saw, tension, test, truss bridge, week.	
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Year 6 Autumn -	Year 6 Spring	Year 6 Summer
<b>Units covered</b> Navigating the world Come dine with me	<b>Units covered</b> Playgrounds Waistcoats	<b>Units covered</b> Steady hand game Automata toys
<b>Key Concepts</b> Design, make evaluate, technical knowledge	<b>key concepts</b> Design, make evaluate, technical knowledge	<b>Key concepts</b> Design, make evaluate, technical knowledge
<b>Prior learning (Technical Skills)</b> • Describing key developments in thermometer	<b>Prior learning (technical skills)</b>	<b>Prior learning (technical skills)</b>



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<p>history • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range • Explaining key functions in my program (audible alert, visuals) • Explaining how my product would be useful for an animal carer including programmed features</p> <p>• Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed • Understanding what constitutes a balanced diet • Learning to adapt a recipe to make it healthier • Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option</p>	<p>• Exploring how to create a strong beam Identifying arch and beam bridges and understanding the terms: compression and tension • Identifying stronger and weaker structures • Finding different ways to reinforce structures • Understanding how triangles can be used to reinforce bridges • Articulating the difference between beam, arch, truss and suspension bridges</p> <p>• Learning to sew blanket stitch to join fabric • Applying blanket stitch so the space between the stitches are even and regular • Threading needles independently</p>	<p>• Learning the key components used to create a functioning circuit • Learning that copper is a conductor and can be used as part of a circuit • Understanding that breaks in a circuit will stop it from working • Explaining how a series circuit will work in my card • Identifying the negative and positive leg of an LED • Drawing a series circuit diagram and symbols</p> <p>Knowing that an input is the motion used to start a mechanism • Knowing that output is the motion that happens as a result of starting the input • Knowing that mechanisms control movement • Describing mechanisms that can be used to change one kind of motion into another</p>
<p><b>Objectives</b></p> <p><b>Design</b></p> <p>• Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client’s request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD</p> <p>• Writing a recipe, explaining the key steps, method and ingredients • Including facts and drawings from research undertaken</p> <p><b>Make</b></p> <p>• Considering materials and their functional properties, especially those that are sustainable and</p>	<p><b>Objectives</b></p> <p><b>Design</b></p> <p>• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs</p> <p>• Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • Annotating designs</p> <p><b>Make</b></p> <p>• Building a range of play apparatus structures drawing upon new and prior knowledge of structures</p> <p>• Measuring, marking and cutting wood to create a range of structures • Using a range of materials to reinforce and add decoration to structures</p>	<p><b>Objectives</b></p> <p><b>Design</b></p> <p>• Designing a steady hand game - identifying and naming the components required • Drawing a design from three different perspectives • Generating ideas through sketching and discussion • Modelling ideas through prototypes • Understanding the purpose of products (toys), including what is meant by ‘fit for purpose’ and ‘form over function’</p> <p>• Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement • Understanding how linkages change the direction of a force • Making things move at the same time • Understanding and drawing cross-sectional diagrams to show the inner-workings of the automata</p>

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<p>recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept</p> <ul style="list-style-type: none"><li>• Following a recipe, including using the correct quantities of each ingredient • Adapting a recipe based on research • Working to a given timescale • Working safely and hygienically with independence</li></ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"><li>• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool</li><li>• Developing an awareness of sustainable design • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client’s request and how it will benefit the customers</li><li>• Evaluating a recipe, considering: taste, smell, texture and origin of the food group • Taste testing and scoring final products • Suggesting and writing up points of improvements in productions • Evaluating health and safety in production to minimise cross contamination</li></ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"><li>• Programming an N,E, S,W cardinal compass • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept</li><li>• Learning how to research a recipe by ingredient • Recording the relevant ingredients and equipment needed for a recipe • Understanding the combinations of food that will complement one another •</li></ul>	<ul style="list-style-type: none"><li>• Using a template when pinning panels onto fabric • Marking and cutting fabric accurately, in accordance with a design • Sewing a strong running stitch, making small, neat stitches and following the edge • Tying strong knots • Decorating a waistcoat -attaching objects using thread and adding a secure fastening</li></ul> <p>Digital world (KS2 only) N/A N/A • Using a template when cutting and assembling the pouch • Following a list of design requirements • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch • Applying functional features such as using foam to create soft buttons • Developing a prototype case for my mindful moment timer • Creating a 3D structure using a net • Understanding the functional and aesthetic properties of plastics</p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"><li>• Improving a design plan based on peer evaluation • Testing and adapting a design to improve it as it is developed • Identifying what makes a successful structure</li><li>• Evaluating work continually as it is created</li></ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"><li>• Knowing that structures can be strengthened by manipulating materials and shapes • Identifying the shell structure in everyday life (cars, aeroplanes, tins, cans) • Understanding man made and natural structures</li><li>• Learning different decorative stitches • Application and outcome of the individual technique • Sewing accurately with even regularity of stitches</li></ul>	<p><b>Make</b></p> <ul style="list-style-type: none"><li>• Constructing a stable base for a game • Accurately cutting, folding and assembling a net • Decorating the base of the game to a high quality finish • Making and testing a circuit Incorporating a circuit into a base</li><li>• Measuring, marking and checking the accuracy of the jelutong and dowel pieces required •</li></ul> <p>Measuring, marking and cutting components accurately using a ruler and scissors • Assembling components accurately to make a stable frame • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set</p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"><li>• Testing own and others finished games, identifying what went well and making suggestions for improvement • Gathering images and information about existing children’s toys • Analysing a selection of existing children’s toys</li><li>• Evaluating the work of others and receiving feedback on own work • Applying points of improvements • Describing changes they would make/do if they were to do the project again</li></ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"><li>• Learning that batteries contain acid, which can be dangerous if they leak • Identifying and naming the circuit components in a steady hand game</li><li>• Using a bench hook to saw safely and effectively • Exploring cams, learning that different shaped cams</li></ul>
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Understanding where food comes from, describing the process of 'Farm to Fork' for a given ingredient		produce different follower movements • Exploring types of motions and direction of a motion
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Stoneferry Primary Medium Term Plan – Design and Technology

<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -the term navigation and trekker, multifunctional          -what an audience/ client is</p> <p><b>Children will know how to:</b>          -use 3D software to develop a product          -pitch a new product to a client</p> <p><b>Children will know:</b>          -what a 3 course meal contains          -what a recipe contains</p> <p><b>Children will know how to:</b>          -work in a pair          -create a recipe          -discuss the ingredients and reasons for choosing them.</p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -a range of playground equipment</p> <p><b>Children will know how to:</b>          -research an existing product          -follow design criteria to develop a suitable product – playground apparatus</p> <p><b>Children will know:</b>          -a range of textile skills including: fastenings, applique, different forms of stitching</p> <p><b>Children will know how to:</b>          -combine skills to create a product - waistcoat</p>	<p><b>Expected End Points</b></p> <p><b>Children will know:</b>          -the term “fit for purpose”          -the components of a “series” circuit</p> <p><b>Children will know how to:</b>          Design and make a product using a series circuit, housing and backboard – handheld game</p> <p><b>Children will know:</b>          -what a design brief is          -what cam, axle and follower mechanisms are and the effects these have</p> <p><b>Children will know how to:</b>          Create cam, axle and follower mechanisms to mimic movements in a window display</p>
<p><b>Vocabulary</b>          Accompaniments, adjective, caption, collaboration, cookbook, cross contamination, equipment, farm, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, tag its audience, top-tips, unit of measurement.</p>	<p><b>Vocabulary</b>          adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, sketch, strong, structure, tenants or, texture, user, vice, weak.          Accurate, adapt, annotate, design, design criteria, detail, fabric, fashioning, knot, properties, running stitch, seem, sew, shape, target audience, target-customer, template, thread, unique, waistcoat, waterproof.</p>	<p><b>Vocabulary</b>          Assemble, battery, battery pack, bulb, bulb holder, buzzer, circuit, circuit symbol, components, conductor, copper, design, design criteria, evaluation, function, insulator, LED, magnetic field, net, perspective drawing, plan, pliers, prototype, series circuit, sideview, steady hand game, switch, symmetrical, target audience, test, top view, wire cutters.          Accurate, assembly diagram, automata, axle, bench hook, Cam, clamp, components, cutting list, diagram, dowel, drill bits, exploded diagram,</p>

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		finish, follower, frame, function, hand drill, jelutong, linkage, mark-out, measure, mechanism, model, research, right angle, set square, Tenon saw.
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## TEMPLATE

Year Autumn -	Year Spring	Year Summer
Key Concepts	key concepts	Key concepts
Prior learning (Technical Skills)	prior learning (technical skills)	Prior Learning
Objectives	Objectives	Objectives
Expected End Points	Expected End Points	Expected End Points

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Vocabulary -	Vocabulary	Vocabulary