



Pilgrims' Way Primary School

Whole School DT Overview 23/24



Year	Design	Make	Evaluate	Technical Knowledge (Including Cooking and Nutrition Knowledge)	Vocabulary
EYFS	<p>ELG: Fine Motor Skills Children at the expected level of development will: Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; Use a range of small tools, including scissors, paint brushes and cutlery; Begin to show accuracy and care when drawing.</p> <p>Arts and design Creating with Materials Children at the expected level of development will: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used; Make use of props and materials when role playing characters in narratives and stories.</p>				
Year 1 Structures: Constructing Windmills (3 lessons)	<p>Learning the importance of a clear design criteria. Including individual preferences and requirements in a design.</p> <p>Making stable structures from card, tape and glue.</p> <p>Learning how to turn 2D nets into 3D structures.</p> <p>Following instructions to cut and assemble the supporting structure of a windmill.</p> <p>Making functioning turbines and axles which are assembled into a main supporting structure.</p>		<p>To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</p> <p>To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</p> <p>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</p> <p>To begin to understand that different structures are used for different purposes.</p> <p>To know that a structure is something that has been made and put together</p>		<ul style="list-style-type: none"> ● Client ● Design ● Evaluation ● Net ● Stable ● Strong ● Test ● Weak ● Windmill
Year 1 Mechanisms: Wheels and Axles (4 lessons)	<p>Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move.</p> <p>Creating clearly labelled drawings that illustrate movement.</p> <p>Adapting mechanisms, when: they do not work as they should, to fit their vehicle design or to improve how they work after testing their vehicle.</p> <p>Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</p>		<p>To know that wheels need to be round to rotate and move.</p> <p>To understand that for a wheel to move it must be attached to a rotating axle.</p> <p>To know that an axle moves within an axle holder which is fixed to the vehicle or toy.</p> <p>To know that the frame of a vehicle (chassis) needs to be balanced.</p>		<ul style="list-style-type: none"> ● Axle ● Axle holder ● Chassis ● Design ● Evaluation ● Fix ● Mechanic ● Mechanism ● Model ● Test ● Wheel



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<p style="text-align: center;">Year 1 Cooking and Nutrition: Fruit and Vegetables (4 lessons)</p>	<p>Designing smoothie carton packaging by-hand or on ICT software.</p> <p>Chopping fruit and vegetables safely to make a smoothie.</p> <p>Identifying if a food is a fruit or a vegetable.</p> <p>Learning where and how fruits and vegetables grow.</p> <p>Tasting and evaluating different food combinations.</p> <p>Describing appearance, smell and taste.</p> <p>Suggesting information to be included on packaging.</p>	<p>Understanding the difference between fruits and vegetables.</p> <p>To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).</p> <p>To know that a blender is a machine which mixes ingredients together into a smooth liquid.</p> <p>To know that a fruit has seeds and a vegetable does not.</p> <p>To know that fruits grow on trees or vines.</p> <p>To know that vegetables can grow either above or below ground.</p> <p>To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).</p>	<ul style="list-style-type: none"> ● Blender ● Carton ● Fruit ● Healthy ● Ingredients ● Peel ● Peeler ● Recipe ● Slice ● Smoothie ● Stencil ● Template ● Vegetable
<p style="text-align: center;">Year 1 Mechanisms: Moving Story Book (3 lessons)</p>	<p>Explaining how to adapt mechanisms, using bridges or guides to control the movement.</p> <p>Designing a moving story book for a given audience.</p> <p>Following a design to create moving models that use levers and sliders.</p> <p>Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</p> <p>Reviewing the success of a product by testing it with its intended audience.</p>	<p>To know that a mechanism is the parts of an object that move together.</p> <p>To know that a slider mechanism moves an object from side to side.</p> <p>To know that a slider mechanism has a slider, slots, guides and an object.</p> <p>To know that bridges and guides are bits of card that purposefully restrict the movement of the slider</p>	<ul style="list-style-type: none"> ● Assemble ● Design ● Evaluation ● Mechanism ● Model ● Sliders ● Stencil ● Target audience ● Template ● Test



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<p style="text-align: center;">Year 1 Textiles: Puppets (4 lessons)</p>	<p>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</p>	<p>To know that 'joining technique' 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.</p>	<ul style="list-style-type: none"> ● Decorate ● Design ● Fabric ● Glue ● Model ● Hand puppet ● Safety pin ● Staple ● Stencil ● Template
<p style="text-align: center;">Year 2 Structures: Baby Bears Chair (3 lessons)</p>	<p>Generating and communicating ideas using sketching and modelling. Making a structure according to design criteria. Creating joints and structures from paper/card and tape. Building a strong and stiff structure by folding paper. Testing the strength of own structure. Identifying the weakest part of a structure. Evaluating the strength, stiffness and stability of own structure.</p>	<p>To know that materials can be manipulated to improve strength and stiffness. To know that a structure is something which has been formed or made from parts. To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure or material is one which does not bend easily.</p>	<ul style="list-style-type: none"> ● Function ● Man-made ● Mould ● Natural ● Stable ● Stiff ● Strong ● Structure ● Test ● Weak



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<p style="text-align: center;">Year 2 Mechanisms: Making a Moving Monster (4 lessons)</p>	<p>Creating a class design criteria for a moving monster. Designing a moving monster for a specific audience in accordance with a design criteria. Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly. Evaluating own designs against design criteria. Using peer feedback to modify a final design.</p>	<p>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and output in a mechanism. To know that an input is the energy that is used to start something working. To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.</p>	<ul style="list-style-type: none"> ● Evaluation ● Input ● Lever ● Linear motion ● Linkage ● Mechanical ● Mechanism ● Motion ● Oscillating motion ● Output ● Pivot ● Reciprocating motion ● Rotary motion ● Survey
<p style="text-align: center;">Year 2 Textiles: Pouches (3 lessons)</p>	<p>Designing a pouch. Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or running stitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using a template. Troubleshooting scenarios posed by teacher. Evaluating the quality of the stitching on others' work. Discussing as a class, the success of their stitching against the success criteria. Identifying aspects of their peers' work that they particularly like and why.</p>	<p>To know that sewing is a method of joining fabric. To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To know that a thimble can be used to protect my fingers when sewing.</p>	<ul style="list-style-type: none"> ● Accurate ● Fabric ● Knot ● Pouch ● Running-stitch ● Sew ● Shape ● Stencil ● Template ● Thimble



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<p style="text-align: center;">Year 2 Mechanisms: Fairground Wheel (4 lessons)</p>	<p>Selecting a suitable linkage system to produce the desired motion. Designing a wheel. Selecting materials according to their characteristics. Following a design brief. Evaluating different designs. Testing and adapting a design.</p>	<p>To know that different materials have different properties and are therefore suitable for different uses.</p>	<ul style="list-style-type: none"> ● Axle ● Decorate ● Evaluation ● Ferris wheel ● Mechanism ● Stable ● Strong ● Test ● Waterproof ● Weak
<p style="text-align: center;">Year 2 Cooking and Nutrition: A Balanced Diet (4 lessons)</p>	<p>Designing a healthy wrap based on a food combination which works 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.</p>	<p>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'.</p>	<ul style="list-style-type: none"> ● Alternative ● Diet ● Balanced diet ● Evaluation ● Expensive ● Healthy ● Ingredients ● Nutrients ● Packaging ● Refrigerator ● Sugar ● Substitute



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<p style="text-align: center;">Year 3 Structure: Constructing a Castle (3 lessons)</p>	<p>Designing a castle with key features to appeal to a specific person/purpose. Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. Designing and/or decorating a castle tower on CAD software. Constructing a range of 3D geometric shapes using nets. Creating special features for individual designs. Making facades from a range of recycled materials Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. Suggesting points for modification of the individual designs.</p>	<p>To understand that wide and flat based objects are more stable. To understand the importance of strength and stiffness in structures.</p>	<ul style="list-style-type: none"> ● 2D shapes ● 3D shapes ● Castle ● Design criteria ● Evaluate ● Facade ● Feature ● Flag ● Net ● Recyclable ● Scoring ● Stable ● Strong ● Structure ● Tab ● Weak
<p style="text-align: center;">Year 3 Textiles: Cross Stitch and Applique Cushions (4 lessons)</p>	<p>Designing and making a template from an existing cushion and applying individual design criteria Following design criteria to create a cushion or Egyptian collar. Selecting and cutting fabrics with ease using fabric scissors. Threading needles with greater independence. Tying knots with greater independence. Sewing cross stitch to join fabric. Decorating fabric using appliqué. Completing design ideas with stuffing and sewing the edges Evaluating an end product and thinking of other ways in which to create similar items.</p>	<p>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.</p>	<ul style="list-style-type: none"> ● Accurate ● Applique ● Cross-stitch ● Cushion ● Decorate ● Detail ● Fabric ● Patch ● Running-stitch ● Seam ● Stencil ● Stuffing ● Target audience ● Target customer ● Template



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<p>Year 3 Cooking and Nutrition: Eating Seasonally (4 lessons)</p>	<p>Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.</p> <p>Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.</p> <p>Following the instructions within a recipe.</p> <p>Establishing and using design criteria to help test and review dishes.</p> <p>Describing the benefits of seasonal fruits and vegetables and the impact on the environment.</p> <p>Suggesting points for improvement when making a seasonal tart.</p>	<p>To know that not all fruits and vegetables can be grown in the UK.</p> <p>To know that climate affects food growth.</p> <p>To know that vegetables and fruit grow in certain seasons.</p> <p>To know that cooking instructions are known as a 'recipe'.</p> <p>To know that imported food is food which has been brought into the country.</p> <p>To know that exported food is food which has been sent to another country.</p> <p>To understand that imported foods travel from far away and this can negatively impact the environment.</p> <p>To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.</p> <p>To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health.</p> <p>To know safety rules for using, storing and cleaning a knife safely.</p> <p>To know that similar coloured fruits and vegetables often have similar nutritional benefits.</p>	<ul style="list-style-type: none">● Climate● Dry climate● Exported● Imported● Mediterranean climate● Nationality● Nutrients● Polar climate● Recipe● Seasonal food● Seasons● Temperate climate● Tropical climate
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<p style="text-align: center;">Year 3 Digital World: Electronic Charm (4 lessons)</p>	<p>Problem solving by suggesting potential features on a Micro: bit and justifying my ideas.</p> <p>Developing design ideas for a technology pouch.</p> <p>Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.</p> <p>Using a template when cutting and assembling the pouch.</p> <p>Following a list of design requirements.</p> <p>Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch.</p> <p>Applying functional features such as using foam to create soft buttons.</p> <p>Analysing and evaluating an existing product.</p> <p>Identifying the key features of a pouch.</p>	<p>To understand that, in programming, a 'loop' is code that repeats something again and again until stopped.</p> <p>To know that a Micro: bit is a pocket-sized, codeable computer.</p>	<ul style="list-style-type: none"> • Analogue • Badge • CAD • Control • Design requirements • Develop • Digital • Digital revolution • Digital world • Display • Electronic • Electronic products • Fasten • Feature • Function • Initiate • Key features • Layers • Loops • Micro: bit • Monitor • Net • Point of sale • Product • Product design • Program • Sense • Simulator • Smart wearables • Stand • Technology • Template • Test • User
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<p>Year 3 Mechanical System: Pneumatic Toys (3 lessons)</p>	<p>Designing a toy which uses a pneumatic system. Developing design criteria from a design brief. Generating ideas using thumbnail sketches and exploded diagrams. Learning that different types of drawings are used in design to explain ideas clearly. Creating a pneumatic system to create a desired motion. Building secure housing for a pneumatic system. Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. Selecting materials due to their functional and aesthetic characteristics. Manipulating materials to create different effects by cutting, creasing, folding and weaving. Using the views of others to improve designs. Testing and modifying the outcome, suggesting improvements. Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</p>	<p>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.</p>	<ul style="list-style-type: none">● Exploded-diagram● Function● Input● Lever● Linkage● Mechanism● Motion● Net● Output● Pivot● Pneumatic system● Thumbnail sketch
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<p>Year 4 Structure: Pavilions (4 lessons)</p>	<p>Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Building frame structures designed to support weight. 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 cladding. Reinforcing corners to strengthen a structure. Creating a design in accordance with a plan. Learning to create different textural effects with materials. Evaluating structures made by the class. Describing what characteristics of a design and construction made it the most effective. Considering effective and ineffective designs.</p>	<p>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 a pavilion is a decorative building or structure for leisure activities. 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.</p>	<ul style="list-style-type: none">● Aesthetic● Cladding● Design criteria● Evaluation● Frame structure● Function● Inspiration● Pavilion● Reinforce● Stable● Structure● Target audience● Target customer● Texture● Theme
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<p>Year 4 Textiles: Fastenings (3 lessons)</p>	<p>Writing design criteria for a product, articulating decisions made.</p> <p>Designing a personalised book sleeve</p> <p>Making and testing a paper template with accuracy and in keeping with the design criteria.</p> <p>Measuring, marking and cutting fabric using a paper template.</p> <p>Selecting a stitch style to join fabric, working neatly by sewing small, straight stitches.</p> <p>Incorporating fastening to a design.</p> <p>Testing and evaluating an end product against the original design criteria.</p> <p>Deciding how many of the criteria should be met for the product to be considered successful.</p> <p>Suggesting modifications for improvement.</p> <p>Articulating the advantages and disadvantages of different fastening types.</p>	<p>To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and Velcro.</p> <p>To know that different fastening types are useful for different purposes.</p> <p>To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.</p>	<ul style="list-style-type: none">• Aesthetic• Assemble• Book sleeve• Design criteria• Evaluation• Fabric• Fastening• Mock-up• Net• Running-stitch• Stencil• Target audience• Target customer• Template
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<p style="text-align: center;">Year 4 Cooking and Nutrition: Adapting a Recipe (4 lessons)</p>	<p>Designing a biscuit within a given budget, drawing upon previous taste testing judgements.</p> <p>Following a baking recipe, from start to finish, including the preparation of ingredients.</p> <p>Cooking safely, following basic hygiene rules.</p> <p>Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).</p> <p>Evaluating a recipe, considering: taste, smell, texture and appearance.</p> <p>Describing the impact of the budget on the selection of ingredients.</p> <p>Evaluating and comparing a range of food products.</p> <p>Suggesting 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).</p>	<p>To know that the amount of an ingredient in a recipe is known as the 'quantity.'</p> <p>To know that it is important to use oven gloves when removing hot food from an oven.</p> <p>To know the following cooking techniques: sieving, creaming, rubbing method, cooling.</p> <p>To understand the importance of budgeting while planning ingredients for biscuits.</p>	<ul style="list-style-type: none"> ● Adapt ● Budget ● Cooling rack ● Creaming ● Equipment ● Evaluation ● Flavour ● Ingredients ● Method ● Net ● Packaging ● Prototype ● Quantity ● Recipe ● Rubbing ● Sieving ● Target audience ● Unit of measurement ● Utilities
<p style="text-align: center;">Year 4 Electrical Systems: Torches (3 lessons)</p>	<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>Making a torch with a working electrical circuit and switch.</p> <p>Using appropriate equipment to cut and attach materials.</p> <p>Assembling a torch according to the design and success criteria.</p> <p>Evaluating electrical products.</p> <p>Testing and evaluating the success of a final product.</p>	<p>To know that an electrical circuit must be complete for electricity to flow.</p> <p>To know that a switch can be used to complete and break an electrical circuit.</p>	<ul style="list-style-type: none"> ● Battery ● Bulb ● Buzzer ● Cell ● Component ● Conductor ● Copper ● Design criteria ● Electrical item ● Electricity ● Electronic item ● Function ● Insulator ● Series circuit ● Switch ● Test ● Torch ● Wire

<p>Year 4 Mechanical Systems: Making a Slingshot Car (4 lessons)</p>	<p>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. Measuring, marking, cutting and assembling with increasing accuracy. Making a model based on a chosen design. Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</p>	<p>To know that air resistance is the level of drag on an object as it is forced through the air. To understand that the shape of a moving object will affect how it moves due to air resistance.</p>	<ul style="list-style-type: none"> ● Aesthetic ● Air resistance ● Chassis ● Design ● Design criteria ● Function ● Graphics ● Kinetic energy ● Mechanism ● Net ● Structure
<p>Year 5 Structures: Bridges (4 lessons)</p>	<p>Designing a stable structure that is able to support weight. Creating a frame structure with a focus on triangulation. Making a range of different shaped beam bridges. Using triangles to create truss bridges that span a given distance and support 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. 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.</p>	<p>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. To understand the material (functional and aesthetic) properties of wood. To understand the difference between arch, beam, truss and suspension bridges.</p>	<ul style="list-style-type: none"> ● Abutment ● Accurate ● Arched bridge ● Beam bridge ● Coping saw ● Evaluation ● File ● Mark out ● Material properties ● Measure ● Predict ● Reinforce ● Research ● Sandpaper ● Set square ● Suspension bridge ● Tenon saw ● Test ● Truss bridge ● Wood



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<p style="text-align: center;">Year 5 Mechanical Systems: Making a Pop-up Book (3 lessons)</p>	<p>Designing a pop-up book which uses a mixture of structures and mechanisms.</p> <p>Naming each mechanism, input and output accurately.</p> <p>Storyboarding ideas for a book.</p> <p>Following a design brief to make a pop-up book, neatly and with focus on accuracy.</p> <p>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</p> <p>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</p>	<p>To know that mechanisms control movement.</p> <p>To understand that mechanisms can be used to change one kind of motion into another.</p> <p>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</p>	<ul style="list-style-type: none"> • 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 style="text-align: center;">Year 5 Cooking and Nutrition: What Could Be Healthier? (4 lessons)</p>	<p>Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.</p> <p>Writing an amended method for a recipe to incorporate the relevant changes to ingredients.</p> <p>Designing appealing packaging to reflect a recipe.</p> <p>Cutting and preparing vegetables safely.</p> <p>Using equipment safely, including knives, hot pans and hobs.</p> <p>Knowing how to avoid cross-contamination.</p> <p>Following a step by step method carefully to make a recipe.</p> <p>Identifying the nutritional differences between different products and recipes.</p> <p>Identifying and describing healthy benefits of food groups.</p>	<p>To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues.</p> <p>To know that I can adapt a recipe to make it healthier by substituting ingredients.</p> <p>To know that I can use a nutritional calculator to see how healthy a food option is.</p> <p>To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.</p>	<ul style="list-style-type: none"> • Beef • Cross-contamination • Diet • Ethical issues • Farm • Healthy • Ingredients • Method • Nutrients • Packaging • Reared • Recipe • Research • Substitute • Supermarket • Vegan • Vegetarian • Welfare



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Year 5 Digital Word: Monitoring Devices (4 lessons)

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 combining one or more 3D objects, using CAD.
Understanding the functional and aesthetic properties of plastics.
Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range.
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.
Explaining key functions in my program (audible alert, visuals).
Explaining how my product would be useful for an animal carer including programmed features.

To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record.
To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose.
To understand that conditional statements (and, or, if Booleans) in programming are a set of rules which are followed if certain conditions are met.

- Alert
- Ambient
- Boolean
- Consumables
- Decompose
- Development
- Device
- Duplicate
- Durable
- Electronic
- Inventor
- Lightweight
- Man-made
- Manipulate
- Manoeuvre
- Microplastics
- Model
- Monitor
- Monitoring device
- Moulded
- Plastic
- Plastic pollution
- Programming comment
- Programming loop
- Reformed
- Replica
- Research
- Sensor
- Strong
- Sustainability
- Synthetic
- Thermometer
- Thermoscope
- Value
- Variable
- Versatile
- Water-resistant
- Workplane



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<p>Year 5 Electrical Systems: Doodlers (3 lessons)</p>	<p>Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.</p> <p>Developing design criteria based on findings from investigating existing products.</p> <p>Developing design criteria that clarifies the target user.</p> <p>Altering a product's form and function by tinkering with its configuration.</p> <p>Making a functional series circuit, incorporating a motor.</p> <p>Constructing a product with consideration for the design criteria.</p> <p>Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.</p> <p>Determining which parts of a product affect its function and which parts affect its form.</p> <p>Analysing whether changes in configuration positively or negatively affect an existing product.</p>	<p>To know that series circuits only have one direction for the electricity to flow.</p> <p>To know when there is a break in a series circuit, all components turn off.</p> <p>To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.</p> <p>To know a motorised product is one which uses a motor to function.</p>	<ul style="list-style-type: none">● Circuit component● Configuration● Current● Develop● DIY● Investigate● Motor● Motorised● Problem solve● Product analysis● Series circuit● Stable● Target user
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Year 6 Cooking and Nutrition: Come Dine with Me (4 lessons)

Writing a recipe, explaining the key steps, method and ingredients.
Including facts and drawings from research undertaken.
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.
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 when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process.
Evaluating health and safety in production to minimise cross contamination.

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 understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).

- Accompaniment
- Collaboration
- Cookbook
- Cross-contamination
- Equipment
- Farm
- Flavour
- Illustration
- Imperative-verb
- Ingredients
- Method
- Nationality
- Preparation
- Processed
- Reared
- Recipe
- Research
- Storyboard
- Target audience
- Top tips
- Unit of measurement



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Year 6 Electrical Systems: Steady Hand Game (3 lessons)

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.
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.
Testing own and others finished games, identifying what went well and making suggestions for improvement.

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.

- Assemble
- Battery
- Battery pack
- Benefit
- Bulb
- Bulb holder
- Buzzer
- Circuit
- Circuit symbol
- Component
- Conductor
- Copper
- Design
- Design criteria
- Evaluation
- Fine motor skills
- Fit for purpose
- Form
- Function
- Gross motor skills
- Insulator
- LED
- User

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 combining one or more 3D objects, using CAD.

Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo).

Explaining material choices and why they were chosen as part of a product concept.

Programming an N,E, S, W cardinal compass.

Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.

Developing an awareness of sustainable design.

Identifying key industries that utilise 3D CAD modelling and explaining why.

Describing how the product concept fits the client's request and how it will benefit the customers.

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 pitch.

To know that accelerometers can detect movement.

To understand that sensors can be useful in products as they mean the product can function without human input.

- 3D CAD
- Application (apps)
- Biodegradable
- Boolean
- Cardinal compass
- Client
- Compass
- Concept
- Convince
- Corrode
- Duplicate
- Environmentally friendly
- Equipment
- Feature
- Finite
- Function
- Functional
- GPS tracker
- If statement
- Infinite
- Investment
- Lightweight
- Loop
- Manufacture
- Materials (wood, metal, plastic etc.)
- Mouldable
- Navigation
- Non-recyclable
- Product lifecycle
- Product lifespan
- Program
- Recyclable
- Smart
- Sustainable
- Sustainable design
- Unsustainable design
- Variable
- Workplane



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Year 6 Mechanical Systems: Automata Toys (4 lessons)

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 my design.
Measuring, marking and checking the accuracy of the jelutong and dowel pieces required.
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.
Evaluating the work of others and receiving feedback on own work.
Applying points of improvement to their toys.
Describing changes they would make/do if they were to do the project again.

To understand that the mechanism in an automata uses a system of cams, axles and followers.
To understand that different shaped cams produce different outputs.

- Accurate
- Assembly-diagram
- Automata
- Axle
- Bench hook
- Cam
- Clamp
- Component
- Cutting list
- Diagram
- Dowel
- Drill bits
- Exploded-diagram
- Finish
- Follower
- Frame
- Function
- Hand drill
- Jelutong
- Linkage
- Mark out
- Measure
- Mechanism
- Model
- Research
- Right-angle
- Set square
- Tenon saw



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<p>Year 6 Structure: Playgrounds (3 lessons)</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>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.</p> <p>Using a range of materials to reinforce and add decoration to structures.</p> <p>Improving a design plan based on peer evaluation.</p> <p>Testing and adapting a design to improve it as it is developed.</p> <p>Identifying what makes a successful structure.</p>	<p>To know that structures can be strengthened by manipulating materials and shapes.</p>	<ul style="list-style-type: none">• 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• Tenon saw• Texture• User• Vice• Weak
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