# Design Technology Progression of Knowledge & Skills (15th February 2023)

| | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| EYFS | Observe and notice features and details within real objects. Talk about what they are creating. Experiment and build with a range of construction resources. Talk about their ideas. | Show awareness of their feelings linked to exploration of experiences and materials. Observe and notice features and details within real artefacts and materials. Explore a range of tools and equipment. Choose resources, tools and techniques with a purpose in mind. | Show an awareness of their feelings linked to artefacts and textures within their world. Observe and notice features and details within real objects, pictures, paintings and photographs they experience within their world. Share and talk about their work/work of others. | Respond to creative and aesthetic experiences Talk about what they see. Manipulate a range of tools and equipment. | Show awareness and appreciation of sensory experiences and a range of different stimuli. Say what they like and dislike and why about their own and others work. Find out about the properties and functions of different construction materials. Use tools and equipment linked to food preparation. | Show pleasure and enjoyment Share their ideas, feelings and thoughts about their creations with others. Control a range of tools and equipment. Make suggestions about changes they could make or different tools or techniques they could have used. |

**Throughput the year in Continual Provision**

**Explore** – experiment and build with a range of construction resources, find out about the properties and functions of different construction materials.
**Design** – talk about their ideas, choose resources, tools and techniques with a purpose in mind.
**Make** – make models and props using different construction materials, e.g. construction kits, reclaimed materials. Experiment with different ways to build, construct and join resources. Make props to use in their play /role play/ when acting out stories/taking on story characters.
**Evaluate** – talk about what they like/dislike about their models/constructions/props say why, and how they would change them. Tools and equipment – use equipment and tools to build, construct and make simple models and props; use tools and equipment linked to food preparation. **Safety** – handle and use equipment appropriately and safely.


# Design Technology Progression of Knowledge & Skills (15th February 2023)


| Strand | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **Mechanisms Unit** | **Moving Pictures** | **Vehicles** | **Levers and Linkages A Celebration Card** | | **Gears & Pulleys Moving Toys** | |
| **Mechanisms Knowledge** | What are 'mechanisms'? What are 'levers and sliders'? How do levers and sliders move? What is a 'moving picture? That levers and sliders can make things move What does the word 'constructing' mean? What does it mean to 'evaluate'? | What is an 'axle'? (wheels and axles) What is a 'wheel'? (wheels and axles) About the strengths and weaknesses of axles. (wheels and axles) That a variety of materials can be used to create wheels and axles. (wheels and axles) That it is important to use tools safely. | What a lever is. What a linkage is. To know a variety of techniques to make levers and linkages. To know how to vary movement by changing the linkages. To know how to use levers and linkages To know how to use fixed and loose pivots. . | | To know what a cam is. To know what a pulley is. To know what a gear is. How to test a product. The brief - creating a toy that would be eye-catching and appeal to children. | |

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| **Skills** | Explore making mechanisms<br>Select from a range of materials and components to make their moving picture.<br>Use words to describe movement: up, down, left, right, vertical and horizontal<br>Create moving models that use levers and sliders | Explain how axles help wheels to move an object<br>Explore and evaluate a range wheeled vehicles<br>Evaluate different axle mountings.<br>Investigate making different axle mountings.<br>Understanding the properties of different materials.<br>Communicating ideas to others through talking.<br>Select and use from a range of tools and equipment to make their vehicle, (Cutting, joining and finishing)<br>Select from a range of materials including construction materials and different objects to make wheels and axles. (tubes, dowel, cotton reels.<br>Cut dowel safely using tools.<br>Building and testing a moving vehicle.<br>Testing and adapting a design | Select appropriate tools/ techniques. (Cutting & joining)<br>Select from and use a wide range of materials including construction materials.<br>Use mechanical systems such as: levers and linkages.<br>Use lolly sticks/card to make levers and linkages.<br>Use linkages to make movement larger or more varied.<br>Alter a product after checking it to make it better.<br>Begin to try different ideas.<br>Use simple levers and linkage to create movement.<br>Add graphics (finishing) | | Select from a range of tools and equipment when designing and making their toy.<br>Select from a range of materials when designing and constructing their toy.<br><br>Use mechanical systems such as cams, pulleys and gears to create movement.<br><br>Test their toy against criteria.<br><br>Refine a product after testing it to consider aesthetics. | |
| **Technical Knowledge** | To know about and explore mechanisms (levers and sliders) | To know and understand how axles work. explore and use mechanisms (wheels and axles) | To know and understand the use of mechanical systems in their products. (levers & linkages) | | To understand and use mechanical systems in their product (Cams, Gears and pulleys). | |
| **Vocabulary** | Slider, lever, pivot, slot, paper fastener, masking tape, join pull, push, up, down, straight, curve, forwards, backwards, horizontal, vertical,<br>design, make, evaluate, user. | wheel, axle, axle mounting, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used. | Mechanism, lever, linkage, fixed pivot, loose pivot, fulcrum. | | Cam, pulley, gears, construction, aesthetics. | |

# Design Technology Progression of Knowledge & Skills (15th February 2023)

| Strand | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| **Structure Unit** | | **Victorian Ferris Wheel (Blackpool)** | **Strengthening Bridges** | | **Bird Boxes** | |
| **Structure Knowledge** | | What a Ferris Wheel is.<br>What does more stable mean.<br>That the Ferris wheel has to be strong and stable.<br>That a structure can be made stiffer by using different techniques.<br>To know what a stable structure is. | What is an arch?<br>What are beam bridges?<br>How to make a bridge stronger/weaker?<br>How and why do you mark the wood?<br>Which tools are specific to task<br>How to reinforce the structure.<br>How to evaluate the overall success of a product.<br>To know that giving a structure a wide base will make it more stable.<br>To know key individuals have shaped travel through the use of bridge designs. | | What a bradawl is.<br>What a hand drill is.<br>What dowel is.<br>How to measure accurately to 1mm.<br>What a framework is and how to use it.<br>The importance of being able to make a product stiffer and how to do this.<br>How structures can be reinforced.<br>What design criteria means. | |
| **Skills** | | Explore how to make structures stronger.<br>Investigate different techniques for stiffening a variety of materials.<br>Test different methods of enabling structures to remain stable.<br>Join appropriately for different materials and situations e.g. glue, tape.<br>Mark out materials to be cut using a template.<br>Begin to measure and join.<br>Describe differences in materials.<br>Suggest ways to make products stronger. | Create shell or frame structures.<br>Make a range of different shaped beam bridges<br>Identifying stronger and weaker structures<br>Finding different ways to reinforce structures by selecting from a range of tools and equipment.<br>Sketch their designs using annotations.<br>Strengthen frames with diagonal slats.<br>Make structures more stable by giving them a wide base.<br>Measure and mark square section, strip and dowel accurately to 1cm.<br>Use appropriate materials.<br>Work accurately to make cuts and holes.<br>Join materials.<br>Begin to make the structure stronger.<br>Evaluate their ideas and bridge by seeking the views of others. | | Select from a range of tools and equipment to perform tasks such as measuring, cutting, shaping, joining and finishing)<br>Select from a range of materials for constructing their bird box to ensure that it fulfils its functional properties.<br>Measure accurately with increased precision.<br>Use bradawl to mark hole positions.<br>Use hand drill to drill tight and loose fit holes.<br>Cut strip wood, dowel, square section wood accurately to 1mm.<br>Join materials using appropriate methods.<br>Build frameworks to support mechanisms.<br>Stiffen and reinforce complex structures.<br>Explain how the product meets the design criteria.<br>Ensure that the product is strong and fit for purpose.<br>Begin to reinforce and strengthen a 3D frame. | |
| **Technical Knowledge** | | To know how to build structures, exploring how they can be made stronger, stiffer and more stable. | To be able to apply their knowledge of how to strengthen, stiffen and reinforce their bridge structure. | | To know and understand how to strengthen, stiffen and reinforce more complex structures | |
| **Vocabulary** | | Refer to materials tools and techniques using appropriate vocabulary: stiffen, stable, glue, tape, measure, join. | Frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join. | | Hand drill, bradawl, dowel, framework, design criteria. | |

# Design Technology Progression of Knowledge & Skills (15th February 2023)

| Strand | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **Textiles Unit** | **Making a Puppet** | | | **Anglo Saxon Bags/Satchel** | | **Pillows** |
| **Textiles Knowledge** | How to design a puppet. (Design)<br>How to use a template<br>What a running stiches is (joining)<br>How to use glue. (joining)<br>What staples are used for. (joining)<br>What over sewing is. (joining)<br>How tape can be used to fasten. (joining)<br>How to decorate fabrics. (finishing)<br>What does it mean to 'thread a needle'? (tools)<br>What does it mean to 'pin' fabric? (tools)<br>How to cut fabric. (Cutting) | | | What a prototype is.<br>What a seam is.<br>What a running stitch is and how to use it.<br>What over sewing is and how it can be used to join.<br>What a blanket stitch is and how it can make a join.<br>What a fastening is and how to use them.<br>How to sew a button on.<br>The importance of decorations. (Finishing)<br>Why it is important to consider functionality and appearance. (Functional properties)<br>To understand how the Anglo Saxons used satchels. | | To know what a seam is and that an allowance is needed.<br>How to join fabrics using a running stitch, over sewing or blanket stitch.<br>To know what a prototype is and how to make one. |
| **Skills** | Sew a running stitch<br>Thread a needle<br>Design puppet<br>Select from a range of tools and equipment for cutting, joining and finishing)<br>Select from and use a range of textiles.<br>Cut out shapes which have been created by drawing round a template onto the fabric.<br>Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape.<br>Decorate fabric using different items (Finishing) e.g. buttons, beads, sequins, braids, ribbons.<br>Evaluate designs | | | Use prototype to make pattern using J cloths.<br>Select from a range of tools and equipment for cutting, joining and finishing.<br>Select from a range of materials and textiles to make their bags/satchels.<br>Choose textiles considering appearance and functionality.<br>Join fabrics using running stitch, over sewing, blanket stitch.<br>Explore strengthening and stiffening of fabrics.<br>Explore fastenings and recreate some.<br>Sew on buttons and make loops.<br>Use appropriate decoration techniques. (Finishing). | | Join fabrics using running stitch, over sewing,<br>blanket stitch.<br>Prototype a product using J cloths.<br>Explore strengthening and stiffening of fabrics.<br>Explore fastenings and recreate some.<br>Sew on buttons and make loops.<br>Use appropriate decoration techniques<br>Join different textiles in different ways.<br>Select from a range of tools and equipment to design and make their pillows considering the functionality and the intended user.<br>Select from a range of textiles considering appearance and functionality.<br>Begin to know that a simple fabric shape can be used to make a 3D textile project. |
| **Technical Knowledge** | | | | To know how to strengthen their bags or satchels. Apply their understanding to making their product. | | |

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| **Vocabulary** | template, running stiches, glue, staples, over sewing, fasten, tape, buttons, beads, sequins, braids, ribbons, names of existing products, joining and finishing techniques, tools, fabrics, decorate, finish features design, make, evaluate, user. | | | Running stitch, over sewing, blanket stitch, prototype, fastenings, appearance and functionality. | | Seam, allowance, joining, fabric, running stich, over sew, blanket stitch, prototype |

# Design Technology Progression of Knowledge & Skills (15th February 2023)

| Strand | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **Electrical Systems Unit** | | | | **Light up sign** | | **Computer Assisted Program** |
| **Electrical Systems Knowledge** | | | | What a simple, circuit is and be able to make one.<br>To know what an electrical component is and know how to incorporate it into a circuit.<br>To know what a switch is and how to use one. | | What a series circuit is and how to make one.<br>How to incorporate a circuit into a product.<br>What an electrical component is and how to use one.<br>To know that a computer can monitor and change a products function. |
| **Skills** | | | | Select from a range of materials and electrical components to use in their design.<br>Select from and use from a range of tools to design and make their electrical product.<br><br>Incorporate a simple circuit into a model/product.<br>Use electrical systems such as switches bulbs.<br>Use a simple circuit in a product.<br>Use a number of components within a product.<br>To use a bulb in a product which will light up with the switch of a switch. | | Incorporate a circuit into a model/product.<br>Use electrical systems such as switches bulbs and buzzers.<br>Use ICT to program and control products.<br>Incorporate a switch into a product.<br>Confidently use a number of components in a product.<br>Use different types of circuits in a product. |
| **Technical Knowledge** | | | | To understand and use electrical systems in their products (Simple circuit, switch, bulb) | | To know and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] |
| **Vocabulary** | | | | Simple circuit, component. | | series circuits, incorporating switches, bulbs, buzzers and motors |

# Design Technology Progression of Knowledge & Skills (15th February 2023)

| Strand | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **Cooking & Nutrition Unit** | **Vegeable Salads** | **Fruit Smoothies** | **Savoury Wraps** | **Snack Bar** | **Vegetable Soup** | **Pleasing Pasta** |
| **Cooking & Nutrition Knowledge** | What a vegetable is.<br>What a balanced diet looks like.<br>How to maintain hygiene.<br>To know some foods, have different tastes.<br>Vegetables are part of a healthy diet.<br>The importance of using tools safely.<br>To know the basic principles of a healthy and varied diet to prepare a dish.<br>To know and understand where food comes from. | What is a 'fruit' is.<br>What can/cannot be eaten?<br>Some food we call vegetables which are actually fruits e.g. tomatoes, peppers, pumpkin olives and cucumbers<br>Where do plants grow? (Where food comes from)<br>What is a 'smoothie'?<br>What fruits are suitable for smoothies<br>What is the appearance, feel, smell and taste of the fruits?<br>What is a 'blender'?<br>It is important to work safely and hygienically.<br>To know the basic principles of a healthy and varied diet to prepare dishes.<br>To know and understand where foods come from. | That foods can be analysed based on: the taste, texture, smell and appearance.<br>What an ingredient is.<br>To know it is important to use equipment safely.<br>To know why it is important to make foods look attractive. (Finishing)<br>To know that some foods come from the UK but others have to be imported from other countries. (where ingredients are grown)<br>To know that having a varied diet is important to staying healthy.<br>To know why it is important to be hygienic when cooking.<br>To know and understand the principles of a healthy and varied diet.<br>To know and understand seasonality and how various ingredients are grown. | To understand the principles of a healthy and varied diet. The importance of a balanced diet for a healthy body.<br><br>Understand seasonality and know where various ingredients are grown. That some foods are grown in the UK but others are grown abroad.<br><br>The importance of being safe and hygienic when cooking.<br>That ingredients can be fresh, precooked or processed.<br>How to present foods in an interesting/attractive way.<br>To know how to prepare foods before cooking.<br>To know how to cook a dish. (To prepare and cook) | The principles of a healthy and varied diet.<br>About the various vitamins, minerals, carbohydrates, proteins etc. in foods that help a balanced diet.<br>What the balanced plate is for a healthy diet.<br><br>About seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. (particularly if South American)<br>Where ingredients are grown and processed.<br>About some well-known chefs. (Key individuals): e.g. Jamie Oliver and school meals, Hugh Fearnley-Whittingstall<br>The importance of hygiene and safety.<br>How to present a product and ensure it is fit for purpose.<br>That some recipes can be changed to adapt their taste or texture. | The principles of a healthy and varied diet.<br><br>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.<br><br>Know where and how a variety of ingredients are grown, reared, caught and processed.<br><br>To know how to weigh and measure using scales.<br>To know which foods would be useful ingredients for a pasta dish.<br>To know the importance of working hygienically and safely.<br>To know that including some ingredients will help to constitute a balanced diet.<br>To know how to adapt their dish by changing the ingredients. |

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| **Skills** | Discuss how vegetables are healthy.<br>Explain where food comes from - where are vegetables grown..<br>Select from a range of tools and equipment to cut, chop and grate a range of ingredients.<br>Select from a range of ingredients.<br>Work safely and hygienically. Cut and peel safely, with support<br>Understand the need for a variety of foods in a diet.<br>Wash hands & clean surfaces<br>Describe differences between some food groups (i.e. sweet, vegetable etc.) | Determining if something is a fruit<br>Taste and comparing fruit.<br>Select from and use a range of tools and equipment for cutting, peeling and chopping.<br>Select from a range of ingredients.<br>Make a fruit smoothie<br>Prepare fruits<br>Using a knife to cut safely<br>Explain where fruit comes from.<br>Work safely and hygienically | Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury).<br>Follow instructions/recipes.<br>Select from a range of ingredients according to their properties of taste, texture etc.<br>Join and combine a range of ingredients.<br>Prepare and cook using a range of cooking techniques.<br>Explore seasonality of vegetables and fruit.<br>Use equipment safely and hygienically.<br>Make product look attractive (Finishing)<br>Begin to understand food comes from UK and wider world<br>Describe how a variety of balance of food/drinks can help to provide a healthy diet. | Select from a range of tools and equipment to make their healthy snack.<br>Select from a range of ingredients to design and make their healthy snack.<br>Think about presenting product in interesting/ attractive ways<br>Explain importance of food and drink for active, healthy bodies<br>Prepare thier snack safely and hygienically<br>Use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. | Select from a range of tools and equipment for cutting, joining and finishing) to prepare their South American dish.<br><br>Select from a range of ingredients to ensure that it is fit for purpose.<br><br>Weigh and measure using scales.<br>Select and prepare foods for a particular<br>purpose.<br>Use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.<br>Explain how to be safe / hygienic and follow own guidelines<br>Present product well - interesting, attractive, fit for purpose. (Finishing)<br><br>Describe how recipes can be adapted to change appearance, taste, texture, aroma<br>Explain how there are different substances in food / drink needed for health | Weigh and measure using scales.<br>Select from and use a wider range of tools and equipment to prepare their pasta dish.<br>Select from a wider range of ingredients.<br>Work safely and hygienically.<br>Use a range of cooking techniques.<br>Understand a recipe can be adapted by adding / substituting ingredients.<br>Adapt recipes to change appearance, taste, texture or aroma.<br>Use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing. |
| **Technical Knowledge** | | | | | | |
| **Vocabulary** | food, vegetable, taste, smell, texture and feel. Design, make, evaluate, user. | Fruit names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, chopping, healthy diet, choosing, ingredients, five a day. | Smell, taste, texture and feel, peeling, chopping, slicing, grating, mixing. | peeling, chopping, slicing, grating, mixing, spreading, kneading and baking, pre-cooked, fresh, processed. | Jamie Oliver, ingredients, scales, peeling, chopping, slicing, mixing, fit for purpose. | to know a wider range of ingredient names. scales, peeling, chopping, slicing, mixing, fit for purpose. |