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| Year 2 – Autumn 1 | | | |
| DT: Baby bear's chair Baby Bear? | | Big question: How can we design and build a chair that is strong, stiff, and stable for Baby Bear? | |
| <p>Prior learning:</p> <ul style="list-style-type: none"> EYFS – Boats and Junk modelling <p>Future learning:</p> <ul style="list-style-type: none"> Year 4 – Structures – Pavilions Year 5 – Structures – Bridges Year 6 – Structures – Playgrounds | <p>Knowledge:</p> <ul style="list-style-type: none"> To know that shapes and structures with wide, flat bases or legs are the most stable. To understand that the shape of a structure affects its strength. 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. | <p>Skills:</p> <ul style="list-style-type: none"> Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects. 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. | <p>Vocabulary:</p> <p>design criteria man-made natural properties structure stable shape model test</p> |

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| | <ul style="list-style-type: none"> • 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. | <ul style="list-style-type: none"> • Exploring the features of structures. • • Comparing the stability of different shapes. • • Testing the strength of their own structures. • • Identifying the weakest part of a structure. • • Evaluating the strength, stiffness and stability of their own structure. | |
| <p>Critical Content Statements:</p> <ul style="list-style-type: none"> • Structures with wide, flat bases or legs are more stable. • The shape of a structure affects its strength and stability. • Folding and manipulating materials can make them stronger and stiffer. • A strong structure does not break easily; a stiff structure does not bend easily. | | <p>Common Misconceptions Pupils May Have:</p> <ul style="list-style-type: none"> • Thinking more tape automatically makes a chair stronger or more stable. • Believing that any shape will make a strong chair. • Assuming heavier materials always make a stronger structure. • Thinking folding paper does not affect strength. | |

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| <ul style="list-style-type: none"> • Stability means the structure is firmly fixed and unlikely to move. • Design criteria guide how a structure should be made. • Testing helps identify weak points in a structure. • Evaluating strength, stiffness, and stability improves the design. | <ul style="list-style-type: none"> • Believing testing is not necessary once the chair is built. • Assuming decoration makes the chair stronger. |
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| Year 2 - Autumn 2 | | | |
| DT: Moving Monster | | Big question: How can we design and make a moving monster using linkages and levers? | |
| Prior learning: <ul style="list-style-type: none"> • Moving storybook in Year 1 Future learning: <ul style="list-style-type: none"> • Year 3 | Knowledge: <ul style="list-style-type: none"> • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. | Skills: <ul style="list-style-type: none"> • Creating a design criteria for a moving monster as a class. • 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. | Vocabulary: <ul style="list-style-type: none"> axle design criteria input linkage mechanical |

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| | <ul style="list-style-type: none"> • To know that there is always an input and an 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. | <ul style="list-style-type: none"> • 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>output pivot wheel</p> |
| <p>Critical Content Statements:</p> <ul style="list-style-type: none"> • Mechanisms use moving parts to create motion. | | <p>Common Misconceptions Pupils May Have:</p> <ul style="list-style-type: none"> • Thinking “bigger is better” for the monster design. | |

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| <ul style="list-style-type: none"> • Every mechanism has an input (energy) and an output (movement). • Levers turn on a pivot to create movement. • Linkages are made from a series of levers connected together. • Split pins are used to create pivots in linkage systems. • Adjusting the size and thickness of levers affects how they move. • Designs should meet the design criteria and be suitable for the intended audience. • Testing and evaluating ensures the linkage works as planned. | <ul style="list-style-type: none"> • Believing more split pins make the mechanism stronger or more stable. • Assuming linkages will work without careful alignment. • Thinking all levers move the same way regardless of size or position. • Believing decoration affects how well the mechanism works. • Assuming testing is not needed once the monster is assembled. |
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| Year 2 - Spring | |
| DT: Balanced diet | Big question: How can we design and make a healthy wrap that includes a balanced range of foods? |

| Prior learning: | Knowledge: | Skills: | Vocabulary: |
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| <ul style="list-style-type: none"> • Smoothies Year 1 <p>Future learning:</p> <ul style="list-style-type: none"> • Year 3- Eating seasonally • Year 4 – Adapt a recipe • Year 5- Develop a recipe • Year 6 – Come dine with me | <ul style="list-style-type: none"> • That ‘diet’ means the food and drink that a person or animal usually eats. • What makes a balanced diet. • That the five main food groups are: carbohydrates, fruits and vegetables, protein, dairy and oils and spreads. • That I should eat a range of different foods from each food group, and roughly how much of each food group. • That ‘ingredients’ means the items in a mixture or recipe. • How to cut, grate, snip and spread to prepare foods. • How to review and give a score to evaluate. | <ul style="list-style-type: none"> • Chopping foods safely to make a wrap. • Grating foods to make a wrap. • Snipping smaller foods instead of cutting. • Spreading soft foods to make a wrap. • Identifying the five food groups. • Learning about a balanced diet. • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Designing three wrap ideas. | <ul style="list-style-type: none"> appearance balanced carbohydrates chopping board combination cut dairy design design brief diet evaluate feel fruit grate grater ingredients menu |

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| | | | oils proteins review scissors smell snip spread spreads table knife taste |
| <p>Critical Content Statements:</p> <ul style="list-style-type: none"> • A balanced diet includes foods from all five food groups. • Carbohydrates, proteins, dairy, fruits/vegetables, and oils/spreads each have different roles in nutrition. • Ingredients are the individual items used in a recipe. • Safe cutting, grating, snipping, and spreading techniques are essential for food preparation. • Designing a wrap involves choosing ingredients that taste good together and meet health guidelines. • Taste testing helps improve the final product. | | <p>Common Misconceptions Pupils May Have:</p> <ul style="list-style-type: none"> • Thinking you can't eat any unhealthy food at all. • Believing only fruits and vegetables are healthy. • Assuming more ingredients make a wrap healthier. • Thinking taste is the only factor in a balanced diet. • Believing all wraps are healthy regardless of contents. • Assuming cutting safety rules are not important. | |

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| <ul style="list-style-type: none"> • Evaluating appearance, smell, and taste ensures quality. • Recording and scoring food combinations helps decide the best design. | |
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| Year 2 - Summer | | | |
| DT: Fairground Wheel | | Big question: How can we design and build a fairground wheel that rotates and stays stable? | |
| <p>Prior learning:</p> <ul style="list-style-type: none"> • Wheel and Axles Year 1 <p>Future learning:</p> <ul style="list-style-type: none"> • Year 3 – Pneumatic toys • Year 4 – Slingshot car • Year 5 – Pop up book | <p>Knowledge:</p> <ul style="list-style-type: none"> • Everyday objects have mechanisms. • Many things that move have parts inside to help them work. • Mechanisms usually limit unwanted movement. • Everyday objects utilise wheels and axles. | <p>Skills:</p> <p>Design</p> <ul style="list-style-type: none"> • Conducting simple surveys or discussions to gather opinions on what others need or like in a design. • Knowing that a survey is used to find out what people like. • Using a simple design brief that outlines the intended use, target user, and key features of the product, to create simple design criteria. | <p>Vocabulary:</p> <p>design brief design criteria evaluate frame model opinion rotate survey</p> |

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| <ul style="list-style-type: none"> Year 6 – Automata toys | <ul style="list-style-type: none"> Wheels must be able to turn to work effectively. Axles allow wheels to turn without falling off. The features of a fairground wheel include the wheel, frame, pods, axle and axle holder. | <ul style="list-style-type: none"> Knowing that a design brief helps to decide what to make. Knowing that design criteria are the steps for making a product successful. Creating ideas with design criteria in mind. Referring to specific parts of existing products when generating ideas. Knowing that the design criteria help when thinking of ideas. Using labels to explain parts of a design, label materials, etc. Integrating moving parts when creating mock-ups. Knowing that drawings can help explain how something works. Knowing that a label explains part of a drawing. <p>Make</p> <p>Choosing materials, ingredients or components from a wider range of materials, ingredients or components.</p> | |
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| | | <p>Explaining their choices based on the properties of materials and components.</p> <p>Knowing some properties of materials like hard, soft, flexible, waterproof, strong etc.</p> <p>Following and recalling simple safety instructions.</p> <p>Knowing that some tools are sharp like scissors and knives.</p> <p>Choosing known geometric shapes when making.</p> <p>Beginning to shape objects to improve how they work.</p> <p>Knowing the names of some geometric shapes: triangle, pyramid, square, cube, circle, sphere.</p> | |
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| | | <p>Considering balance in their finishing, like evenly spaced decoration.</p> <p>Evaluate</p> <p>Discussing a range of existing products and saying what they like and dislike about them.</p> <p>Evaluating existing products against design criteria.</p> <p>Evaluating their ideas and creations against simple design criteria.</p> <p>Knowing that design criteria help to decide if their product is a success.</p> <p>Suggesting improvements to their peers' designs and products.</p> | |
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| | | <p>Knowing that improve means to make something better.</p> <p>Knowing that their suggestions can improve someone else's work.</p> | |
| <p>Critical Content Statements:</p> <ul style="list-style-type: none"> • Wheels and axles work together to allow rotation. • Axles keep wheels in place and prevent them from falling off. • A fairground wheel needs a strong frame and balanced pods to rotate smoothly. • Surveys help designers understand what users want. • Design criteria guide decisions about size, stability, and function. • Choosing appropriate materials affects strength and durability. • Testing and adapting designs ensures the wheel rotates and stays stable. • Evaluating and improving designs makes the product successful. | | <p>Common Misconceptions Pupils May Have:</p> <ul style="list-style-type: none"> • Thinking more pods make the wheel better without considering balance. • Believing more tape automatically makes the structure stronger. • Assuming any material will work for the wheel and axle. • Thinking the wheel will rotate without proper alignment of axle and frame. • Believing decoration improves stability. • Assuming testing is unnecessary once the wheel is built. | |

Year 2 – Summer**Topic title: Pouch**

Big question: How can we design and sew a pouch that is strong, neat, and decorated?

Prior learning:

- Puppets Year 1

Future learning:

- Year 3 – Cushions
- Year 4 – Fastenings
- Year 5 – Stuffed toys
- Year 6 - Waistcoats

Knowledge:

- 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.

Skills:

- 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.

Vocabulary:

decorate
fabric
fabric glue
knot
needle
needle threader
running stitch
sew
template
thread

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| | | <ul style="list-style-type: none"> • 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>Critical Content Statements:</p> <ul style="list-style-type: none"> • Sewing joins fabric pieces together securely. • Running stitch should be neat, even, and evenly spaced. • Both ends of the thread must be knotted to prevent unravelling. | | <p>Common Misconceptions Pupils May Have:</p> <ul style="list-style-type: none"> • Thinking sewing faster makes it better. • Believing a bigger pouch is always better. • Assuming knots are not necessary at the end of stitching. • Thinking decoration improves strength. | |

- Templates help cut fabric accurately to the correct size and shape.
- Threading a needle correctly is essential for sewing.
- A thimble protects fingers when pushing the needle through fabric.
- Decoration can be added using stitches or fabric glue.
- Evaluating stitching quality helps improve future sewing projects.

- Believing any type of stitch will work for joining fabric.
- Assuming templates are optional for accurate cutting.