



# Year 1: Design and Technology



## Autumn Term – Mechanisms and levers Making a moving story book

**Prior learning** – LG: Creating With Materials

- 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.

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<ul style="list-style-type: none"> <li>• Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make.</li> <li>• Clearly label drawings to show which parts of their design will move and in which direction.</li> <li>• Make a picture, which meets the design criteria, with parts that move purposefully as planned.</li> <li>• Evaluate the main strengths and weaknesses of their design and suggest alterations.</li> </ul>	<ul style="list-style-type: none"> <li>• Explaining how to adapt mechanisms, using bridges or guides to control the movement.</li> <li>• Designing a moving story book for a given audience.</li> <li>• Following a design to create moving models that use levers and sliders.</li> <li>• Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</li> <li>• Reviewing the success of a product by testing it with its intended audience.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that a mechanism is the parts of an object that move together.</li> <li>• To know that a slider mechanism moves an object from side to side.</li> <li>• To know that a slider mechanism has a slider, slots, guides and an object.</li> <li>• To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.</li> </ul>

Next steps

In year 2 the children will begin to make:

- 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.

Important subject vocabulary

Sliders – moves an object from side to side

Mechanism – parts of an object that move together

Adapt – change to make something better

design criteria - goals we must achieve to make our design successful

design - a plan or drawing to show how something will work

input – the energy needed to make something move

template – a pattern to help cut around a material

assemble – put together

test – find out if it works

## Spring Term – Textiles

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p><b>Prior learning</b> – LG: Creating With Materials</p> <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Share their creations, explaining the process they have used.</li> <li>• Make use of props and materials when role playing characters in narratives and stories.</li> </ul>		
<ul style="list-style-type: none"> <li>• Join fabrics together using pins, staples or glue.</li> <li>• Design a puppet and use a template.</li> <li>• Join their two puppets' faces together as one.</li> <li>• Decorate a puppet to match their design.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that 'joining technique' means connecting two pieces of material together.</li> <li>• To know that there are various temporary methods of joining fabric by using staples, glue or pins.</li> <li>• To understand that different techniques for joining materials can be used for different purposes.</li> <li>• To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</li> <li>• To know that drawing a design idea is useful to see how an idea will look.</li> </ul>	<ul style="list-style-type: none"> <li>• Using a template to create a design for a puppet.</li> <li>• Cutting fabric neatly with scissors.</li> <li>• Using joining methods to decorate a puppet.</li> <li>• Sequencing steps for construction.</li> <li>• Reflecting on a finished product, explaining likes and dislikes.</li> </ul>
<p><u>Next steps</u> In year 3 the children will being to make:</p>		
<p><u>Important subject vocabulary</u> Decorate – add details to make something more attractive Design – a plan or drawing to show how something will work Fabric – materials such as cotton, polyester, felt Glue – holds things together hand puppet - a puppet toy you can wear on your hand safety pin – a pin that can be opened and closed to hold two things together staple – a small metal piece that punches two pieces together stencil – a drawing that can be used to mark an outline with.</p>		

## Autumn – Food Fruit and Vegetables

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p><b>Prior learning – ELG: Managing Self</b></p> <ul style="list-style-type: none"> <li>Understanding the importance of healthy food choices.</li> <li>LG: Fine Motor Skills</li> <li>Use a range of small tools, including scissors, paint brushes and cutlery.</li> </ul>		
<ul style="list-style-type: none"> <li>Describe fruits and vegetables and explain why they are a fruit or a vegetable.</li> <li>Name a range of places that fruits and vegetables grow.</li> <li>Describe basic characteristics of fruit and vegetables.</li> <li>Prepare fruits and vegetables to make a smoothie.</li> </ul>	<ul style="list-style-type: none"> <li>To understand the difference between fruits and vegetables.</li> <li>To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).</li> <li>To know that a blender is a machine which mixes ingredients together into a smooth liquid.</li> <li>To know that a fruit has seeds and a vegetable does not.</li> <li>To know that fruits grow on trees or vines.</li> <li>To know that vegetables can grow either above or below ground.</li> <li>To know that vegetables can come from different parts of the plant.</li> </ul>	<ul style="list-style-type: none"> <li>Designing smoothie carton packaging by-hand or on ICT software.</li> <li>Chopping fruit and vegetables safely to make a smoothie.</li> <li>Identifying if a food is a fruit or a vegetable.</li> <li>Learning where and how fruits and vegetables grow.</li> <li>Tasting and evaluating different food combinations.</li> <li>Describing appearance, smell and taste.</li> <li>Suggesting information to be included on packaging.</li> </ul>
<p><u>Next steps</u></p> <p>In year 2 the children will be</p> <ul style="list-style-type: none"> <li>Slicing food safely using the bridge or claw grip.</li> <li>Constructing a wrap that meets a design brief.</li> <li>Describing the taste, texture and smell of fruit and vegetables.</li> <li>Taste testing food combinations and final products.</li> </ul>		
<p><b>Important subject vocabulary</b></p> <p>Fruit – grows on vines or trees and has a seed</p> <p>Vegetable – grows above or below ground but has no seed.</p> <p>Seed – part of a fruit that will grow into a new plant.</p> <p>Leaf – part of a vegetable that can be eaten. Other leaves should not be eaten – always check with your grown-up</p> <p>Root – part of a vegetable that grows underground and can be eaten. Other roots should not be eaten – always check with your grown up.</p> <p>Stem - part of a vegetable that can be eaten. It holds the plant up. Other leaves should not be eaten – always check with your grown-up.</p> <p>Fruits and veg that are chopped up small and blended together to make a drink</p>		

Healthy – a food or drink that is good for our bodies  
 Carton – the packaging for a smoothie or other drinks  
 Flavour – how something tastes  
 Peel – to take off the skin of a fruit or vegetable  
 Slice – to cut the fruit or vegetable into chunks or more thinly, into slices.

## Summer Term – structures Making a windmill

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p><b>Prior learning</b>            Prior learning – LG: Creating With Materials</p> <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Share their creations, explaining the process they have used.</li> <li>• Make use of props and materials when role playing characters in narratives and stories.</li> </ul> <p>From year 1 – moving stories</p> <ul style="list-style-type: none"> <li>• Explaining how to adapt mechanisms, using bridges or guides to control the movement.</li> <li>• Following a design to create moving models that use levers and sliders.</li> <li>• Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</li> <li>• Reviewing the success of a product by testing it with its intended audience.</li> </ul>		
<ul style="list-style-type: none"> <li>• Identify some features that would appeal to the client (a mouse) and create a suitable design.</li> <li>• Explain how their design appeals to the mouse.</li> <li>• Make stable structures, which will eventually support the turbine, out of card, tape and glue.</li> <li>• Make functioning turbines and axles that are assembled into the main supporting structure.</li> <li>• Say what is good about their windmill and what they could do better.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>• To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses).</li> <li>• To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>• To begin to understand that different structures are used for different purposes.</li> <li>• To know that a structure is something that has been made and put together.</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Learning the importance of a clear design criteria.</li> <li>• Including individual preferences and requirements in a design.</li> <li>• Making stable structures from card, tape and glue.</li> <li>• Learning how to turn 2D nets into 3D structures.</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>• Making functioning turbines and axles which are assembled into a main supporting structure.</li> <li>•</li> </ul>

Next steps

In year 2 the children will:

- 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.
- 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.

Important subject vocabulary

Design criteria - the goals we must achieve to make our plan successful

Net - a 3d shape drawn as a 2d shape that can be made into a 3d shape

Packaging - the wrapping on an object to keep it safe and clean

Structure - a building or something that is arranged in a specific/special way

Unstable - when something falls over

Stable - steady