



Year 1: Design and Technology



Block 1 – 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"> • Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. • Clearly label drawings to show which parts of their design will move and in which direction. • Make a picture, which meets the design criteria, with parts that move purposefully as planned. • Evaluate the main strengths and weaknesses of their design and suggest alterations. 	<ul style="list-style-type: none"> • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. • Following a design to create moving models that use levers and sliders. • 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. 	<ul style="list-style-type: none"> • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.

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

Block 2 – Textiles

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>Prior learning – LG: Creating With Materials</p> <ul style="list-style-type: none"> • 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. 		
<ul style="list-style-type: none"> • Join fabrics together using pins, staples or glue. • Design a puppet and use a template. • Join their two puppets' faces together as one. • Decorate a puppet to match their design. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.

Next steps

In year 3 the children will being to make:

Important subject vocabulary

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.

Block 3 – Food Fruit and Vegetables

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>Prior learning – ELG: Managing Self</p> <ul style="list-style-type: none"> Understanding the importance of healthy food choices. LG: Fine Motor Skills Use a range of small tools, including scissors, paint brushes and cutlery. 		
<ul style="list-style-type: none"> Describe fruits and vegetables and explain why they are a fruit or a vegetable. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie. 	<ul style="list-style-type: none"> To understand the difference between fruits and vegetables. To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). To know that a blender is a machine which mixes ingredients together into a smooth liquid. To know that a fruit has seeds and a vegetable does not. To know that fruits grow on trees or vines. To know that vegetables can grow either above or below ground. To know that vegetables can come from different parts of the plant. 	<ul style="list-style-type: none"> Designing smoothie carton packaging by-hand or on ICT software. 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. Tasting and evaluating different food combinations. Describing appearance, smell and taste. Suggesting information to be included on packaging.
<p><u>Next steps</u></p> <p>In year 2 the children will be</p> <ul style="list-style-type: none"> 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. 		
<p>Important subject vocabulary</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> <p>Healthy – a food or drink that is good for our bodies</p> <p>Carton – the packaging for a smoothie or other drinks</p>		

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.

Block 4 – structures Making a windmill

Overview of unit:	Substantive Knowledge:	Disciplinary Knowledge:
<p>Prior learning Prior learning – LG: Creating With Materials</p> <ul style="list-style-type: none"> • 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>From year 1 – moving stories</p> <ul style="list-style-type: none"> • Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Following a design to create moving models that use levers and sliders. • 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. 		
<ul style="list-style-type: none"> • Identify some features that would appeal to the client (a mouse) and create a suitable design. • Explain how their design appeals to the mouse. • Make stable structures, which will eventually support the turbine, out of card, tape and glue. • Make functioning turbines and axles that are assembled into the main supporting structure. • Say what is good about their windmill and what they could do better. 	<ul style="list-style-type: none"> • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (and, therefore, they are the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. • 	<ul style="list-style-type: none"> • understanding the importance of a clear design criteria. • Including individual preferences and requirements in a design. • Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • 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. •

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 2d 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