

## Year 1

## Design Brief:

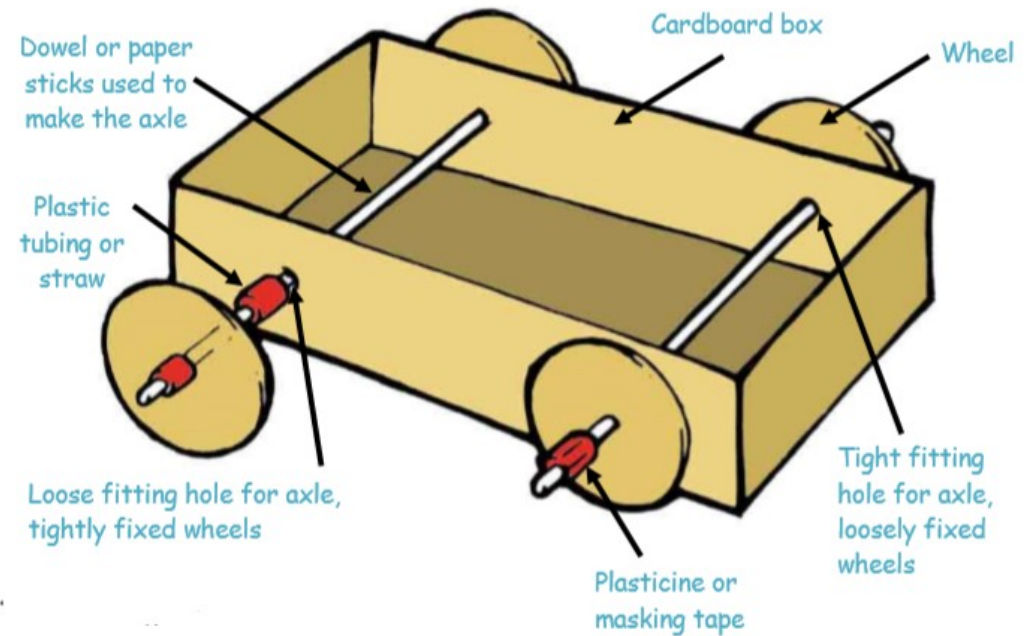
## What should I already know?

- That vehicles can move forwards and backwards.
- After having time to experiment with different toy vehicles that the wheels must move around in order for the vehicle to work.

## Vocabulary

<b>vehicle</b>	a thing used for transporting people or goods.
<b>wheel</b>	a circular object that revolves on an axle and is fixed below a vehicle
<b>axle holder</b>	the part through which an axle fits and rotates.
<b>axle</b>	a rod passing through the centre of a wheel or group of wheels.
<b>chassis</b>	the base frame of a car, carriage, or other wheeled vehicle.
<b>body</b>	the main section of a motor vehicle or aircraft.
<b>moving</b>	in motion.

## There are different ways of fixing the wheels:



Your box for the 'body' of the buggy doesn't have to be this shape but it does have to be strong, try

## A range of different wheels can be used:

Wood/card/  
MDF

Plastic



Cotton reels



Foam covered reels

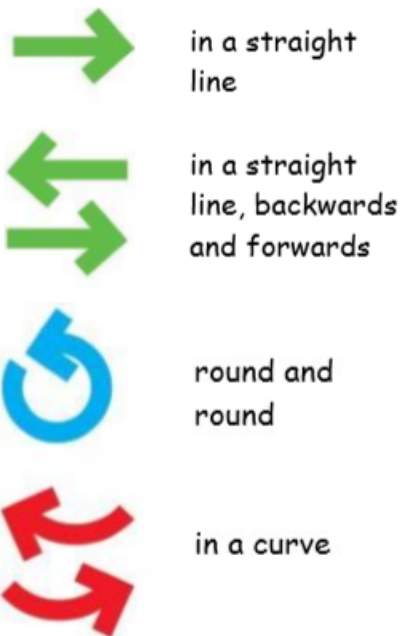
Year 2

Design Brief:

What should I already know?

- How to make flaps on cards—experiment with paper to see whether you can make a flap.
- Have some understanding of movement and how something moves.

Simple mechanisms move...



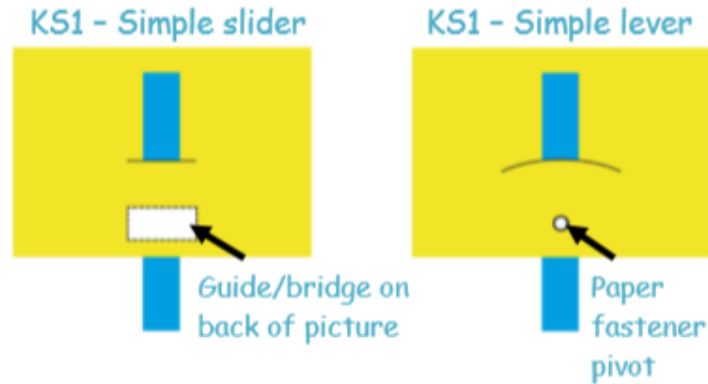
Design, Make and Evaluate

**Designing** • Generate ideas based on simple design criteria and their own experiences.

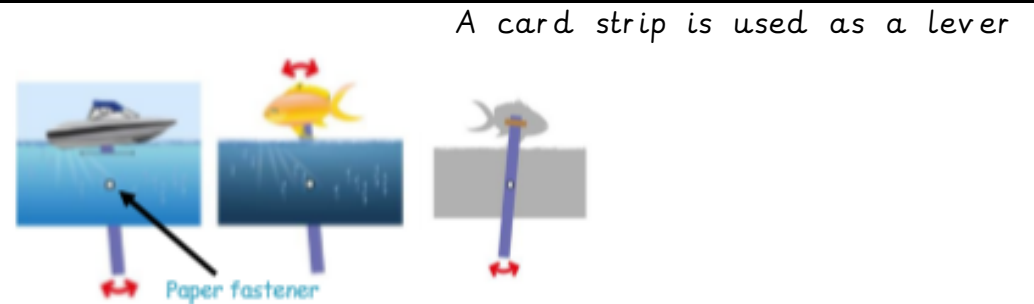
**Making** • Plan by suggesting what to do next. • Select and use tools suitable for the task, explaining their choices.

**Evaluating** • Explore a range of existing books and everyday products that use simple sliders and levers.

Lever and Sliders



Lever can be used with or without a slot:



Vocabulary

<b>Mechanism</b>	A device used to create movement in a product.
<b>Lever</b>	A rigid bar which moves around a pivot. Levers are used in many everyday products.
<b>slider</b>	A ridged bar that moves forwards and backwards along a straight line.
<b>Slot</b>	The hole in which the lever or slider is placed within to enable to moving picture.
<b>Guide or bridge</b>	A short card strip used to keep the sliders in place and control the movement.

Year 3

Design Brief and specification:

### Levers and Linkages

Red = Output  
Green = Input

### Lever and Linkage mechanisms

	Linear - in a straight line		Rotary - round and round e.g. a wheel, cam, pulley, gear wheel
	Reciprocating - backwards and forwards in a straight line e.g. a slider		Oscillating - backwards and forwards in an arc e.g. a lever

### Vocabulary

<b>Mechanism (reviewed)</b>	A device used to create movement in a product.
<b>A Lever (reviewed)</b>	A rigid bar which moves around a pivot.
<b>A Linkage</b>	The card strips joining one or more levers to produce the type of movement required. The term 'linkage' is also used to describe the lever and linkage mechanism as a whole.
<b>A Slot (reviewed)</b>	The hole through which a lever is placed to enable part of a picture to move. a Guide or bridge
<b>A Loose Pivot</b>	A paper fastener that joins card strips together.
<b>A Fixed Pivot</b>	A paper fastener that joins card strips to the backing card.

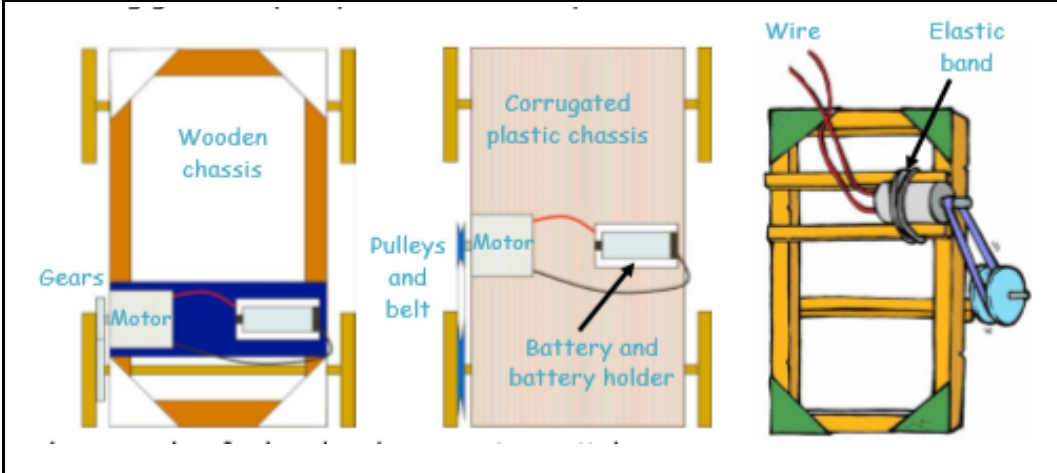
### What should I already know?

- Explored and used mechanisms such as flaps, sliders and levers.
- Gained experience of basic cutting, joining and finishing techniques with paper and card

Year 5

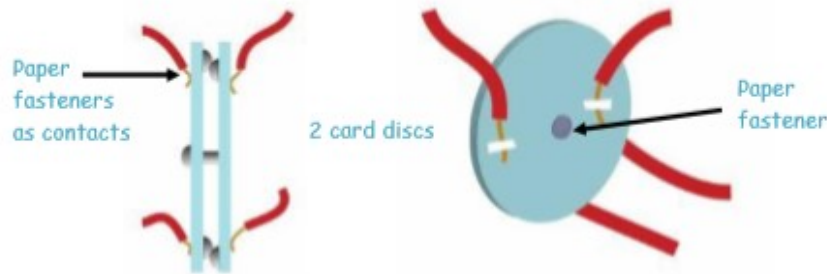
Design Brief and specification:

Building gears or pulleys into your work:



Handmade reversing switch:

An example of a handmade reversing switch



Vocabulary:

<b>Pulley</b>	A grooved wheel over which a drive belt can run. Mechanical system - a set of related parts or components used to create movement.
<b>Gear</b>	A wheel with teeth around its circumference.
<b>Drive belt</b>	The belt which connects and transfers movement between two pulleys.
<b>Gearing up or down</b>	Changing the rotational speed of a product by the use of pulleys or gears.
<b>Driver</b>	The gear or pulley that provides the input movement to the system.
<b>Follower</b>	The gear or pulley that provides the output movement to the system.
<b>Mesh</b>	The point where two gears join together and transfer movement.
<b>Motor spindle</b>	The rod on the end of the motor onto which a gear or pulley is attached.

What should I already know?

- Experience of axles, axle holders and wheels that are fixed or free moving.
- Basic understanding of electrical circuits, simple switches and components.
- Experience of cutting and joining techniques with a range of materials including card, plastic and wood.
- An understanding of how to strengthen and stiffen structures.