



Design and Technology Knowledge Organiser

Year 3: Summer Term – Mechanisms

Pneumatics

Design, make and evaluate a moving toy for a Year 1 child.



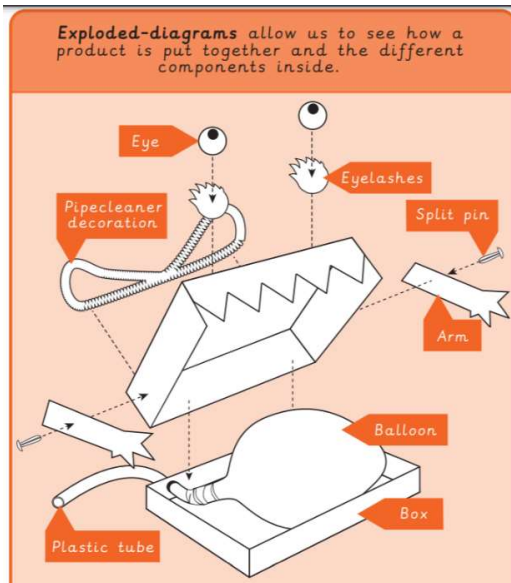
Key Knowledge

Learn this information

Pneumatic Systems:

Pneumatic systems **force air** over a distance to create **movement** as a type of **mechanism**. **Air pressure** in a pneumatic system **acts like a spring**, storing energy until it's released.

Pneumatics have been used for thousands of years but really took off in the late 18th century because of the invention of steam trains which used pneumatic systems.



Exploded Diagrams:

These allow us to see how a product is put together and the different components inside.

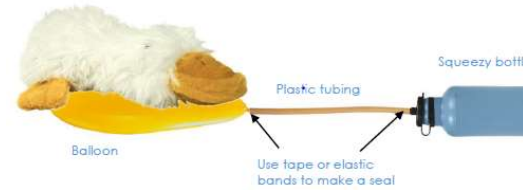
Key Skills

Practise and perform these skills

Using a Pneumatic System:

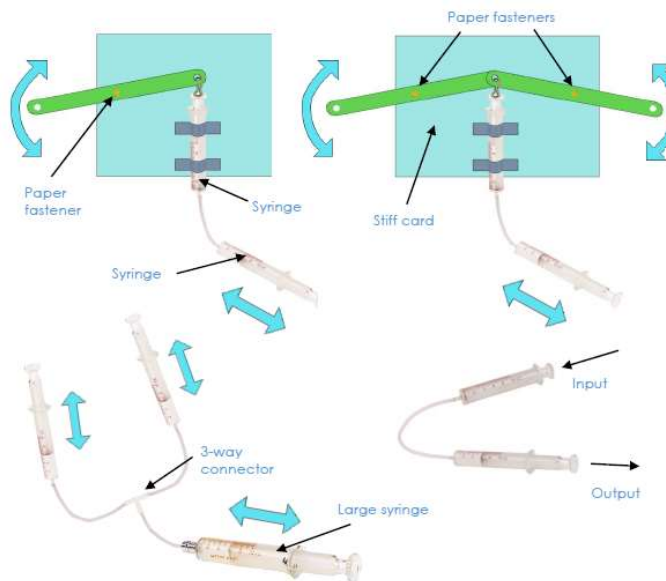
Using a bottle:

Squeeze the bottle (input movement) to inflate the balloon (output movement) and raise the toy.



Using Syringes:

Children can use one syringe for their system or they could use three syringes connected by a T-connect so that two objects move backwards and forwards.



Key Vocabulary

Understand these key words

Vocabulary	Definition
Compressed	Something that is squashed, such as air in a tube.
Deflate	Remove air to allow an object like a balloon to shrink.
Hydraulic	A system that works using liquids (such as water).
Inflate	Fill something with air or gas to make it swell up.
Input	What goes into a system.
Lever	A beam which turns on a pivot.
Output	What comes out of a system.
Pivot	A point about which a lever turns.
Pneumatic	A system that works using gases (air).
Pneumatic System	The 'input movement' is where the user pushes or pulls a syringe or pump. The 'output movement' is where the object at the end of the tube moves.
Pressure	The force used on an object or surface.
Syringe	A tube with a nozzle and plunger for sucking in and blowing out air or liquids.
System	A set of related parts or components used to create an output.