

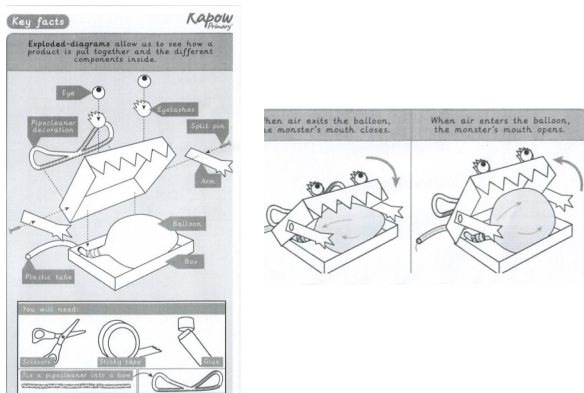
Year 3 Electricity Pneumatic Toys

Key Skills

1. Predict – what will happen when a bag/balloon is inflated underneath a book.
2. Experiment and observe – what happens when plungers are filled with air, when the air is pushed out, when there is a blockage, etc. Compare and measure the distance each syringe moves.
3. Design – a pneumatic toy on a template by doing both a thumbnail sketch and an exploded diagram.
4. Create and build – the pneumatic toy using the design as a guide. Being accurate is important. Assemble to parts to make it work.
5. Evaluate and adapt – test the finished product against the design criteria and seek constructive feedback to evaluate, make any adaptations needed.



Key Knowledge



Respect, Believe, Achieve

Vocab/Key Words

Exploded diagram - a diagram that shows both internal and external parts.

Function - How something works.

Input - the motion used to start a mechanism.

Linkage - lengths of material that are joined together by pivots, so that the links can move as part of the mechanism.

Mechanism - the parts of an object that move together as part of a machine.

Motion - the movement an object makes when controlled by an input or an output (left, right, up, down, etc)

Net - a flat 2D shape that can become a solid 3D shape once assembled.

Output - is the motion that happens as a result of starting the input.

Pivot - the central point, pin or shaft on which a mechanism turns or swings.

Pneumatic system - a mechanism that runs on air or compressed gas.

Thumbnail sketch - small drawings to get ideas down on paper quickly.

Previous Learning: Electrical systems are KS2 only

Design (make and evaluate):

- Moving storybook, Windmills and Puppets (Yr 1)
- Ferris Wheels, Baby Bear's chair, Pouches and Cushions (Year 2)

What I will know/be able to do by the end

I know that a pneumatic system can force air over a distance, which creates movement.

Pneumatic systems are used in a range of objects (eg tyres) and are part of a mechanism.

I can explain that not all mechanisms require electricity. Before electricity water, air and humans made mechanisms work.

I can record 3 examples of pneumatic systems and explain how they work.

I can use the provided design template to design my own pneumatic toy. I will include the design criteria, label the parts, materials & tools needed and explain how the pneumatic system will work.

I can create pneumatic systems with linkage systems to create motion.

I can create safe 'housing' for my pneumatic system and explain why it is important.

I can decorate my toy to make it look appealing.