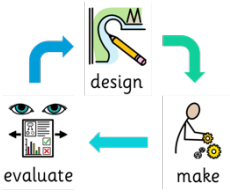
Year 3 – Autumn – Design & Technology – Pupil Knowledge Organiser

WHAT DO I ALREADY KNOW?

- Sliders, levels, wheels and axles are types of mechanism.
- Wheels and axles can make it easier to move heavy things.
- Friction is a force between two surfaces.
- Friction works in the opposite direction to the one in which the object is moving.
- Friction slows wheels and axles down as they rub against the floor or each other.

WHAT AM I LEARNING NOW?

1. What familiar objects use air to work?
2. How can we make simple pneumatic systems?
3. How could pneumatics make parts of a toy move?
4. Can we design a moving toy with a pneumatic system?
5. Can we follow our design to make a prototype product?
6. How well does our product meet the design criteria?

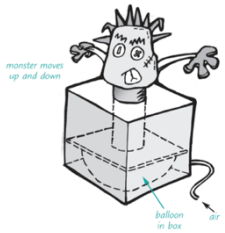


KEY KNOWLEDGE: MECHANISMS

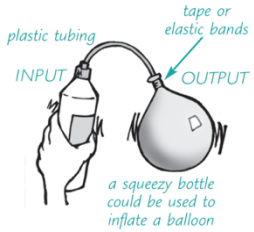
Everyday objects that use air include inflatable toys, whistles, foot pumps, and party blowers.

Pneumatic systems use air pressure to create mechanical movement.

Air pressure can be adjusted to control the speed and force of movement.



Air can be controlled to create a force that makes objects move.



"Input" is the air pressure, and "output" is the final movement or action.

A pneumatic system must be airtight. If not, the system loses air pressure so it will not work.

DESIGN, MAKE, EVALUATE

In Design and Technology, we follow a process:

design

Develop a range of ideas based on who will use our product and what for.

make

Safely assemble, join and combine materials.

evaluate

Learn from existing products.

Discuss what is good and what can be improved about our products, based on our design criteria.

KEY VOCABULARY

pneumatic	Something that works through the use of air/air pressure.
mechanism	The working or moving part or process that causes a result.
components	The individual parts of a whole/system.
system	A group of parts/components that work together as a whole.
input	The energy or signal provided to start or control a process.
output	The result or effect produced by the system in response to the input.
air pressure	How hard the air pushes against surfaces/within a system.
airtight	Completely sealed so that no air can get in or out.
prototype	A first model of something we design to see if it works.