

Key Facts

Property:

- A material is any substance that has a name. For example: chalk, paper, wood, iron, air, water, clay, plastic, rubber, stone, leather, wax. Everything is made up of materials.
- Children will be looking at the properties of different materials and describing materials using properties such as bendy, stretchy, rigid, flexible, elastic.

Push and Pull:

- Pushes and pulls can cause objects to move away from or towards whatever is applying the force.
- If there is an opposing force on the object, for example, another hand applying a force in the opposite direction, or a fixed object such as a table surface or wall preventing movement, the push or pull can change the shape of the object.
- The various actions which children learn all involve pushing or pulling to cause a change in shape. In most cases the pushes and pulls are linear movements, but pushes or pulls (or combinations of the two) that involve circular movement cause objects to twist.



Science

Year 2

Autumn 2

Shaping Up



Vocabulary

Word	Definition
Bend	To cause to take on a curved or angled form, or a different form
Elastic	The property of material which, when stretched or squashed, allows it to spring back to its original shape.
Flexible	Able to be bent or twisted into a different shape.
Rigid	Unable to be bent or twisted into different shapes.
Smooth	Not rough, even.
Squashy	Able to be squashed or pressed into a new shape that has the same volume. The focus is on a change of shape, not whether a material can be compressed.
Stiff	Unable to be changed by squashing or stretching.
Stretchy	Able to be stretched into a longer, thinner shape that has the same volume.
Twist	To wind, coil, or weave around something else.

Common misconceptions:

- Children may need further practice at distinguishing between an object and the material it is made from.
- Some properties are identified as fixed properties of a material, but others are seen to vary according to what the material has been made into, for example, wood is never stretchy but it can be flexible, especially if it is shaped into a thin ruler or dowel, or it can be rigid if made into a thick table top or door.
- Children need supporting to understand when they should refer to the material, for example, clay, rock, rubber, and when they also need to include information about the object, for example, metal spring, wooden block.

Knowledge and Understanding:

Children will learn:

- Different ways of changing the shapes of objects made from different materials. They identify materials that can be changed by the actions of squashing, bending, twisting and stretching, and link these actions with the properties of the materials that allow them to be changed.
- They discover that some materials have different properties according to how they are shaped and what they are made into, and choose materials for uses according to their properties.
- They also learn that pushes and pulls can cause movement or a change in shape. Children apply their knowledge by making clay models and catapults

Key skills and concepts:

Children will be able to:

- Carry out **identifying and classifying** enquiries and comparative tests.
- They **record** using photographs, labelled drawings, Venn diagrams, tables and bar charts.
- They have opportunities to **measure using non-standard or standard measures**
- To **compare** their findings with those of other children.
- Children will **link** their prior knowledge to materials and properties.

Key Questions

How can I change the shape of an object?

What properties allow a material to be changed?

Which material should I choose and why?

What elastic shall we use for a catapult?

