Science – Uses of Everyday Materials

Year: 2

Term: Spring

Prior knowledge

Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)

Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)

Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)

Key Knowledge:

Uses of common materials

Children need to know that common materials are used for more than one thing

Wood can be used for:	Doors, tables
Plastic can be used for:	Pens, rulers
Glass can be used for:	Windows, glasses (eye and drinks)
Metal can be used for:	Cars, coins, saucepans
Rock can be used for:	Garden walls, old buildings
Brick can be used for:	Houses, walls
Paper can be used for:	Books, wrapping paper, wall paper
Card can be used for:	Folders, birthday cards

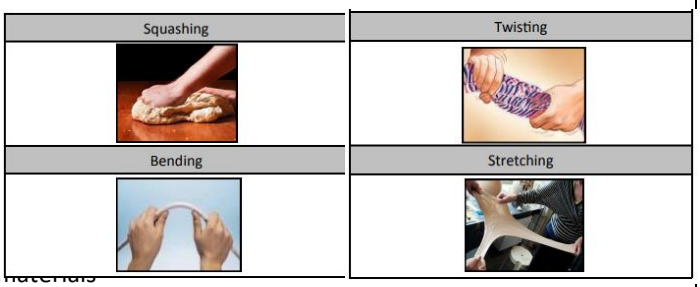
Suitability of materials for a given purpose

Children to explore what makes a material suitable for a particular purpose. Why are windows made from glass and not rock? Why are saucepans made from metal and not wood?

Some objects can be made from various materials. For example a spoon can be made from plastic, metal or wood. Why are they made from different materials? Price, purpose, time it takes to make etc.

Changing the shape of materials

Squashing	Crush something so that it becomes flat, soft, or out of shape
Bending	Changing a straight object so that it is curved
Twisting	Change the shape of an object by turning it
Stretching	Made longer or wider without tearing or breaking



Famous Scientists

Children to find out about people who have developed useful new materials

John Dunlop – An expert in rubber. Invented the first inflatable rubber tyre

Charles Macintosh – Invented the first waterproof material. The word 'mac' for raincoat is named after him.
John McAdam – He invented building roads with a smooth, hard surface

Key Vocabulary – new vocabulary in bold

Prior vocabulary - Natural, hard, soft, smooth, bumpy, rough, wet, dry, sink, float, properties, material, liquid, surface, object, absorbent, wood, plastic, glass, metal, water, rock
Working scientifically key vocabulary – observe, test, record, equipment

Rubber	A tough material that can be shaped
Inflatable	Can be filled with air
Fabric	Cloth produced by weaving or knitting
Suitability	Right for the situation of purpose
Stretch	To extend, spread or reach out.
Twist	To bend or turn in opposite directions
Waterproof	Does not let water through
Flexible	Can be easily bent without breaking.
Rigid	Difficult or impossible to bend.

Additional vocabulary to discuss across the unit - brick, paper, cardboard, movement

Working scientifically

Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits and in stories, rhymes and songs)
Observing closely, identifying and classifying the uses of different materials and recording their observations

Key Outcomes

How can the properties of objects help us to sort them into groups?

Recapping and building on learning from Year 1, children will explore then discuss, compare and group together a variety of materials on the basis of their physical properties recalling vocabulary from Year 1 but now also using: opaque, transparent and translucent, reflective, non-reflective, flexible, rigid.

Why are some materials unsuitable for everyday objects?

Children will learn the difference between an object's name and the material it is made from. They will be given scenarios where there are choices of materials to make everyday objects and children will explain and identify why some materials are unsuitable for the object to be made from.

What are the best materials to make a house for the Three Pigs from?

Children make predictions and investigate the most appropriate materials so that the Three little Pigs House is not blown away (e.g. with a hairdryer). They record results by measuring how far the 'house' has travelled.

What is the best material to wrap up Humpty Dumpty so that he doesn't break?

Children discuss the properties of the egg to make predictions about the best materials to 'save' Humpty Dumpty from breaking when knocked off the wall. They test their predictions and form conclusions based on results.

Which objects/materials do you think we can change the shape of by squashing, bending, twisting or stretching?

Children will bring their prior knowledge to this lesson to help them predict which shapes they can change. Whilst changing the shape of an object, children will describe the action used and they can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot.

How and why did John McAdam change the roads that we drive on?

Children use secondary sources to investigate the invention of tarmac and why John McAdam's invention was so important (They will use vocabulary such as properties, material, waterproof, flexible etc. to explain their findings.)

Future Learning

Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks)

Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)

Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)

Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials)