

Materials and their properties - Science

In this unit of work the children will identify the uses of different everyday materials. They will name various materials, explain what materials can be used for, investigate their properties and choose the best material for a particular purpose. Through exploration, they will find out how the shapes of objects, made from some materials can be changed.

In this unit children will:

- Match materials to their uses.
- Say what use a material has and explain its properties.
- Identify which properties make materials suitable for different purposes.
- Explain why some materials can be changed through bending, stretching, squashing and twisting.
- Learn about people who have developed useful new materials.
- Explain the process of recycling.
- Test a variety of materials to find the most suitable for the task.

Prior Learning

Year 1 – Naming simple materials

Cross Curricular Links

ICT – Using i-pads photograph objects around the school made from everyday materials

Maths – Drawing tables and graphs to record results

Key Vocabulary

Properties – The characteristics of something.

Material – A substance used to make something

Translucent – An object which allows some light to pass through it

Opaque – A material which doesn't allow light to pass through it.

Transparent – A material which allows light to pass through it.

Waterproof – A material which keeps you dry and doesn't let water in.

Recycling – Using things which have already been used to make something new.

Rigid – When something is impossible to bend.

Flexibility – When something can bend easily, without being broken.

Durability – When something lasts a long time.

Key Knowledge

- Around our school we can find objects which are made from metal, wood, glass, plastic, concrete.
- Natural **materials** are those which come from plants, animals or rock and include wood, cotton, sand, coal, leather, gold and iron.
- Man-made **materials** are created by humans and include paper, concrete, glass, nylon, plastic and steel.
- **Materials** have specific **properties** which make them suitable for their job e.g. Wood is used to make a table because it is strong, hard wearing and smooth.
- Glass is used for a window pane because it is **transparent** and lets us see through it.
- Some **materials** such as wool and paper are **flexible** and can be bent, stretched, twisted and squashed.
- Other **materials** such as steel and granite are **rigid** and can't be twisted, stretched, squashed or bent.
- **Recycling** helps to save our planet.
- **John McAdam** invented Macadamisation which created tarmac, the material which we use to build roads
- Some **materials** will be **transparent**, some will be **opaque** and some will be **translucent** if you shine a torch on them.



- Plastic is a versatile material because it can be made into lots of different products.
- Clothes can be made from lots of different **materials** such as wool, cotton, polyester, nylon, silk and leather.

Key Questions

- Why is that material suitable for that job?
- Which is the most common material and why?
- What properties do wood, metal, glass, plastic and fabric have?
- How can the shape of an object be changed?
- Why is it important to recycle?