Science - Materials

Core Knowledge

In Years 1 and 2, students explore various materials, their properties, and their uses in a fun and interactive way. Understanding materials equips them with knowledge for future scientific learning and helps them appreciate the world around them.

Types of Materials

1. Natural Materials:
   - Examples: Wood, cotton, rubber, wheat.
   - Origin: Found in nature.
2. Man-made Materials:
   - Examples: Plastic, glass, metal.
   - Origin: Created by humans through processes.

Properties of Materials

- Hardness: Whether a material is hard or soft. Example: Stone is hard; sponge is soft.
- Texture: The feel of a surface; can be rough or smooth.
- Flexibility: How much a material can bend without breaking. Example: Rubber is flexible; glass is not.
- Weight: How heavy a material is.

Key Vocabulary

- **Material -** A substance or matter used to make things, e.g. wood, metal, plastic, etc.
- **Properties -** Characteristics of materials that help us describe them, such as texture, hardness, and flexibility.
- **Fabric -** A material made by weaving or knitting fibres together, e.g. cotton, wool.
- **Natural Material -** Materials that come from nature, like wood, stone, and cotton.
- **Man-made Material -** Materials made by humans, like plastic and metal.
- **Recycling -** The process of converting waste into reusable material.
- **Soluble -** Describes materials that can dissolve in water, like sugar or salt.
- **Insulator -** A material that does not conduct electricity or heat well, like rubber or wood.
- **Conductive -** A material that allows electricity or heat to pass through it easily, like copper or aluminium.

Top Ten Facts

1. Materials can be classified into two main categories: natural and man-made.
2. Wood is a natural material that comes from trees, and it is often used to make furniture and paper.
3. Plastic is a man-made material that is lightweight and can be shaped into many forms.
4. Some materials are waterproof, meaning they do not let water pass through, like plastic.
5. Textiles consist of fabrics that can be soft or hard, depending on how they are made.
6. Metal is a strong material; it is often used for tools and buildings because of its durability.
7. Some materials, like glass, can be transparent, allowing us to see through them.
8. Recycling helps to reuse materials and reduce waste, teaching us to be more environmentally friendly.
9. Certain materials can be classified as 'soluble' or 'insoluble' based on their ability to dissolve in water.
10. On Earth, we primarily use three types of materials: solid, liquid, and gas.

Key Questions & Answers

1. What are materials?

Answer: Materials are substances used to make things. They can be natural (like wood and cotton) or man-made (like plastic and glass).

2. What are the properties of materials?

Answer: Properties include hardness (hard or soft), texture (rough or smooth), flexibility (bendable or stiff), and weight (light or heavy).

3. Why is it important to know about materials?

Answer: Understanding materials helps us choose the right ones for a purpose, like making clothes or building houses. It also helps us learn about the environment.

4. Can materials change?

Answer: Yes, materials can change when they are heated, cooled, or mixed with other substances. For example, heating chocolate melts it.

5. What is recycling and why is it important?

Answer: Recycling is collecting and processing materials to make new products. It's important because it reduces waste, saves energy, and conserves natural resources.

6. How can we identify whether a material is conductive or insulating?

Answer: We can test materials to see if they allow electricity to pass through them (conductive) or block it (insulating).

7. What types of materials can we find in our school?

Answer: In school, we can find wood (desks), plastic (chairs), fabric (cushions), metal (scissors), and paper (books).