

Rotherhithe Primary School - Science

Topic: Properties and changes of materials

Year: 5

Strand: Physics

What should I already know?

- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, plastic, glass, water and rock.
- Describe the simple physical properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their physical properties.
- 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.
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter.
- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Vocabulary

Rigid	Hard and fixed; not flexible.
Elastic	Returns to original shape when force removed.
Plastic	Retains new shape when force removed.
Flexible	Easily bends; opposite of rigid and stiff.
Electrical conductor	Material that allow electricity to flow through it.
Thermal conductor	Material that allows heat to pass through it.
Solution	Mixture of solid and liquid (you might not be able to see the solid).
Solute	The substance that dissolves.
Solvent	Usually (liquid) that does the dissolving.
Dissolve	When a solid mixes with liquid to make solution.
Evaporate	Heat liquid until it turns into gas.
Mixture	Two or more substances that can be separated.
Soluble	When something can dissolve.
Insoluble	When something can't dissolve.

What will I know by the end of the unit?

How could I group materials?	There are many ways to group materials, from their colours to their textures, but groupings can also be based on properties and origins such as their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
Can materials changed be reversible?	Dissolving, mixing and changes of state are reversible changes. Some materials will dissolve in liquid to form a solution, and recover a substance from a solution.
How can mixtures be separated?	A mixture contains more than one substance that are not chemically joined, which means they are easy to separate using their properties, e.g. size, magnetic, solubility. Mixtures may be separated through filtering, sieving and evaporating.

Significant People

Ernest Rutherford was the first to discover that an atom (the smallest particle of an element) has a small charged nucleus surrounded by largely empty space, and is circled by tiny electrons.



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Question 1

Question 2

Question 3

Question 4

Question 5