

Materials: Lesson Ideas

Curriculum Aim: Compare and group materials together, according to whether they are solids, liquids or gases.

Success Criteria:

- I can find similarities and differences between materials.
- I can say whether a material is a solid, a liquid or a gas.

Resources:

- Kettle
- Ice
- Water
- Different shaped containers

Useful PowerPoints:

- [Comparing and Grouping Materials PowerPoint](#)

Whole Class Demonstration Activity:

Arrange the children into groups. Ask the children in their groups to stand as close to each other as they can. Explain that this is like the particles in a solid. There is no room for the particles to move so they maintain their shape. Then, ask them to move a bit further away from each other but to hold hands or link arms. Ask the children to move around while still linked together. Explain that this is like the particles in a liquid that can flow. Then, ask the children to move freely around the entire room. Explain that this is like the particles in a gas which will fill whatever space they occupy.

Show the children the water in one container. Ask them what state it is (liquid). Pour the water into another container to demonstrate that liquids take the shape of whatever container they are in. Show the children the ice and ask them what state it is (solid). Explain that ice is still water but in a different state and ask the children how we can turn water from a liquid into a solid (freezing). Explain that the ice won't change shape now because it is a solid. Boil a kettle and show the children the water vapour as the kettle boils. (You will need to refer to your school's health and safety policy before doing this.) Explain that applying heat to water turns it from a liquid to a gas. Highlight how the water vapour fills the area it is in because it is a gas.

To extend the children's learning, they may wish to explore how to change the state of other materials, e.g. melting chocolate.

Independent or Paired Work:

Here are some activities designed to investigate solids, liquids or gases:

- [Solids, Liquids and Gases Sorting Activity Sheet](#)
- [Solid, Liquid or Gas Activity Sheet](#)
- [Solids, Liquids and Gases Activity Sheet](#)