

# Matter

## 1. Particle model

### CONCEPT 2

#### UNDERSTANDING SOLIDS

##### NOTES

The particles in a **solid** are close together and arranged in a regular way. They cannot move from their position but vibrate on the spot.

Solids keep their shape unless a force is applied to them.

Solids can change their shape if you squash, stretch, cut or twist them.

Solids do not have to be hard. They can be soft, bouncy or even fluffy.

Particles that are more tightly packed together have more **density**. This means there is more matter within a particular volume. Solids are denser than liquids. Liquids are denser than gases.

When substances are heated they will **expand** (increase in size). When they are cooled they will **contract** (decrease in size). This can be a useful property in thermometers, welding using shrink fitting, fire alarms. It can cause problems with bridges in the summer. Special joints are needed to stop them bending out of shape. What happens when we put a hot beaker under a cold tap?

The particles do not change size. As they are heated, the particles move more and take up more room. As they are cooled, the particles move less and take up less room.