




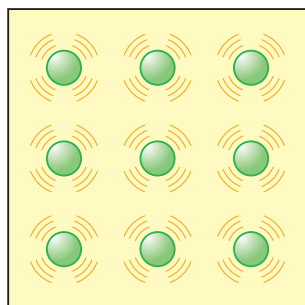
Property	Solids	Liquids	Gases
Shape	Stay the same shape	Flow easily Take the shape of their container	Flow easily Take the shape of their container
Volume	Stay the same volume	Stay the same volume	Take the volume of their container
Density	High densities (usually greater than 2 g/cm^3)	Medium densities (about 1 g/cm^3)	Low densities
Compressibility	Cannot be compressed	Can be compressed very slightly	Can be compressed into a much smaller volume
			

Table 1 The important properties of solids, liquids and gases

The kinetic theory states that:

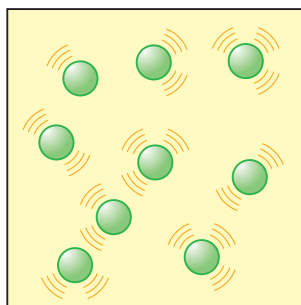
- All matter is made up of tiny, invisible moving particles. These particles can be atoms, ions or molecules.
- The particles are continually moving and if the temperature is raised the particles gain energy and move more quickly.
- At a given temperature lighter particles move more quickly than heavier ones do.

In Figure 1 the kinetic theory is used to explain the differences between solids, liquids and gases:



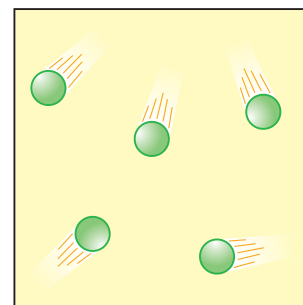
Solid

The particles are close together, and are held in place by strong forces between them. So solids are more dense than liquids and gases and cannot be compressed. The particles can only vibrate about fixed points. So solids have a fixed volume and shape and cannot flow.



Liquid

The particles are a little further apart and the forces between them are not as strong as those in solids. So liquids are not as dense as solids and can be compressed slightly. The particles can roll around each other so they flow easily. They can change their shape but have a fixed volume.



Gas

The particles are very far apart and there are no forces between them. So the densities of gases are very low and they can be easily compressed. The particles move around very fast in all the space available, so they fill their whole container and flow easily.

Figure 1 Particles in solids, liquids and gases