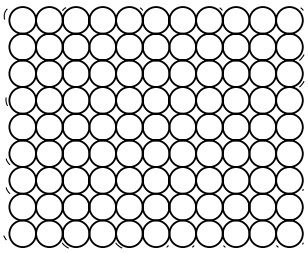
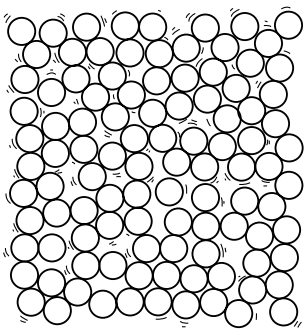
7G Summary Sheets

Solids, liquids and gases



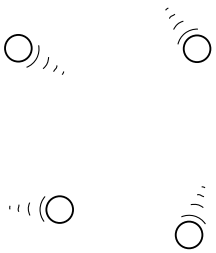
SOLID

- Solids are made up of particles that are very close together and are held tightly together by strong **bonds**.
- Solids cannot be squashed, do not flow, have a fixed shape and volume, and have a high density.



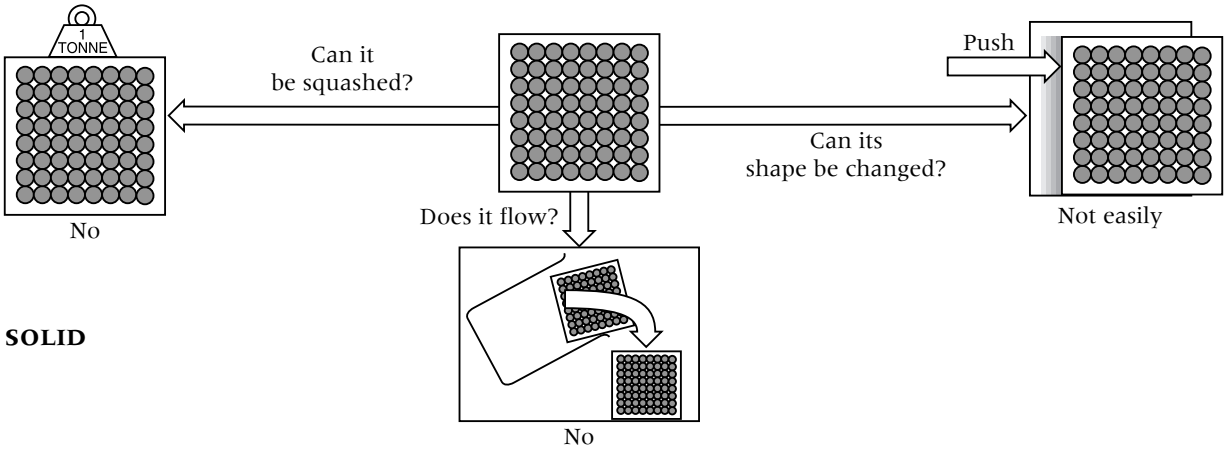
LIQUID

- Liquids are made up of particles that are fairly close together; the bonds between the particles are weaker than the bonds in solids.
- Liquids cannot be squashed, flow quite easily, and have a fixed volume but no fixed shape.
- Although they are dense, liquids usually have a lower density than solids.

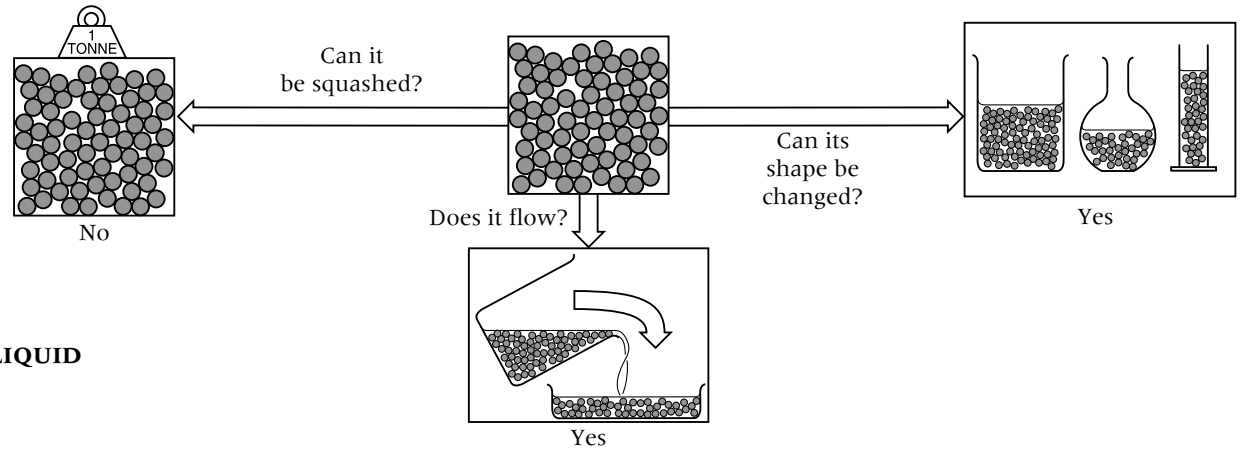


GAS

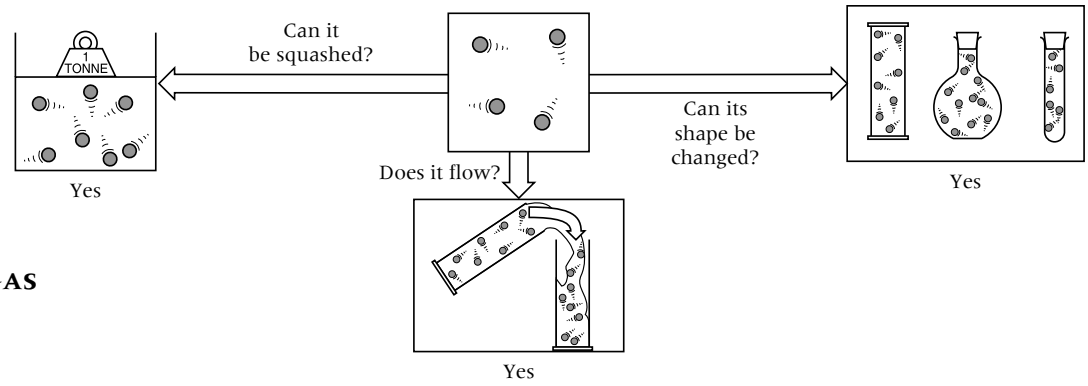
- Gases are made up of particles that are well spread out, with no bonds between them.
- Gases are quite easy to squash, flow easily, have no fixed volume and no fixed shape.
- Gases have a lower density than liquids.



SOLID



LIQUID



Diffusion

The natural mixing of substances is called **diffusion**. Diffusion occurs because particles in a substance are always **moving** around. Diffusion is fastest in **gases**, and slower in liquids. Diffusion in solids is extremely slow.

Pressure in gases

Pressure is caused by particles hitting the walls of the container they are in. If the pressure becomes too great for a fixed container to hold, it will burst.

The pressure may increase because:

- the container has been squashed, making the volume smaller; this means that the particles will be hitting the walls more often.
- the number of particles has been increased, which means there are more particles moving around to hit the walls.
- the temperature of the particles has increased, so they will move around faster and hit the walls harder and more often.

If the particles are in a container which is flexible, like a balloon or a syringe, an increase in pressure will make the volume increase.

The idea of particles is a **theory** that scientists use to explain **observations**. Scientists use theories to make **predictions**, and test the predictions to find out if they are correct. If the predictions are not correct, then the theory may have to be changed to help to explain the new evidence.

