

## Matter

Matter = anything that has mass and takes up space.

Almost everything is matter (but energy is not)

### Particle Theory of Matter

- All matter is made up of extremely tiny particles called atoms
- Each pure substance has its own kind of particle, different from the particles of other pure substances. I.e: water, oxygen, gold, vinegar
- Particles attract each other
- Particles are always moving
- Particles at a higher temperature move faster on average than particles at a lower temperature.

States of Matter - Solid, liquid & gas – their properties can be explained using particle theory

Solid – particles close together, not moving much (just vibrate). Solids tend to keep their shape

Liquid – particles little farther apart, moving more. Liquids take the shape of their container.

Gas – particles farther apart, moving much faster. Gases expand to fill a container and beyond.

This makes sense. As you add heat energy, the particles move faster and are farther apart.

That's why shapes hold their shape because particles stay close together and move just a little. That's how liquids can expand to fill their container and gases can escape their container.