

Year 6: Solids, Liquids and Gases

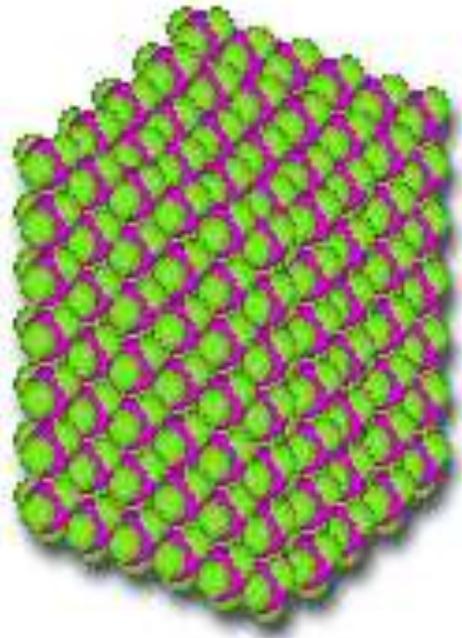
Lesson 3: Particle Theory and Making Crystals

WC 10th September 2012

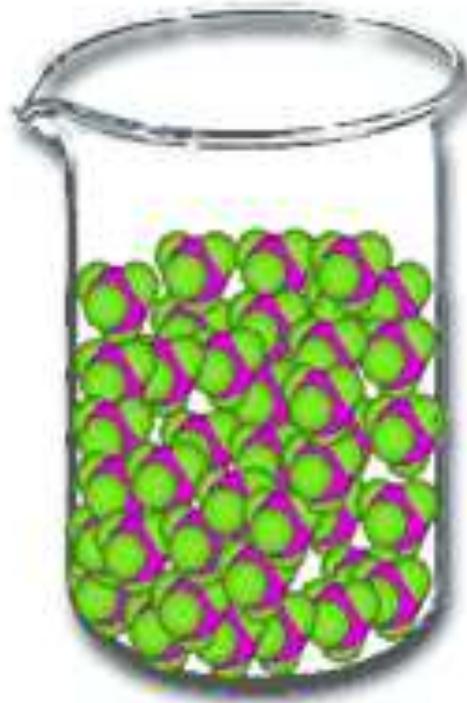
Why are solids solids and gases gases?

- **WALT: Describe how particles are aligned in solids, liquids and gases**
- I must be able to identify the particle models for solids, liquids and gases
- I should successfully carry out a practical to make salt crystals
- I could relate the heating of particles to melting and evaporation

A detailed look at changes of state



Solid



Liquid



Gas

Let's read p.149 of the red books together

Key points of PARTICLE THEORY

1. All materials are made up of tiny particles.
2. An atom is the smallest particle that can make up a substance.
3. A molecule is made up of two or more types of atoms joined together.
4. Particles are always moving and have spaces between them.
5. Particles are held together by forces.

Changing state

- **What happens to the particles during the change of state?**
- If you heat a solid the particles stay the same but they vibrate more. As a result they move slightly further apart, so the solid expands. If you carry on heating, the forces of attraction in a solid are weakened, and the solid melts and becomes a liquid. This change happens at the **melting point**.
- If you carry on heating the liquids, the particles move around more quickly. As it gets hotter, the forces of attraction holding the particles together in the liquid break, and the particles are free. The liquid boils and becomes a gas. This change happens at the **boiling point**.



The particles in solids often like to align themselves in straight lines

- You are going to demonstrate this by making some salt crystals.

When you are finished

Answer question 3 on p. 148

(You do not need to draw the bar chart).

Plenary – 5 minutes

- In three groups, demonstrate the particle structures of solids, liquids and gases using drama/dance.
- If you are feeling confident you could choose either evaporation or melting and include this in your drama piece.