

# Year 6: Solids, Liquids and Gases

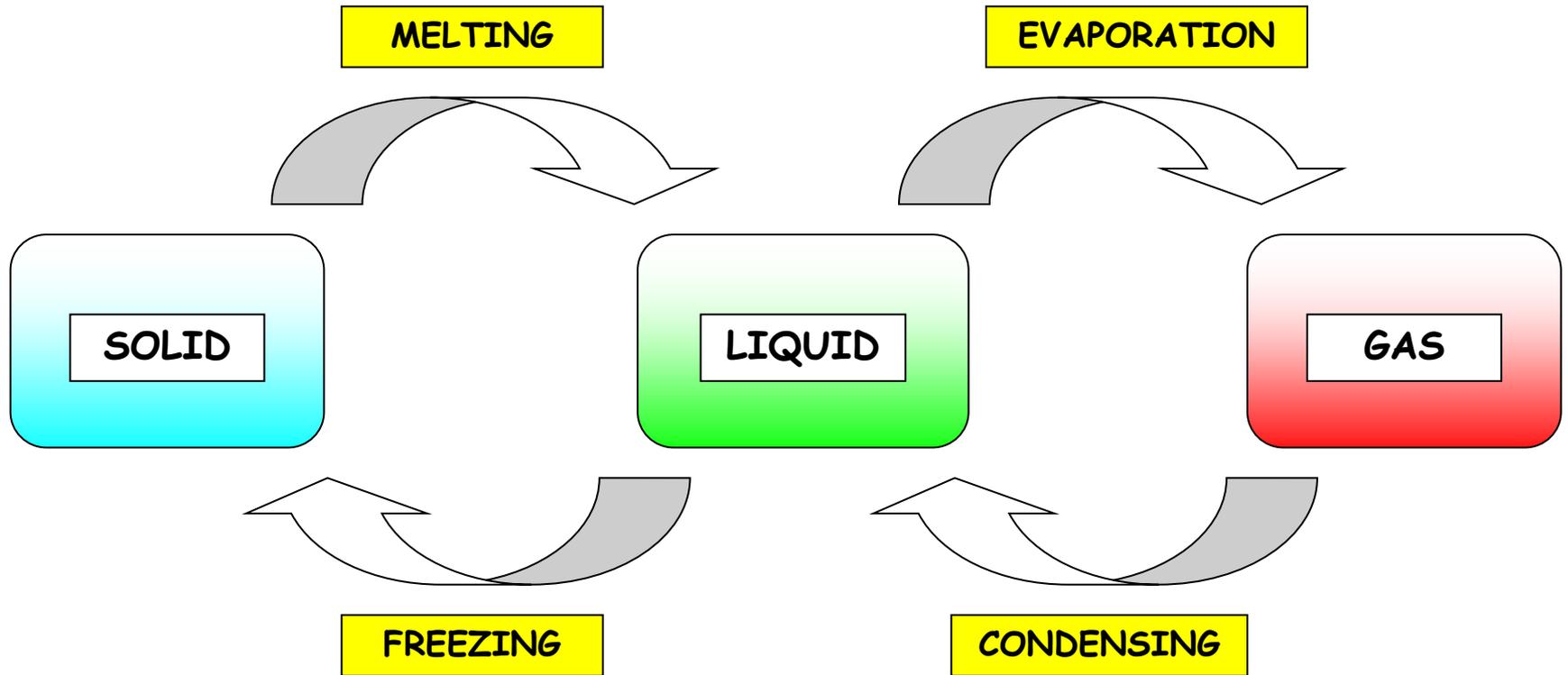
Lesson 2: Changes of state

WC 10<sup>th</sup> September 2012

# Changes of State

- **WALT: Investigate the changes of state of water**
- I must be able to define a range of terms relating to changes of state
- I should successfully carry out a practical to investigate melting and evaporation of water
- I could relate this concept to the water cycle

# Changes Of State



The 3 states of matter are : - **SOLID** , **LIQUID** and **GAS**

There are 5 changes of state :

**MELTING** - a solid changing into a liquid

**EVAPORATION** - a liquid changing into a gas

**CONDENSING** - a gas changing into a liquid

**FREEZING** - a liquid changing into a solid

**SUBLIMATION** - a solid changing straight into a gas

These changes  
are all  
**REVERSIBLE**

# Evaporation and Boiling

- Don't confuse evaporation and boiling
- Boiling is vigorous evaporation
- If you put some water on the stove, evaporation will take place before boiling

Changes of state happen because  
of changes in temperature

# Method

1. Half fill your beaker with ice and place a thermometer in the middle of the ice
2. Place the beaker on a tripod and gauze on a mat and place the Bunsen burner underneath
3. Heat on a yellow flame and take the thermometer reading every minute using a stop clock
4. Note down the temperature and time in a table and write down the point at which the ice around your thermometer started to melt and then when it boiled.

Write the experiment up with a diagram, method, results table and conclusion

Then, using p.141 of the red books, write 5 lines about how your investigation could relate to the water cycle.

Finish this for prep. We may draw a graph together if there is time.

In **pure** substances, boiling and melting always take place at the same temperature each time

- The **boiling point** of pure water is .....

and its **melting point** is .....

Why might our results have been different to the above?

# When water freezes it can be a problem....

- It expands and can crack water pipes

.....some people cover their water pipes in winter in cold climates.

# Plenary

1. Read p.140 of the red books and look at the table.

Old thermometers used to use mercury inside them to tell us the temperature. Why do you think they used mercury and not water?

2. Spend 2 minutes discussing with each other, how you might do an experiment to demonstrate CONDENSATION.