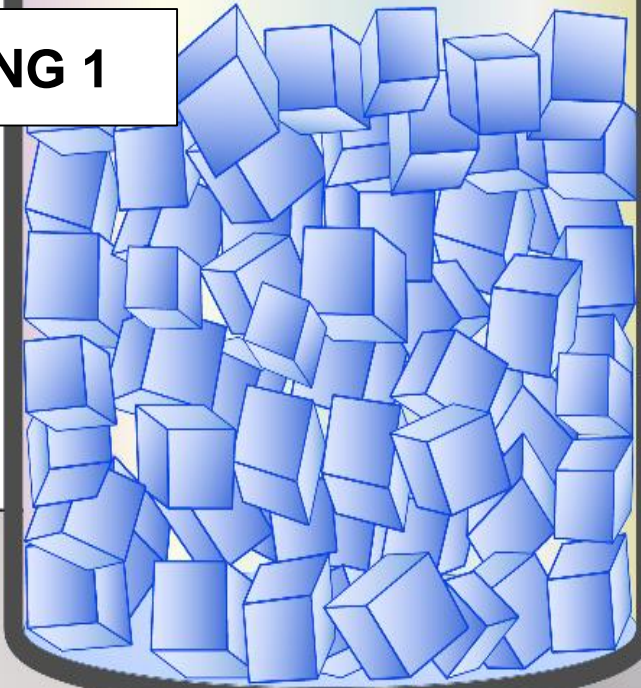


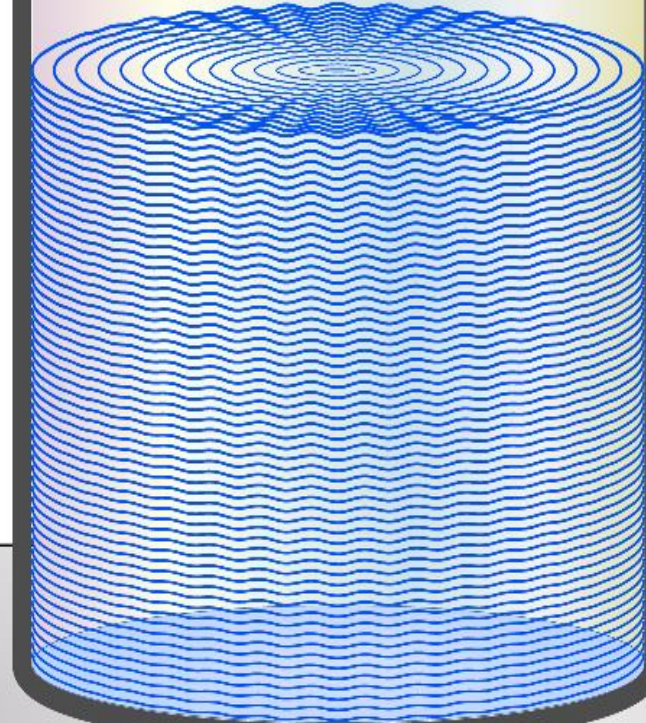
Phases of Matter

YEAR FOUR

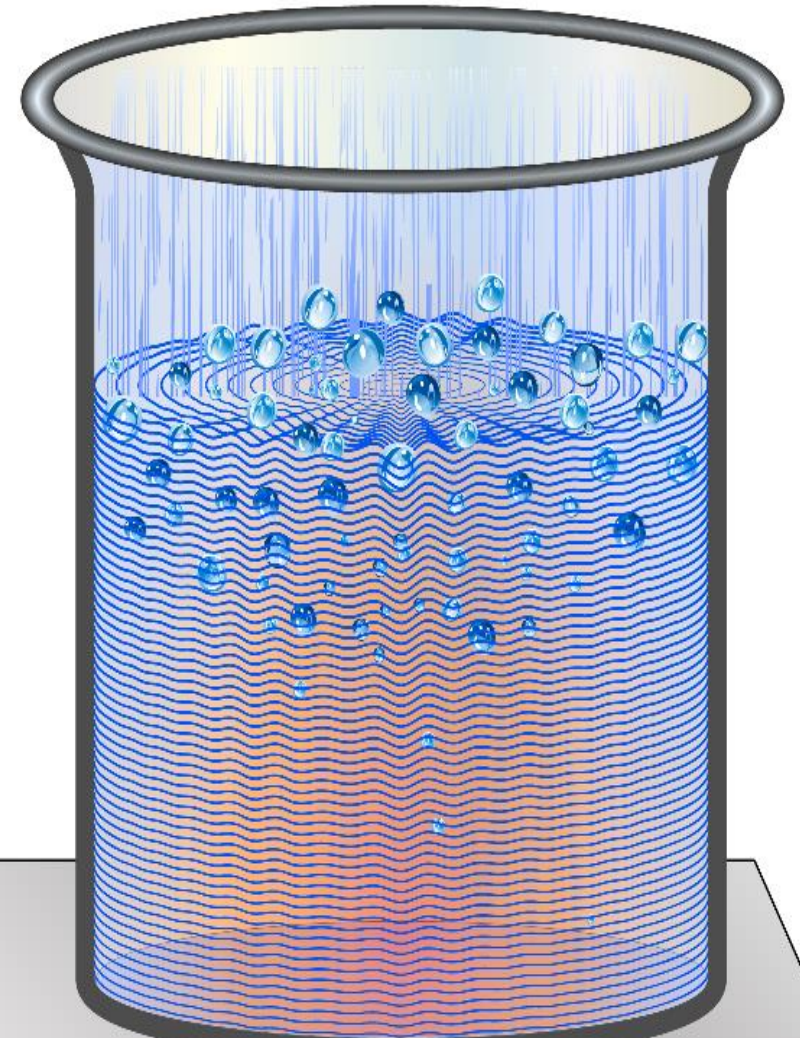
SPRING 1



Ice



Water



Water vapour

LESSON FIVE

How can we measure melting points and boiling points?

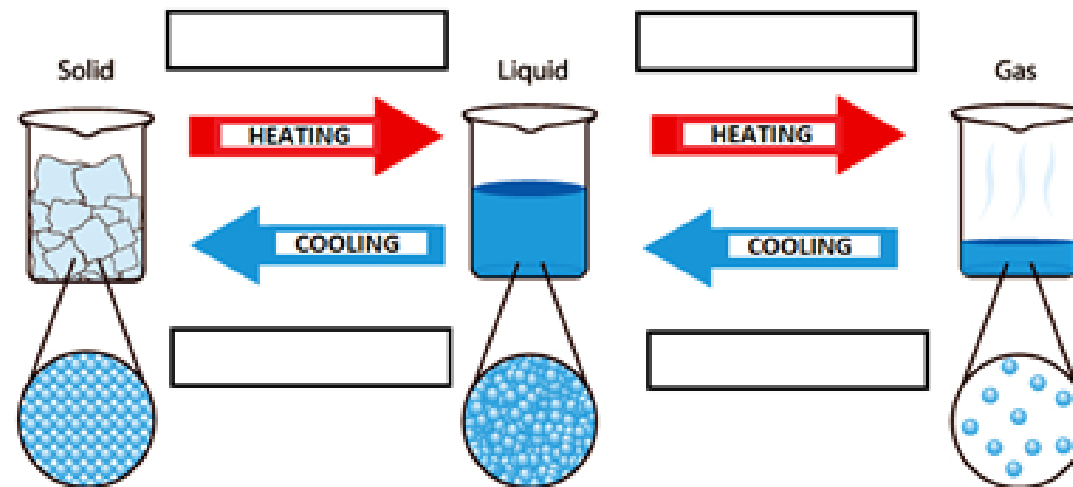


Do Now – Retrieval practice

1. What happens to a substance overall when it is heated and why?

When a substance is heated it e_____ (this means the volume i_____). This happens because the particles push each other more _____ which makes the particles s_____ o_____.

2. Write in the correct words to describe each change of state in the 4 boxes below:



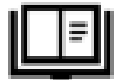
From last year:

Match up each synthetic material with the raw material that it is made from:

Plastic	Sand
Paper	Clay
Glass	Wood
Brick	Oil, natural gas or coal

Match the key word to the correct definition

Organism	Natural home of an organism.
Habitat	A community of plants, animals and microorganisms together with their habitat.
Microorganism	Anything that is alive.
Ecosystem	An organism that is too small to be seen by the human eye.

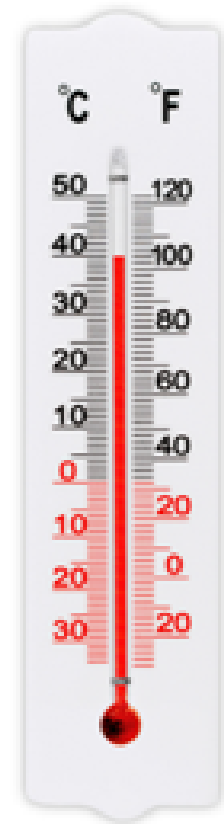


Read the following passage about melting points and boiling points

Temperature is a measure of how cold or how hot a substance or a place is. In the UK, we usually measure temperatures using a scale called 'degrees Celsius' which is written as ' $^{\circ}\text{C}$ '. The UK used to use a scale called Fahrenheit which is rarely used anymore. We can find the temperature of a substance using a thermometer.

The Celsius temperature scale was named after a Sweden scientist called Anders Celsius who lived between 1701 and 1741. It was made so that 0°C matched up with the temperature that ice melted to water and so that 100°C matched up with the temperature that water boiled to become steam.

Using the Celsius temperature scale we can find the 'melting point' and the 'boiling point' of different substances. The melting point is the temperature that the solid version of the substance melts to become a liquid. The boiling point is the temperature that the liquid version of a substance boils to become a gas.





Find answers to questions below in the passage above

1. What is temperature?

Temperature is a measure of _____

2. What scale do we normally use to measure temperature?

We normally use a scale called _____ which is written as _____.

3. How did scientists decide what 0 and 100 should mean in this scale?

0°C is the temperature that _____

100°C is the temperature that _____

4. What do 'melting point' and 'boiling point' mean?

Melting point is the _____.

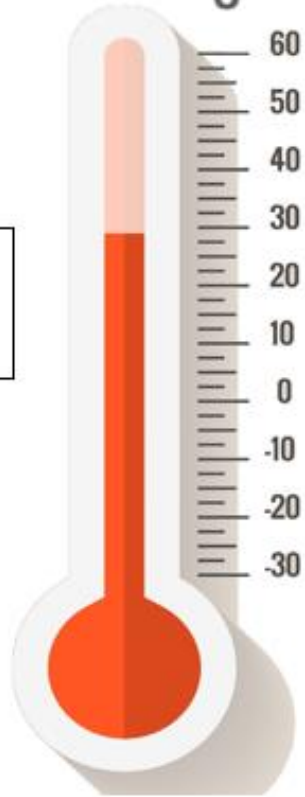
Boiling point is the _____.



What are the two temperatures that are shown on the thermometers below?



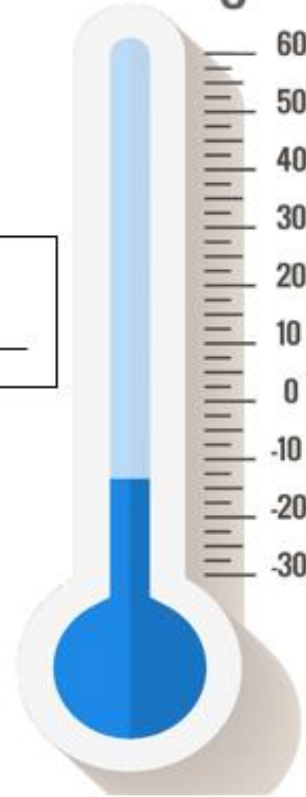
°C



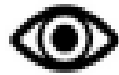
Reading:



°C



Reading:



Watch the [video](#) and observe how the two scientists measure the boiling point and the melting point of water. Write down your observations below:

When they were measuring the boiling point of water, I observed that they have heated the water until it was _____. They then placed an electric _____ into the boiling water and they measured a temperature of _____.

When they were measuring the melting point of water, I observed that they mixed ice into the water until the ice would no longer _____ when it was placed in the water.. They then placed an electric _____ into the ice-cold water and they measured a temperature of _____.



Draw a bar chart of the melting points of the different substances below and stick into the box underneath:

Substance	Melting point (°C)
Water	0
Chocolate	31
Road Tarmac	50
Butter	35
Coconut oil	24



Look at the table of melting points and boiling points below before answering the questions underneath:

Substance	Melting point (°C)	Boiling point (°C)
Water	0	100
Aluminium	660	2467
Chlorine	-101	-35
Iodine	114	184
Oxygen	-218	-164

1. Which substance melts at 114°C? _____
2. Which substance melts at -218°C? _____
3. Which substance boils at -35°C? _____
4. Which substance boils at 2467°C? _____

We can tell what the state of matter of each substance would be if we were in a classroom by thinking about 'room temperature' which we say is normally 25°C.

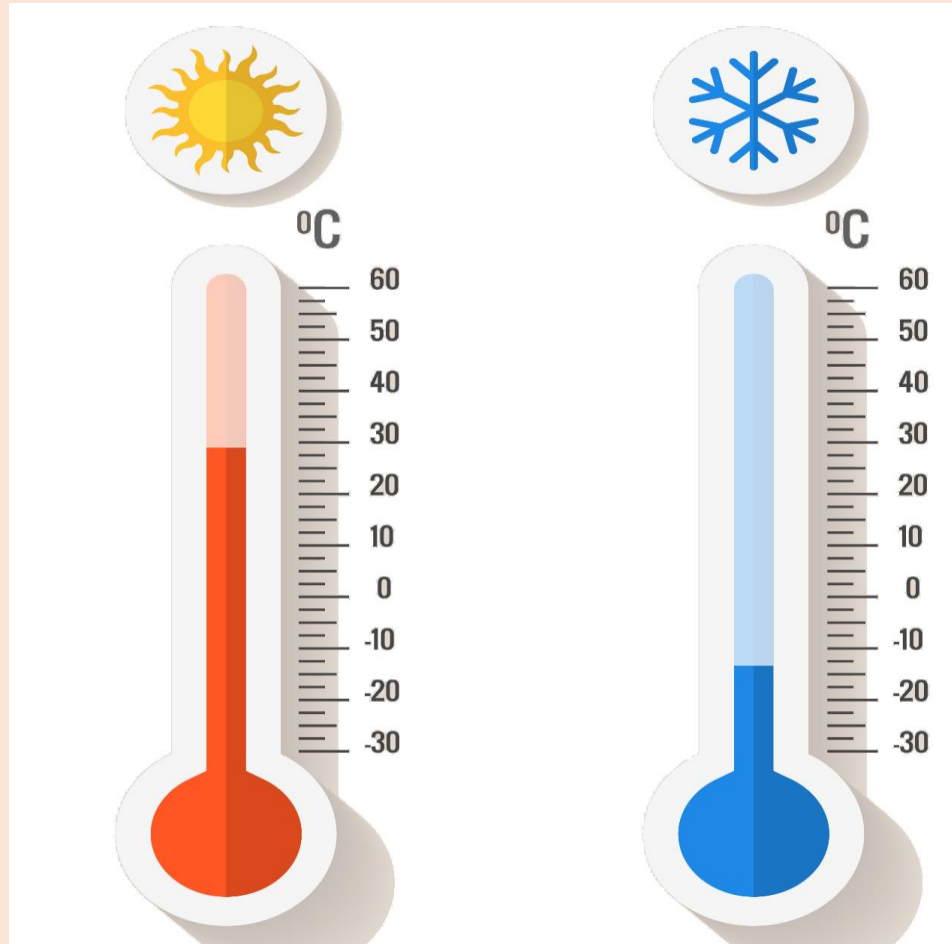
For example, at room temperature (25°C), Aluminium is a solid because this is lower than the melting point or the boiling point.

Which state of matter would each of the following be at room temperature (25°C)? Circle the correct answer:

- a) Chlorine would be a solid/liquid/gas.
- b) Iodine would be a solid/liquid/gas.
- c) Oxygen would be a solid/liquid/gas.

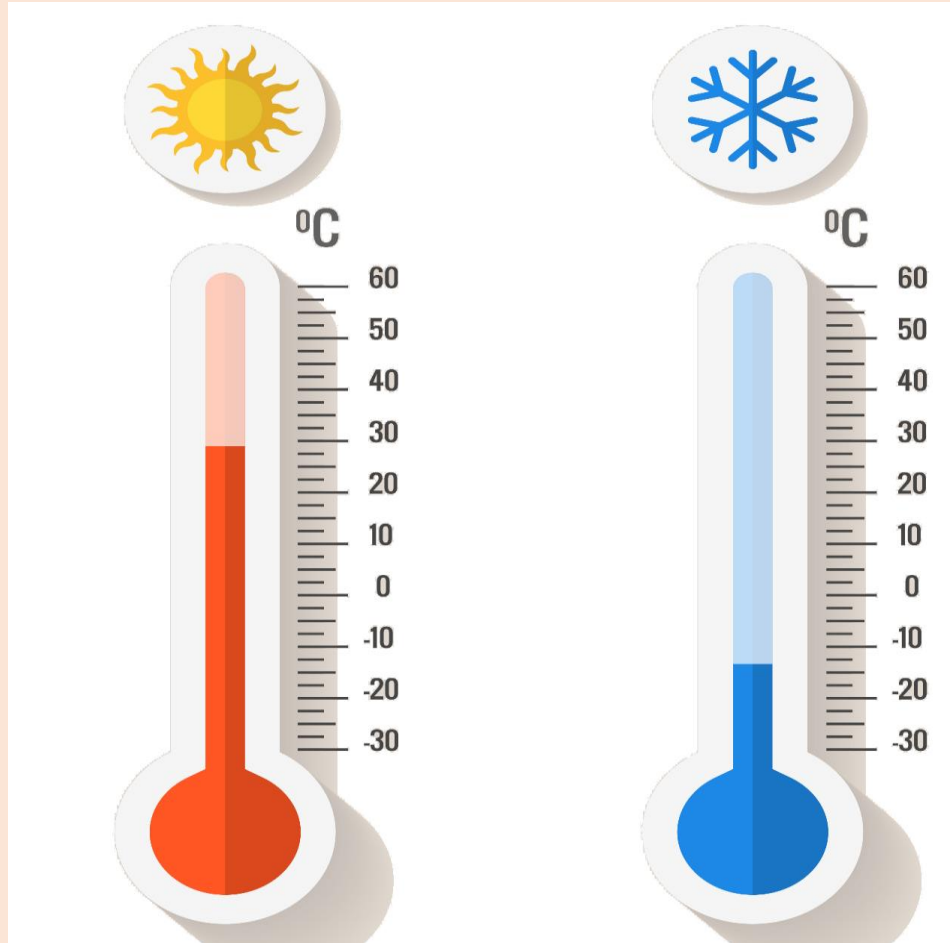


What temperature would something be if it was 'hot' and what temperature would a 'cold' object be at?





What temperature would something be if it was 'hot' and what temperature would a 'cold' object be at?



Cold day in UK = 0 degrees Celsius

Hot day in UK = 30 degrees Celsius

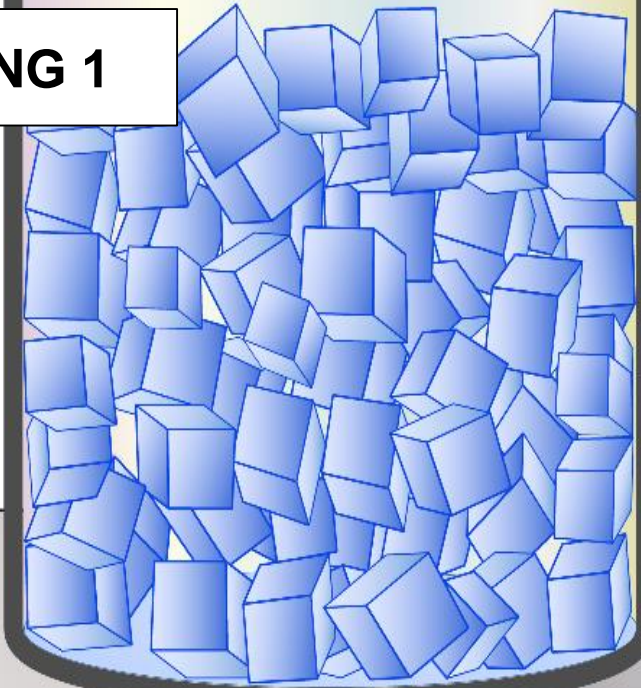
Coldest place on Earth = -89 degrees Celsius

Hottest place on Earth = 56 degrees celsius

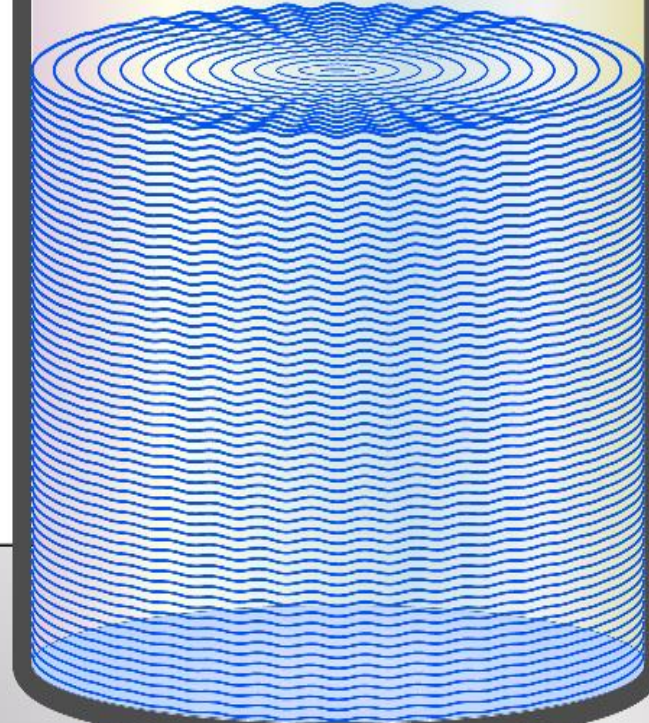
Phases of Matter

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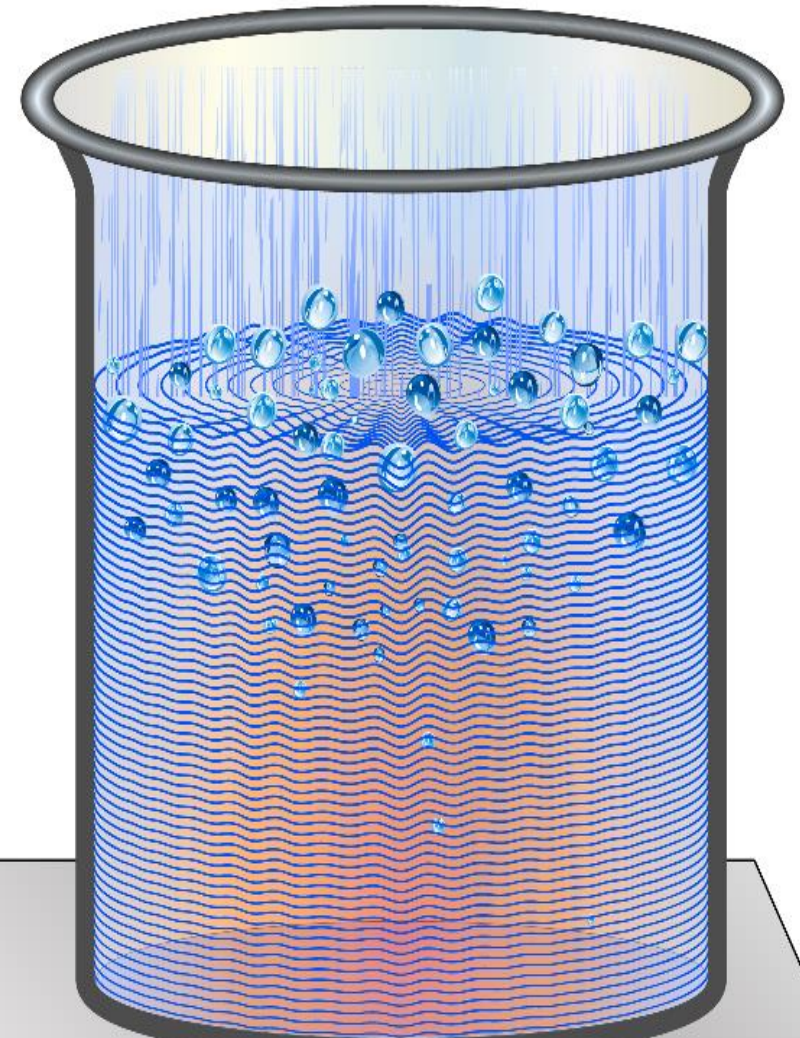
SPRING 1



Ice



Water



Water vapour