Freezing and Boiling Points Discussion Questions:

1) Do all substances have the same boiling and freezing points?
2) How are these points measured?

Gases That Make Up The Earth's Atmosphere

The Earth's atmosphere contains about 78% nitrogen, about 20% oxygen, about 1 % argon and the remainder is made up of small amounts of helium, carbon dioxide and methane. Added to this is water vapour.

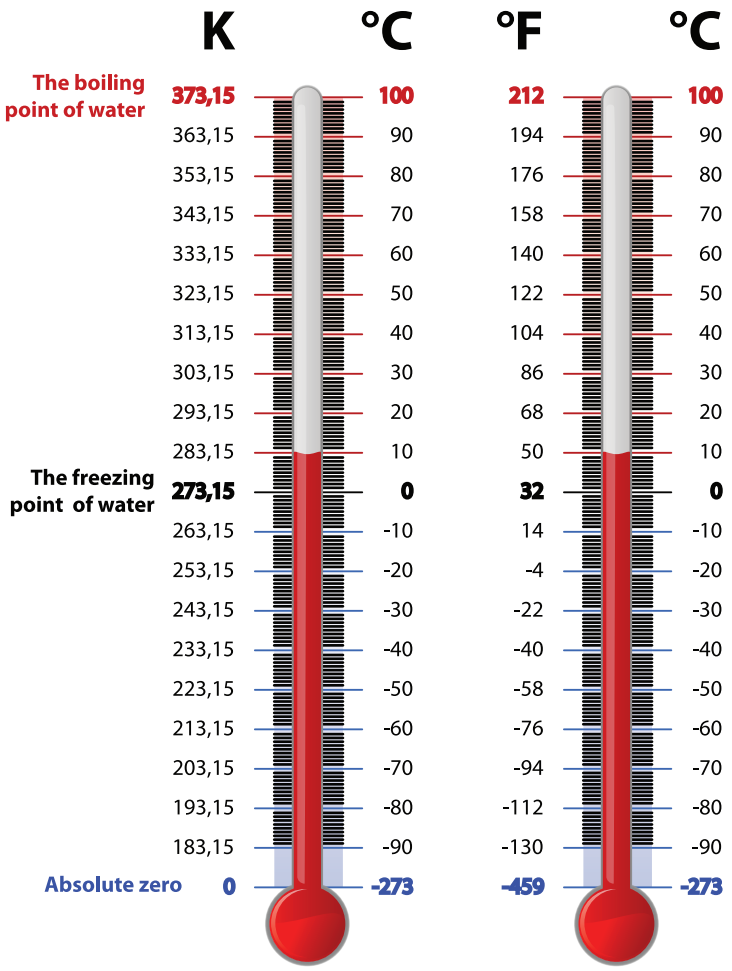
We know that water boils at 100°C and freezes at 0°C , but what about other gases? How do they behave?

Nitrogen

The attraction between the molecules in nitrogen is weak. If nitrogen gas is made cold enough it will condense into a liquid at -196°C and freeze at -210°C.

Liquid nitrogen can be stored in special containers. It can be very dangerous as it is so cold. It will burn your skin. It is used for medical and scientific purposes.

Doctors use small canisters of liquid nitrogen to treat some types of skin cancers. They spray it onto the skin and the cold burns the skin in that spot. The spot where the skin cancer was will blister and fall off and the skin underneath will heal.



There are three measuring scales for temperature that are used in the world today. The Fahrenheit scale was introduced in 1724 by Daniel Fahrenheit, the inventor of the modern mercury thermometer. This scale is still used in the USA.

The Celsius scale was invented by Anders Celsius in 1742. It was based on the freezing point and boiling point of water. The celsius scale has been adopted by most of the world, along with the metric system of measures and weights, because the numbers are simpler to work with.

The Kelvin scale was introduced by William Thomson (Lord Kelvin) in1848. It begins with absolute zero, the coldest temperature that can be reached. It is an extremely acccurate method of measuring temperature. The Kelvin scale is generally only used in scientific applications.