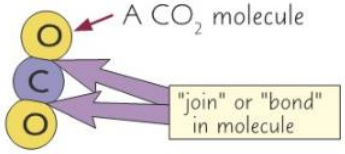
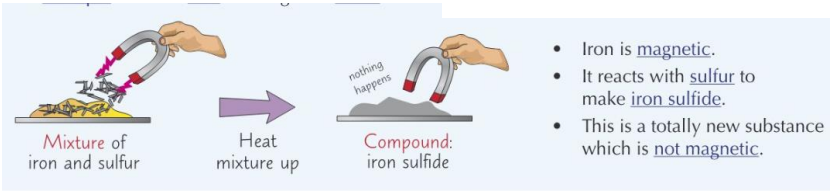
# KS3: Year 8 – Matter

## Atoms, elements and compounds

| Key Terms | Definitions |
|---|---|
| Element | A substance that contains only one type of atom |
| Mixture | A substance that contains 2 or more types of atom that are not chemically bonded together |
| Compound | A substance that contains 2 or more elements that are chemically bonded together |




Here a carbon atom bonds with two oxygen atoms to make the carbon dioxide compound.

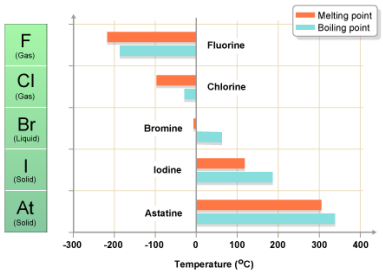



- Iron is magnetic.
- It reacts with sulfur to make iron sulfide.
- This is a totally new substance which is not magnetic.

## Materials

- **Ceramics** are non-metallic solids prepared by heating and cooling substances for example clay
- **Composites** are materials made from two or more different materials.
- **Polymers** are large molecules made up of chains of small repeating units.

## Non-metals in the periodic table




Group 7 are called the halogens.
They get less reactive as you go down the group.
The chart shows the melting and boiling points increase as you go down the group.

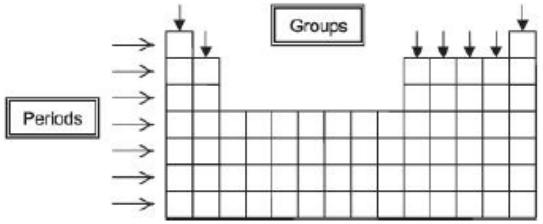
## Periodic table

Mendeleev's table

Mendeleev published the periodic table of elements in 1869.
It was based on the properties of the elements.
He left gaps for undiscovered elements.

**Groups and Periods**

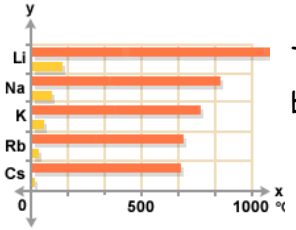
Elements are arranged on the periodic table in groups and periods. Horizontal rows are called periods and vertical columns are called groups.




Groups are labelled 1-7 from left to right, with last group being called either group 8 or 0. Elements in the same group have similar properties, because of this we can make predictions about the elements reactivity (see the chemical reactions topic).

## Metals in the periodic table

Metals are found on the left-hand side of the periodic table.
Group 1 metals are soft and have low boiling points compared with most other metals.
Group 1 metals are extremely reactive, so they need to be stored in oil.




The chart shows as you go down the group the boiling point and melting point decrease.