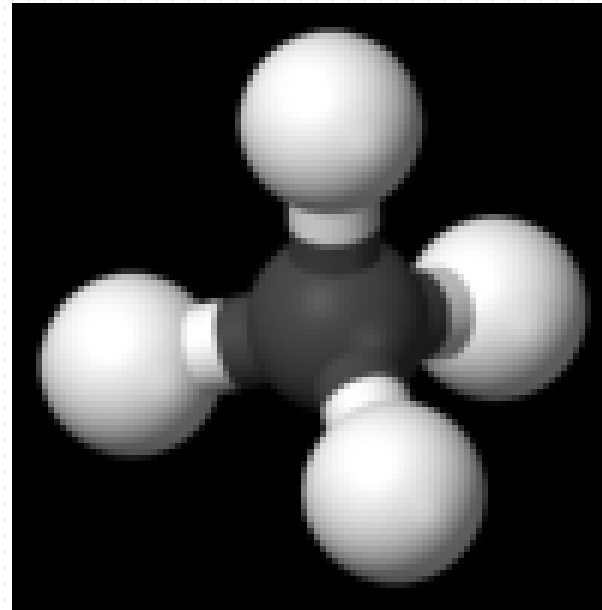
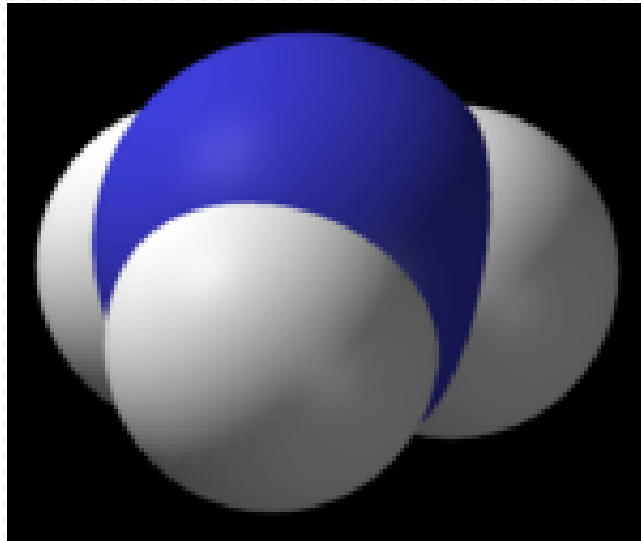




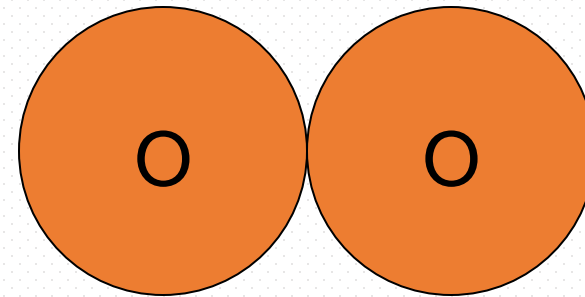
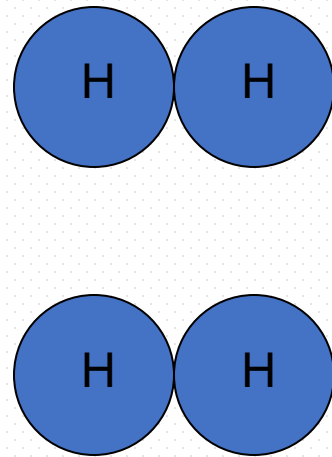
- **A mixture of elements**
- **From elements to a compound**
- **Chemical reactions and word equations**
- **Chemical names of compounds**
- **Different types of mixture**
- **Separating mixtures**

Compounds

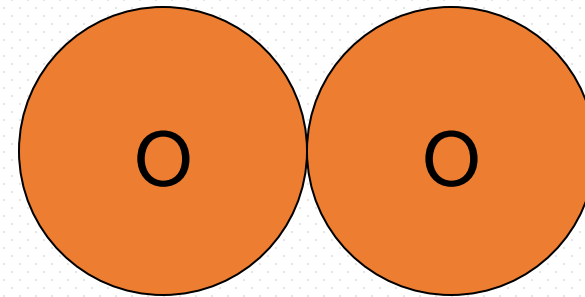
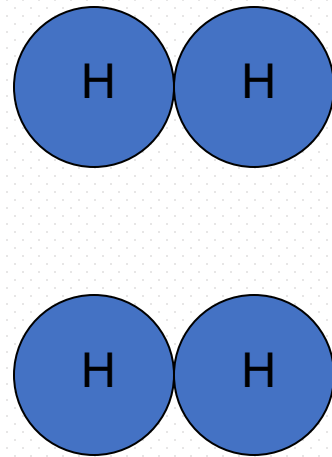
Made up of two or more elements in a specific or definite ratio.



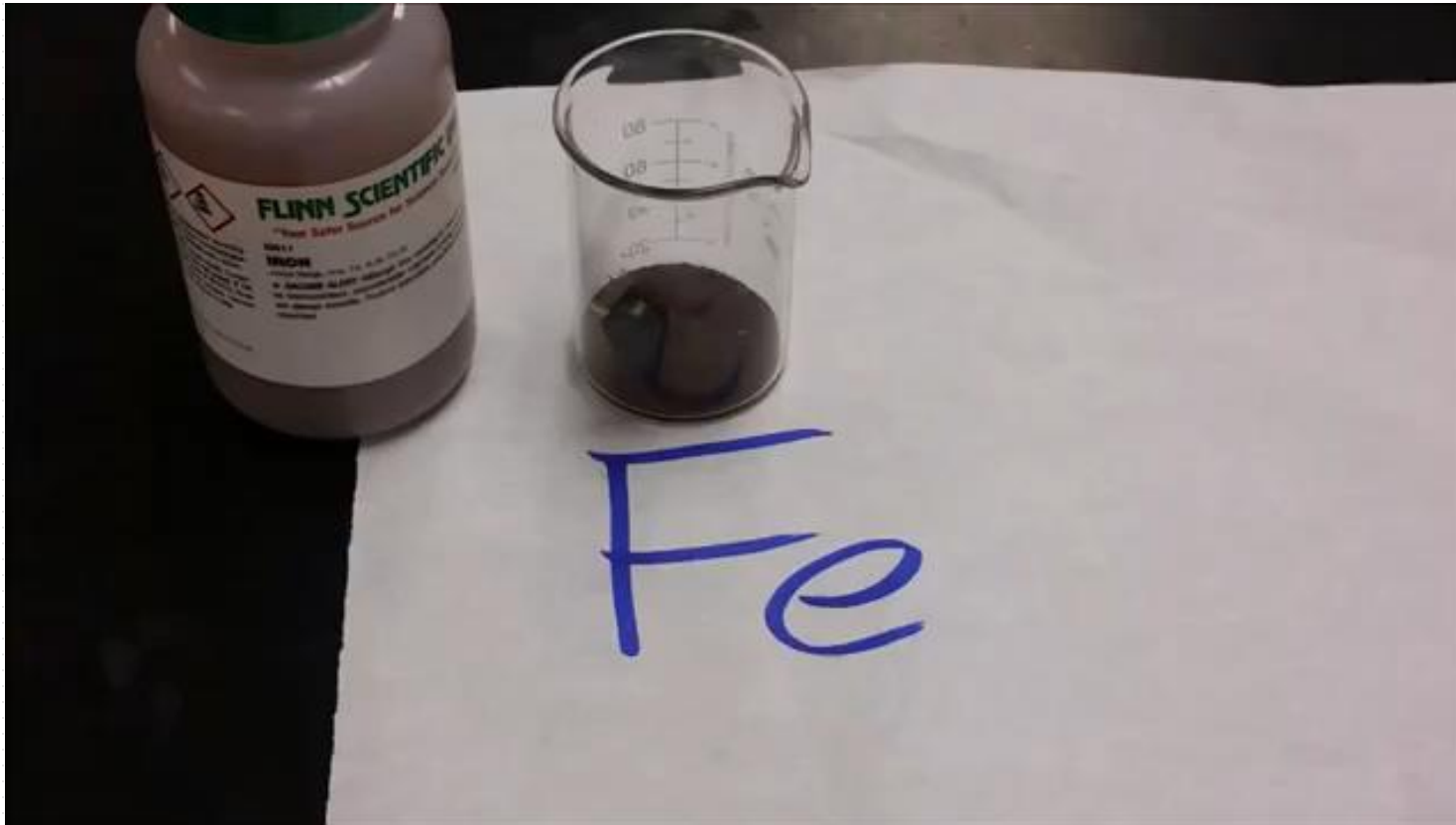
H₂ and O₂



Chemically Combine to form H₂O



Experiment



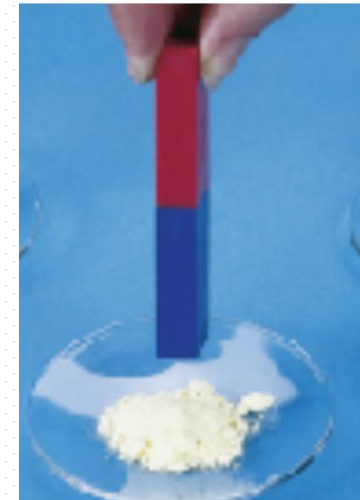
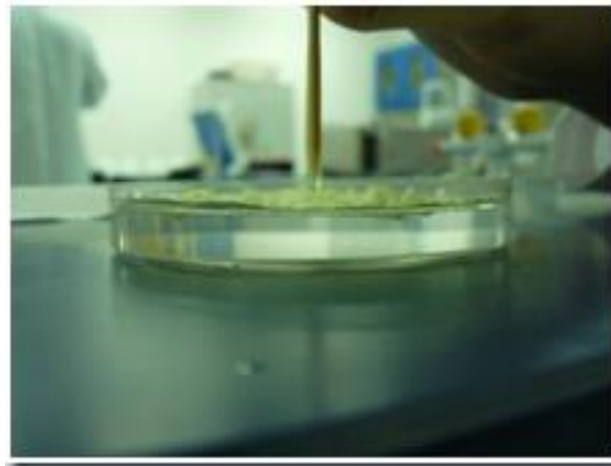
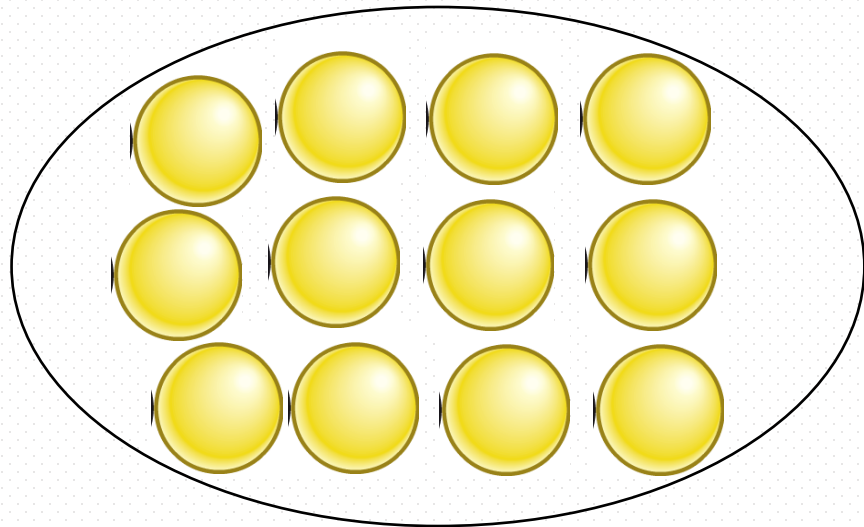
Reactant	Properties
Iron (<i>powder</i>)	
Sulfur	
Iron (II) sulphide	

Elements, compounds and mixture



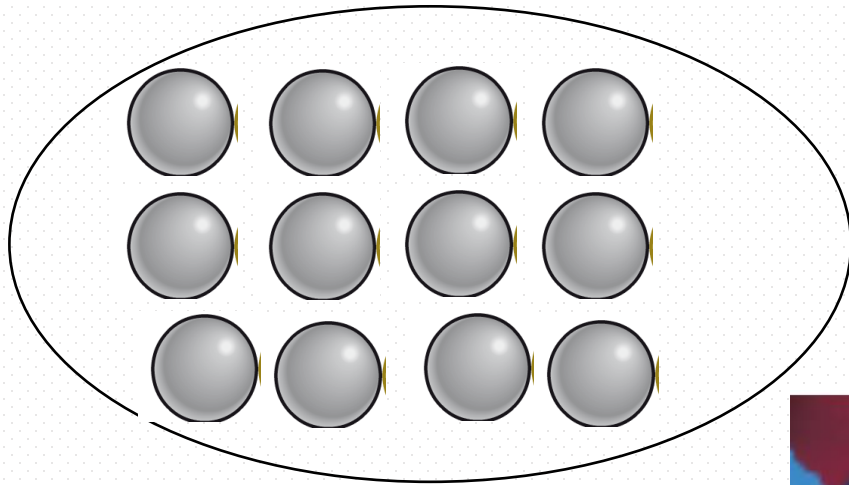
A mixture of elements

- Each element has its own particular properties.
- Sulfur, for example, is yellow and if shaken with water it will tend to float.



Elements, compounds and mixture

- elements



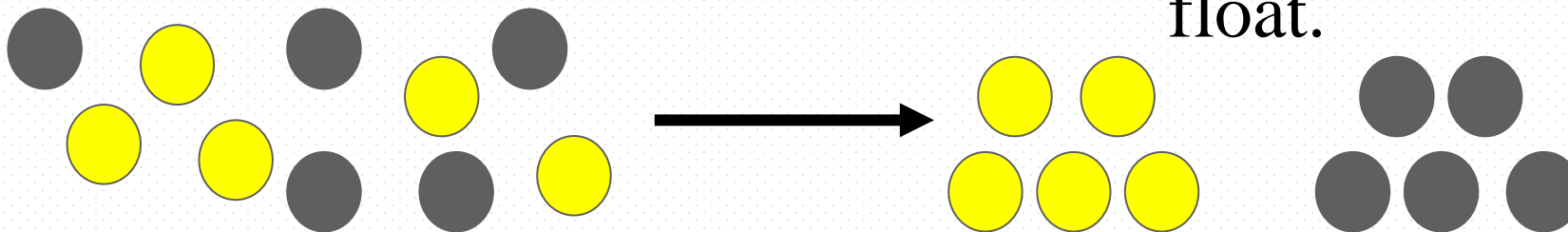
- Iron is black and magnetic
- produces hydrogen when it is placed in hydrochloric acid.



Mixing elements

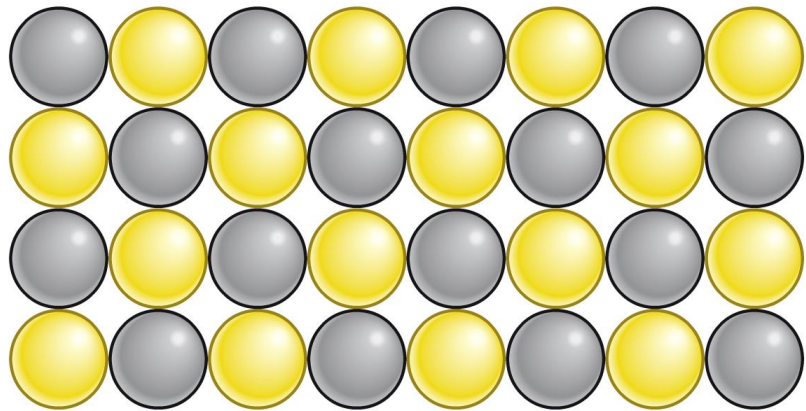


- The colour depends on the amount of sulfur mixed with the iron. Although the two elements are close together, their properties do not change.
- If a magnet is passed over the **mixture**, iron particles leap up and stick to it. If the is shaken with water the sulfur will tend to float.





C The chemical reaction gives out heat and the mixture glows red.



F The arrangement of atoms in iron sulphide.

Compound

- If the the mixture of iron and sulfur is heated a chemical reaction takes place.
- The atoms of iron and sulfur join together and form a **compound** called iron sulfide.
- It does not have the **yellow colour** of the **sulfur** or the **magnetic** properties-it is a **black non-magnetic** solid.



Conclusion

- All compounds have properties which differ from the elements that formed them.
- no substances disappeared in the reaction

Chemical reactions and equations

Chemists use equations to describe what in **chemical reaction**.



Iron + sulfur → Iron sulfide

Iron + sulfur **reactants**
↓
Iron sulfide **products**

The simplest equations are **word equations**.



The word equation for the reaction is....

- When sodium chloride solution is poured into silver nitrate solution a chemical reaction takes place. It produces a white insoluble solid which is silver chloride.

sodium **chloride** + silver **nitrate** → sodium **nitrate** + silver **chloride**

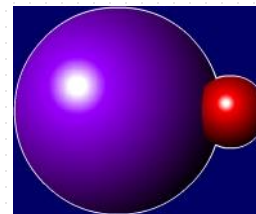
Chemical names of compounds

Chemical names can seem complicated but there are rules for how the names are built up. Example:

1. Write down the first part of the name
2. Write down the second part name / *the suffix-ide* /

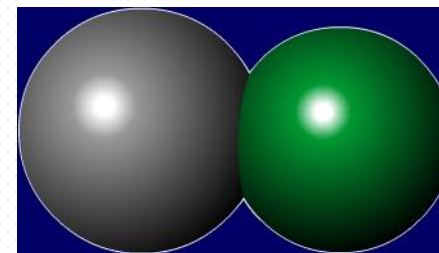
1) magnesium 2) oxygen

magnesium
oxide



1) sodium 2) chlorine

sodium
chloride



magnesium + oxygen → magnesium oxide

sodium + chloride → sodium chloride

**Word
equations**

For example

Element 1	Element 2	Name of compound
copper	bromine	Copper bromide
silver	sulfur	silver sulphide
calcium	oxygen	calcium oxide

Write down **word equations.**

Naming Simple compounds.

Element 1	Element 2	Name of compound
iron	sulphur	iron sulphide
magnesium	nitrogen	magnesium nitride
sodium	chlorine	sodium chloride
tin	oxygen	tin oxide
aluminium	bromine	aluminium bromide
nickel	iodine	nickel iodide
zinc	sulphur	zinc sulphide
lithium	nitrogen	lithium nitride



Chemical names of compounds

3. If more than one atom of an element joins to an atom of the first named element, the prefix di-for two or tri-for three is added.

An example of this is carbon dioxide.

- *Sulfur dioxide*
- *Sulfur trioxide*
- *Nitrogen dioxide*
- *Posphorius trioxide*

Chemical names of compounds

4. If there are two elements joined to the first named element a name may be made up from their two names.

For example,

- *sodium hydroxide* tells you that sodium is combined with hydrogen and oxygen to make the compound.

potassium hydroxide

calcium hydroxide

lithium hydroxide

Chemical names of compounds

5. The suffix *-ate* is used to indicate that the second named element is also joined to some oxygen atoms.

For example,

- *calcium carbonate* means that the compound contains calcium, carbon and oxygen.

copper sulfate

copper carbonate

potassium nitrate

Homework

Which elements are present in the following compounds?

- a) Zinc oxide
- b) Boron dioxide
- c) Aluminium oxide
- d) Tin hydroxide
- e) Copper carbonate
- f) Barium hydroxide
- g) Lithium oxide
- h) Sodium sulfide
- i) Copper nitrate
- j) Iron oxide

Naming Simple compounds.

Element 1	Element 2	Name of compound
iron	sulphur	iron sulphide
magnesium	nitrogen	magnesium nitride
sodium	chlorine	sodium chloride
tin	oxygen	tin oxide
aluminium	bromine	aluminium bromide
nickel	iodine	nickel iodide
zinc	sulphur	zinc sulphide
lithium	nitrogen	lithium nitride

Please write
down **word**
equations.