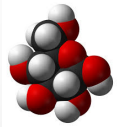
Atoms, Molecules, Elements, Compounds and Mixtures

Year 8 Chemical Sciences

Recap

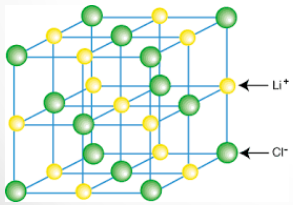


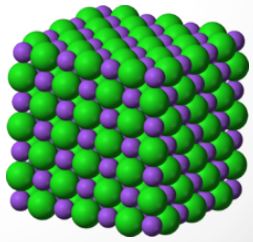
- Atom
  - Smallest particle of matter and a building block
  - Nucleus-protons and neutrons, electrons
- Molecule
  - Clusters of atoms (building blocks) that can be the same or differer
- Element
  - Substances made up of ONE type of atom
  - Each element has a unique set of properties
- Mixture
  - Molecules that make up the mixture are not identical
  - Components can be physically separated
  - Anything with list of molecules or compounds

Compounds

- Chemical bonding
  - Cannot be separated
- Properties of compounds are **different** to the elements that make them up
- Molecules
  - Small with few atoms
  - Large with thousands of atoms
- Can form crystal lattices

LiCl





NaCl

Activity 9

- Completing the Table

Substance	Appearance	Magnetism
Iron		
Sulfur		
Iron & Sulfur Mixture		
Iron & Sulfur after Heating		

Iron and Sulfur: Appearance

Chunky, yellow powder

Fine, grey powder

Light grey fine powder with some yellow chunks

Iron and Sulfur: Magnetism

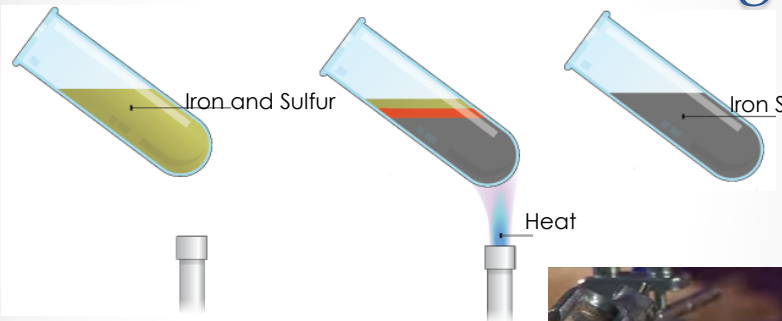
No

Yes

Iron filings 'stand' up, sulfur does not

Is it a Mixture? Why?

Iron and Sulfur: Heating



https://www.youtube.com/watch?v=A5H6DVe5FAI

Lump of Iron Sulfide

Black solid, sometimes in lumps or powder

Magnetic or NOT?

Is it a Mixture or Compound? Why?

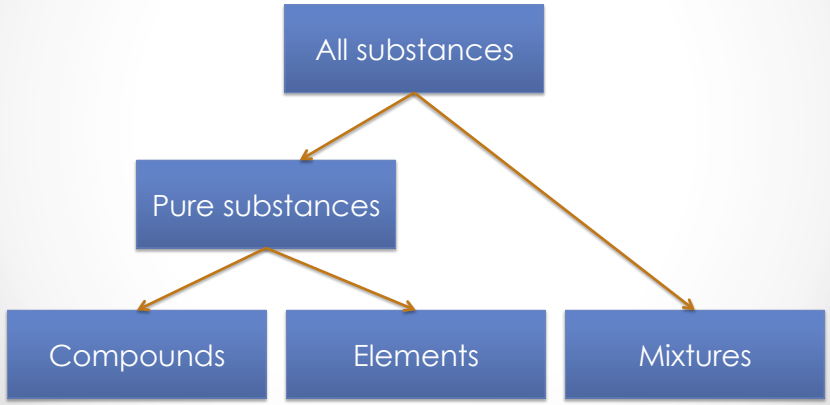
Word equation

Iron + sulfur ⟶ Iron sulfide



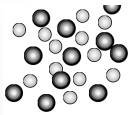
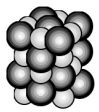
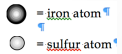
Fe + S FeS

How it fits together



Questions

- Answer questions on Page 18 of Chemical Sciences Book
  1. What changes, if any, have occurred to the properties of the mixture heated in the test tube?
  2. How easy would it be to separate the iron and sulfur again? What has happened to make this task much harder?
  3. Write a word equation for the chemical reaction you observed. Your teacher will show you how to use an arrow in the equation.
  4. Explain the difference between a mixture and a compound.
  5. Which of these diagrams represents a mixture and which represents a compound?

Resources on Moodle

Reaction of iron with sulfur
https://www.youtube.com/watch?v=A5H6DVe5FAI

Atoms, elements and molecules
http://splash.abc.net.au/home#!/media/1520179/atoms-elements-and-molecules

Development of the periodic table
http://splash.abc.net.au/home#!/media/106960/development-of-the-periodic-table

The Elements: Find the elements-Tests difference between a compound and an element
http://www.scootle.edu.au/ec/viewing/L2550/index.html