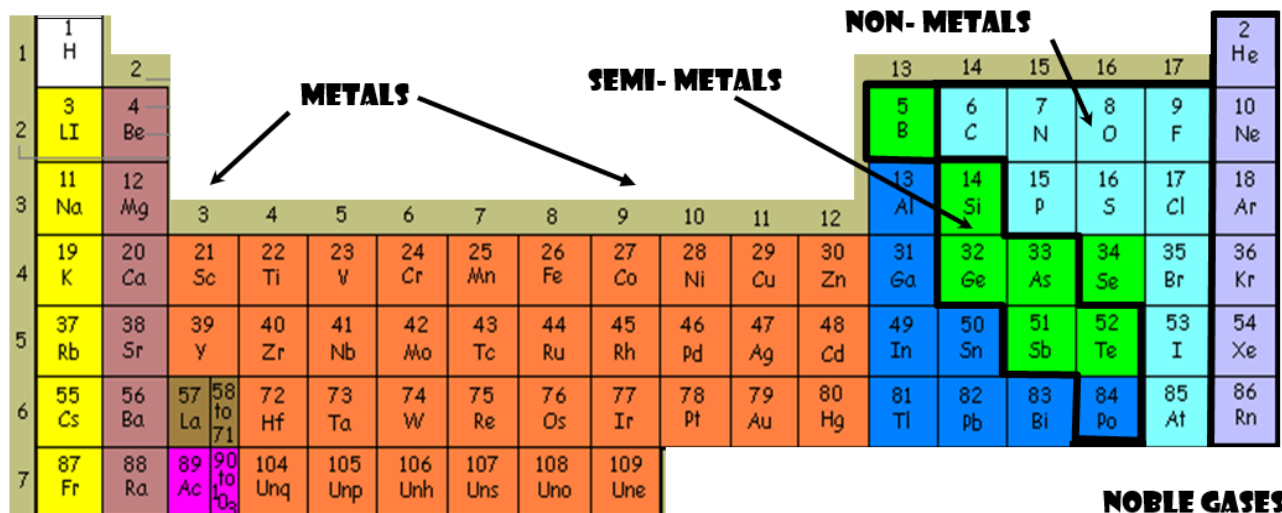


Periodic Table, Elements and Compounds

Activity 1

The Periodic Table of Elements



On your Periodic Table colour in the Metals, Semi-Metals, Non-Metals and Noble Gases in different colours.

58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr



Don't forget to make a key so you know which group is which!

The simplest chemicals are called elements. There are about 118 elements. Most are found in nature (about 98 elements) and others are manmade. Each element has its own kind of atoms.

Q 1 Name the 3 groups elements you can see in the periodic table.

_____ , _____ , _____

Q2. Name the first 20 elements of the periodic table of the periodic table and its Symbol. Is it a metal or a non-metal? First one is done for you.

Name of the element	Symbol	Metal/Nonmetal		Name of the element	Symbol	Metal/Nonmetal
1	Hydrogen	H	Non-metal	11		
2				12		
3				13		
4				14		
5				15		
6				16		

Activity 2

Elements, Compounds and Mixtures

Word Bank

Homogeneous elements atom compounds heterogeneous cannot

Periodic Table cannot atoms chemically

Elements:

- A pure substance containing only one kind of _____.
- An element _____ be separated into simpler materials (except during nuclear reactions).
- Over 100 existing elements are listed and classified on the _____.

Compounds:

- A pure substance containing two or more kinds of _____.
- The atoms are _____ combined in some way. Often times (but not always) they come together to form groups of atoms called molecules.
- Compounds _____ be separated by physical means. Separating a compound requires a chemical reaction.
- The properties of a compound are usually different than the properties of the elements it contains.

Mixtures:

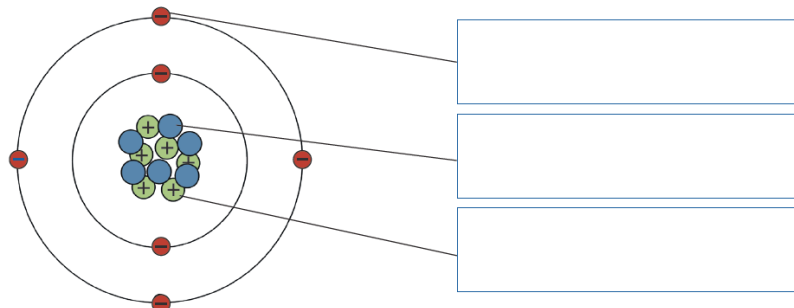
- Two or more _____ or _____ NOT chemically combined.
- No reaction between substances.
- Mixtures can be uniform (called _____) and are known as solutions.
- Mixtures can also be non-uniform (called _____).
- Mixtures can be separated into their components by chemical or physical means.
- The properties of a mixture are similar to the properties of its components.

Activity 3

Atoms, Elements and Compounds

Atoms are tiny particles which make up all substances and matter. They contain a central nucleus made up of neutral neutrons and positively charged protons. Negatively charged electrons orbit the nucleus.

1. Label the diagram of the atom.



An element is made up of only one type of atom. There are around 100 different elements, which can all be found on the periodic table.

A compound is formed when two or more different atoms are chemically bonded together. For example, water (H_2O) is a compound made up of hydrogen and oxygen atoms. Compounds can be represented by their chemical formula; this shows the number of atoms of each element present in the compound.

- a. **Sort the following substances into the table. Each substance should be written into one column only.**

aluminium

copper sulfate

sodium chloride

boron

hydrogen

sulfur

carbon dioxide

hydrogen peroxide

tin






calcium carbonate

magnesium

zinc oxide

Elements	Compounds

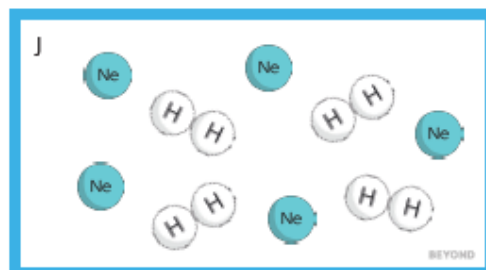
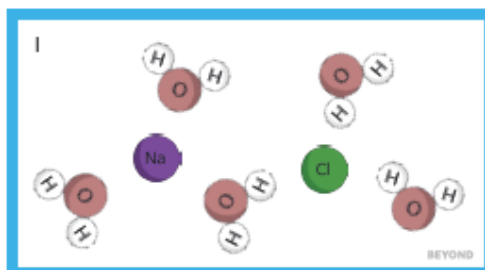
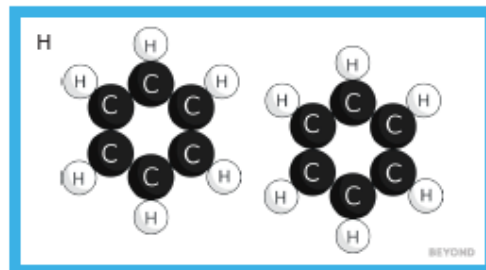
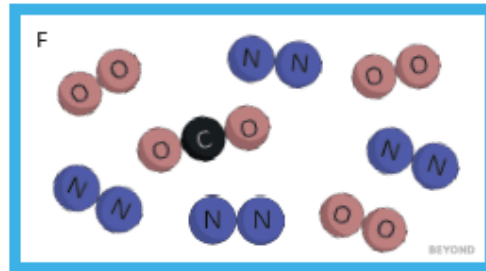
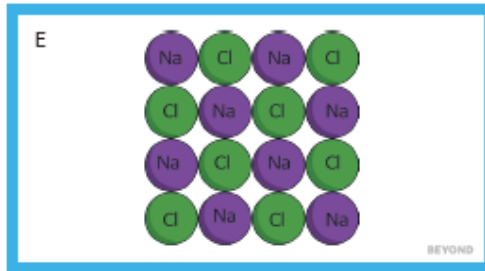
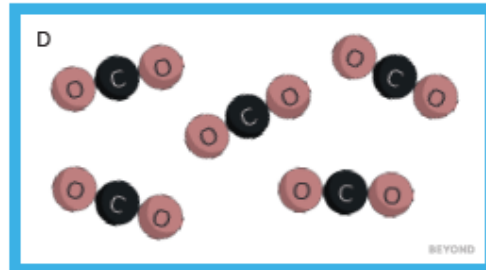
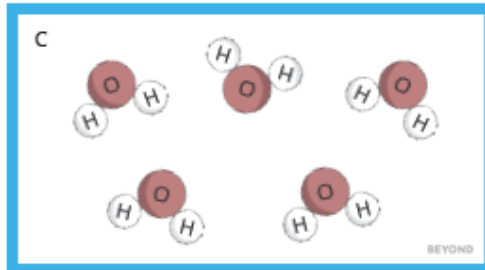
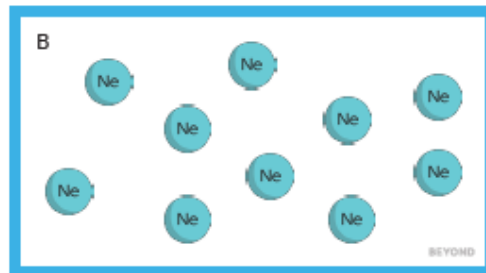
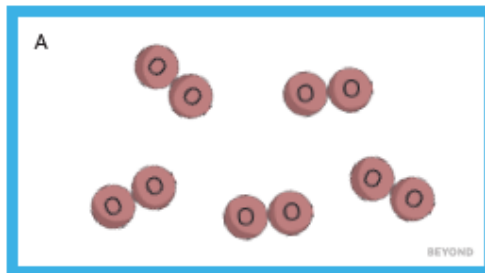
- b. For each of the substances below, draw a particle diagram to represent one molecule of the substance. Use the key shown below. The first one is done for.

water H_2O	carbon dioxide CO_2	ammonia NH_3
		
oxygen O_2	hydrogen H_2	Key  oxygen  carbon  hydrogen  nitrogen

C.

Element, Compound or Mixture?

Sort the cards into three groups: elements, compounds and mixtures.



Elements: -

Compounds: -

Mixtures: -

Physical and

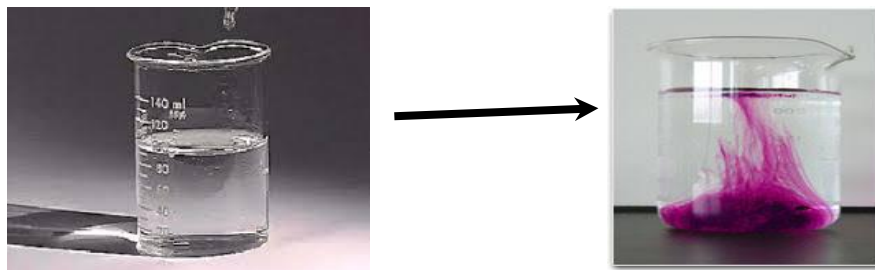
Changes occur around us all the time. These can be classified as either c_____ or p_____ changes.

During a physical change, some of the properties of the substance change, but the substance is still the same. E.g. When liquid water freezes to form solid ice.

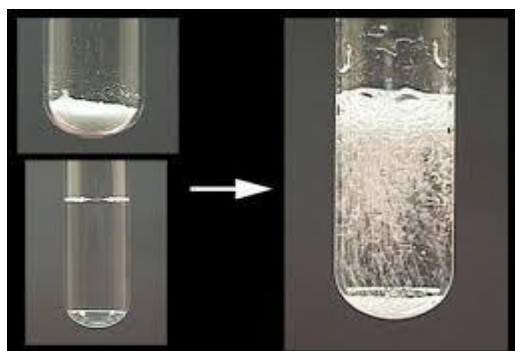
In a c_____ change, one or more new substances are formed. Chemical changes are also called chemical REACTIONS. Chemical reactions CANNOT be easily reversed. If you burn something, you cannot get it back.

A chemical reaction can be recognised in the following ways:

1. There may be a permanent colour change



2. A gas may be formed, producing bubbles and fizzing.



3. A precipitate (solid) may be formed when two clear liquids are mixed.




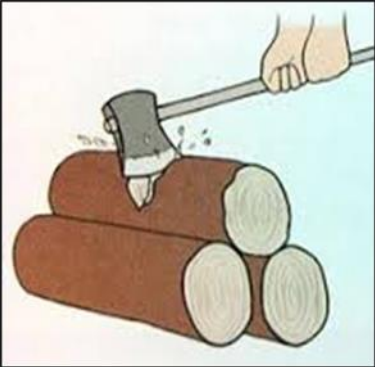


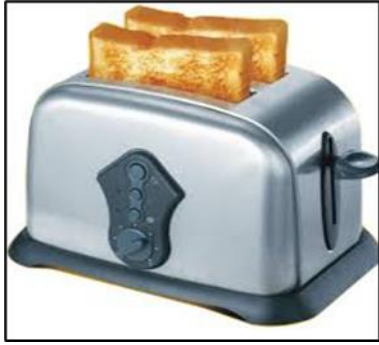
4. Heat may be produced.



Activity 5 Chemical and Physical Change

Tick the correct box to show what type of change is in each picture and explain why you think so.

Reactions	Physical change	Chemical change
 <p>Crushing Oreos</p>		
 <p>Rusting Nail</p>		
 <p>Broken pencil</p>		
 <p>Cutting wood</p>		



Making toast



Boiling water

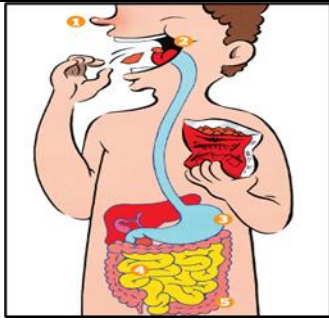


Popping popcorn



Rotting banana

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Digesting food



Burning candle



Leaves changing colour



tearing paper