Elements, Compounds and Mixtures

Content 

Elements

Classifying Elements

Properties	Metal	Metalloids	Non-metals
Appearance	Shiny (lustrous)	Shiny (lustrous)	Dull (non-lustrous)
Physical State in r.t.p	Mostly Solids (Except for Mercury)	Solids	Gases, Volatile liquids or solids
Melting and Boiling Points	Mostly high (Except for Alkali Metals and Mercury)	High	Low (Except for Carbon and Silicon0
Ductility and Malleability	- Ductile (Can be easily drawn to words) - Malleable (Can be hammered into different shapes without breaking) - Sonorous (Makes a ringing sound when struck)	- Brittle (easily broken when hammered)	- Brittle if solid
Heat Conductivity	Good	Moderate	Poor (Except Diamond and Graphite)
Electrical Conductivity	Good	Moderate	Poor (Except Graphite)

Composition of Compounds

- Made up of molecules or ions (electrically charged particles)
- Ions particularly carries either carry a positive or negative charge

Mixtures vs Compounds

Property	Mixtures	Compounds
Separation	The components of a mixture can be separated by physical processes	A compound can only be broken down into its elements or into simpler compounds by chemical processes.
Properties	The chemical properties of a mixture are the same as those of its components	The physical and chemical properties of a compound are different from its constituent elements
Energy Changes	No chemical reaction takes place when a mixture is formed; usually there is little or no energy change	A chemical reaction takes place when a compound is formed; Usually is an energy change, being either exothermic (heat is released) or endothermic (heat is taken in)
Composition	The components of a mixture can be mixed in any proportion	The elements in a compound are always combined in a fixed proportion

Test yourself 

1. Define
   i. Elements
   ii. Compounds
   iii. Mixtures
   iv. Monoatomic atoms
   v. Diatomic molecules
   vi. Polyatomic molecules
2. What are the differences between Compounds and Mixtures?

Glossary of Terms

Element	Defined as a pure substance that cannot be broken down into two or more simpler substances by chemical
Compound	Defined as a pure containing two or more elements that are chemically combined in a fixed ratio
Mixture	Defined as two or more substances that are not chemically combined together.
Diatomic molecules	Formed by the combination of two atoms
Polyatomic molecules	Formed by the combination of three or more atoms
Atoms	Defined as the smallest particles of an element that have the chemical properties of that element
Molecules	Defined is a group of two or more atoms that are chemically combined together