

CHEMISTRY AS 90933 v2

Demonstrate understanding of aspects of selected elements

Level 1, 4 Credits

This achievement standard involves demonstrating understanding of atomic structure and the organisation of the periodic table, and the properties and uses of selected metals, non-metals, and non-metal compounds.

Aspects of elements will be selected from:

- atomic structure and the organisation of the periodic table (a periodic table will be provided)
 - periods
 - trend across a period
 - position of metals and non-metals
 - groups
 - trend down a group
 - similarity of reaction
 - change in reactivity
- electron arrangement (limited to the first 20 elements)
 - ability of element to form ions (e.g. how sodium and nitrogen differ in their ability to form ions)
- metals (K, Na, Li, Mg, Ca, Al, Cu, Fe, Zn, Pb, Ag)
 - properties (physical and chemical)
 - physical properties
 - melting & boiling points (state)
 - colour
 - lustre
 - hardness
 - ductility and malleability
 - electrical and thermal conductivity
 - density
 - chemical properties
 - reaction with oxygen
 - reaction with water
 - reaction with acids (HCl and H₂SO₄)
 - reactivity
 - activity series
 - uses
 - metals (e.g. Al in packaging foods and drinks; considering its physical and chemical properties)
 - alloys (e.g. why an alloy may be harder than the metals from which it is made)

- non-metals and selected compounds (C, N, O, S, Cl, Br, I)
 - sulfur, sulfuric acid & sulfur dioxide
 - aqueous chlorine (& halogens bromine and iodine)
 - allotropes of carbon
 - diamond
 - graphite
 - Buckminsterfullerene C₆₀
 - allotropes of oxygen (O₂ and O₃ ozone)
 - nitrogen & ammonia (NOTE: oxides of N will not be assessed)

 - properties
 - physical properties
 - melting & boiling points (state)
 - colour
 - lustre
 - hardness
 - ductility and malleability
 - electrical conductivity (of elements and their compounds e.g. H₂SO₄(aq))
 - thermal conductivity
 - density
 - chemical properties
 - reaction with oxygen
 - uses (e.g. uses of allotropes of C, uses of O₃ e.g. in water treatment, use of Cl₂ in drinking water and swimming pools)

- Vocabulary and conventions
 - chemistry vocabulary
 - describing chemical reactions
 - symbols and conventions
 - names
 - formulae
 - writing word equations
 - completing given symbol equations
 - writing balanced symbol equations

Resources supplied

A resource booklet will be provided. It will contain: a metal activity series, solubility rules, a table of ions, and a Periodic Table that shows the symbol, atomic number and the relative atomic mass (to three significant figures) of each element.