Prescribed Learning Outcomes: Chemistry 11

It is expected that students will:

Skills and Processes of Chemistry

A1 demonstrate appropriate safety techniques and proper use of protective equipment
A2 demonstrate skills in measuring and in recording data
A3 communicate results and data in clear and understandable forms

The Nature of Matter

B1 relate the observable properties and characteristics of elements, compounds, and mixtures to the concept of atoms and molecules
B2 write the names and formulae for ionic and covalent compounds, given appropriate charts or data tables
B3 describe the characteristics of matter
B4 differentiate between physical and chemical changes
B5 select an appropriate way of separating the components of a mixture

Mole Concept

C1 explain the significance and use of the mole
C2 perform calculations involving the mole
C3 determine relationships between molar quantities of gases at STP
C4 perform calculations involving molecular and empirical formulae to identify a substance
C5 describe concentration in terms of molarity
C6 perform calculations involving molarity

Chemical Reactions

D1 explain chemical reactions in terms of the rearrangement of the atoms as bonds are broken and new bonds are formed
D2 apply the law of conservation of mass to balance formula equations
D3 devise balanced equations for various chemical reactions
D4 describe reactions in terms of energy changes
D5 perform stoichiometric calculations involving chemical reactions

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Atomic Theory

E1 describe the development of the model of the atom
E2 describe the sub-atomic structures of atoms, ions, and isotopes, using calculation where appropriate
E3 describe the development of the modern periodic table
E4 draw conclusions about the similarities and trends in the properties of elements, with reference to the periodic table
E5 justify chemical and physical properties in terms of electron population
E6 demonstrate knowledge of various types of chemical bonding
E7 apply understanding of bonding to create formulae and Lewis structures

Solution Chemistry

F1 distinguish between a solution and a pure substance
F2 predict the relative solubility of a solute in a solvent, based on its polarity
F3 relate ion formation to electrical conductivity in aqueous solutions
F4 calculate the concentration of ions in solution

Organic Chemistry

G1 describe characteristic features and common applications of organic chemistry
G2 demonstrate knowledge of the various ways that carbon and hydrogen can combine to form a wide range of compounds
G3 generate names and structures for simple organic compounds
G4 differentiate the various types of bonding between carbon atoms
G5 identify common functional groups
G6 perform a simple organic preparation