

Conceptual Chemistry

INQUIRY

Process Skills

_____ Collect, organize and analyze data accurately and precisely, using appropriate instruments, equipment and units. **ConChem-01**

CONTENT

Unit 1 Science Background

_____ Recognize the fundamental characteristics of matter and the metric units that are used to measure them. **ConChem-02**

Unit 2 Elements

_____ Explain how elements are represented on the periodic table and relate this information to their physical and chemical properties. **ConChem-03**

Unit 3 Atoms and subatomic Particles

_____ Investigate the atomic and nuclear structure of matter including historical atomic theories. **ConChem-04**

Unit 4 Nuclear Chemistry

_____ Distinguish between types and risks of nuclear radiation and their effects on the atoms that release them. **ConChem-05**

Unit 5 Atomic Models

_____ Describe the quantum mechanical view of the atom and compare and contrast elements based on their configurations. **ConChem-06**

Unit 6 Shapes and Bonding

_____ Explain how an element's position on the periodic table can be used to determine valence electrons and predict the number and type of bonds. **ConChem-07**

Unit 7 Molecular Mixing

_____ Explain solution vocabulary and how solubility changes with temperature and pressure. **ConChem-08**

Unit 8 Water

_____ Explain how the molecular structure of water relates to its physical characteristics. **ConChem-09**

Unit 9 Chemical Reactions

_____ Complete and balance chemical equations and relate to the matter/energy changes they represent. **ConChem-10**

Unit 10 Acids and Bases

_____ *Compare and contrast acids and bases, including the concepts of pH and neutralization. **ConChem-11**

Unit 11 Oxidation and Reduction

_____ Describe oxidation and reduction and identify real life applications. **ConChem-12**

Unit 12 Organic Chemistry

_____ Identify compounds that are organic and classify them based on their functional groups. **ConChem-13**

CONNECTIONS

Science Practices

_____ Demonstrate lab safety procedures and accept practices of same. **ConChem-14**

_____ Describe how scientific knowledge and explanations may change with new information over time. **ConChem-15**

S/T/S (Science, Technology and Society)

_____ Explain how chemistry concepts are used in various occupations. **ConChem-16**

_____ Identify important contributions, both historical and current, that have been made by individuals and groups from various cultures to our understanding of chemistry. **ConChem-17**