

| UNIT | SKILLS | TYPE OF ASSESSMENT USED |
|---|--|--|
| <u>Chemical Formulas</u> | <ul style="list-style-type: none">• Chemical formulas - recognize and write• Rules of formulas - procedure and rules• Polyatomic ions - kind and charge• Nomenclature | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Stoichiometry</u> | <ul style="list-style-type: none">• Formula mass• The mole• Conversion factors - mole to grams/liters/particles | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Chemical Equation</u> | <ul style="list-style-type: none">• Write balanced chemical equations• Show energy or phase details of equations• Recognize activity of elements• Write ionic equations of solutions | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Mathematics of Chemical Equations</u> | <ul style="list-style-type: none">• Use coefficients in reactions• Calculate mass-mass relationships• Calculate mass-volume relationships• Recognize limiting reactions | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Phases of Matter</u> | <ul style="list-style-type: none">• Calculate pressure relationships• Determine phase changes• Kinetic theory of gases and calculations | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Gas Laws</u> | <ul style="list-style-type: none">• Calculate T, P and V relationship of gases• Charles's Law in relation to Boyle's Law• Be able to calculate partial pressures• Calculate ideal gas law relationships | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Electron Configurations</u> | <ul style="list-style-type: none">• Recognize energy levels and orbitals• Know electron positions in orbitals• Recognize quantum model of atom• Use model of atom to understand chemical reactions | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Periodic Table</u> | <ul style="list-style-type: none">• Understand trends in periodic table• Predict chemical behavior based on position in periodic table | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |

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| <u>Chemical Bonding</u> | <ul style="list-style-type: none">• Understand different types of bonds• Be able to represent ionic bonds• Be able to represent covalent bonding• Understand hybrid orbitals in covalent bonding• Visualize the shape of molecules• Recognize molecular polarity• Learn hydrogen and metallic bonding | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Solutions</u> | <ul style="list-style-type: none">• What are the kinds of solutions?• What affects solubility and its rate?• Be able to read solubility curves• Be able to calculate molarity | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Chemical Kinetics and Thermodynamics</u> | <ul style="list-style-type: none">• Know the physical mechanism of chemical reactions• Temperature and concentration and pressure factors in reactions• What do catalysts do?• What do phase diagrams show?• What energy factors govern chemical reactions?• Recognize direction of reactions• What is Gibbs energy? What is entropy? | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Chemical Equilibrium</u> | <ul style="list-style-type: none">• Why are reactions reversible?• Be able to calculate equilibrium constants• Understand LeChatelier's principle | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Acids, Bases and Salts</u> | <ul style="list-style-type: none">• Be able to calculate ionization of acids, bases and salts• Know theories of acids and bases• Identify conjugate acids and bases• Understand amphoteric substances• Be able to calculate pH• Be able to measure pH• Be able to calculate normality | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |

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| <u>Oxidation and Reduction</u> | <ul style="list-style-type: none">• Be able to balance redox reactions• Using half reactions | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Electrochemistry</u> | <ul style="list-style-type: none">• Using electrolytic reactions• Electrolysis of compounds• Calculate electrochemical cells• Understand standard potentials | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Organic Chemistry</u> | <ul style="list-style-type: none">• Nomenclature• Double, triple bonds• What are structural formulas of organic molecules?• What is polymerization? | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Biochemistry</u> | <ul style="list-style-type: none">• What are carbohydrates?• What are proteins and nucleic acids? | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |
| <u>Nuclear Chemistry</u> | <ul style="list-style-type: none">• What is radioactivity?• Be able to calculate half lives• Differentiate between fission and fusion? | <ul style="list-style-type: none">• Work sheets• Labs• Quiz or test (paper and pencil) |