



School District of Pickens County

Building success beyond the classroom

SC Standards: Science Chemistry

Unit: Lab Safety, Equipment, Lab Skills, and Measurements

- Science-C-1. Apply established rules for significant digits, both in reading a scientific instrument and in calculating a derived quantity from measurement.
- Science-C-1. Use appropriate laboratory apparatuses, technology, and techniques safely and accurately when conducting a scientific investigation.
- Science-C-1. Use scientific instruments to record measurement data in appropriate metric units that reflect the precision and accuracy of each particular instrument.
- Science-C-1. Design a scientific investigation with appropriate methods of control to test a hypothesis (including independent and dependent variables), and evaluate the designs of sample investigations.
- Science-C-1. Organize and interpret the data from a controlled scientific investigation by using mathematics (including formulas, scientific notation, and dimensional analysis), graphs, models, and/or technology.
- Science-C-1. Evaluate the results of a scientific investigation in terms of whether they verify or refute the hypothesis and what the possible sources of error are.
- Science-C-1. Evaluate a technological design or product on the basis of designated criteria.
- Science-C-1. Use appropriate safety procedures when conducting investigations.

Unit: Matter and Energy: Physical and Chemical Properties and Changes

- Science-C-2. Illustrate electron configurations by using orbital notation for representative elements.
- Science-C-2. Summarize atomic properties (including electron configuration, ionization energy, electron affinity, atomic size, and ionic size).

Unit: Bonding and Molecular Structure

- Science-C-3. Predict the type of bonding (ionic or covalent) and the shape of simple compounds by using Lewis dot structures and oxidation numbers.
- Science-C-3. Interpret the names and formulas for ionic and covalent compounds.
- Science-C-3. Explain how the types of intermolecular forces present in a compound affect the physical properties of compounds (including polarity and molecular shape).

Unit: Carbon Based Compounds Organic Chemistry

- Science-C-3. Classify organic reactions as addition, elimination, or condensation.
- Science-C-3. Explain the unique bonding characteristics of carbon that have resulted in the formation of a large variety of organic structures.



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SC Standards: Science

Chemistry

Unit: Nuclear Chemistry

- Science-C-2. Compare the nuclear reactions of fission and fusion to chemical reactions (including the parts of the atom involved and the relative amounts of energy released).
- Science-C-2. Compare alpha, beta, and gamma radiation in terms of mass, charge, penetrating power, and the release of these particles from the nucleus.
- Science-C-2. Explain the concept of half-life, its use in determining the age of materials, and its significance to nuclear waste disposal.
- Science-C-2. Apply the predictable rate of nuclear decay (half-life) to determine the age of materials.
- Science-C-2. Analyze a decay series chart to determine the products of successive nuclear reactions and write nuclear equations for disintegration of specified nuclides.
- Science-C-2. Use the equation $E = mc^2$ to determine the amount of energy released during nuclear reactions.

Unit: Solubility and Solutions

- Science-C-6. Summarize the process by which solutes dissolve in solvents, the dynamic equilibrium that occurs in saturated solutions, and the effects of varying pressure and temperature on solubility.
- Science-C-6. Compare solubility of various substances in different solvents (including polar and nonpolar solvents and organic and inorganic substances).
- Science-C-6. Illustrate the colligative properties of solutions (including freezing point depression and boiling point elevation and their practical uses).
- Science-C-6. Carry out calculations to find the concentration of solutions in terms of molarity and percent weight (mass).