

Rockingham County Public Schools

Chemistry Benchmarks

A Guide for Parent Involvement

1st Nine Weeks

EACH and EVERY SIX weeks, CHEMISTRY SOL 1 will be covered:

Chemistry SOL 1

The student will investigate and understand that experiments in which variables are analyzed and evaluated, produce observations and verifiable data; CH.1

- Laboratory techniques
- Laboratory equipment
- Laboratory safety
- Emergency response
- Experimental variables
- Recording, organizing, and analysis of data
- Experiment design
- Accuracy v. precision
- Error analysis
- Metric system
- Scientific notation
- Significant digits
- Graphing
- Using appropriate technology for gathering data and communication results
- Constructing and defending a scientific viewpoint

Chemistry SOL 2

The student will investigate and understand that the placement of elements on the periodic table is a function of their atomic structure. The periodic table is a tool used for the investigation of; CH. 2

- Subatomic particles (characteristics as to mass and charge)
- Isotopes
- Half-life
- Radioactive decay
- Atomic number
- Average atomic mass
- Mass Number
- Physical and chemical properties
- History of the atomic model
- Periodic Law
- Periodic Chart (families or groups, series, periods)
- Periodic Trends
- Electron configurations and valence electrons

3rd Nine Weeks

Chemistry SOL 4

The student will investigate and understand that quantities in a chemical reaction are based on molar relationships; CH4

- The mole
- Molar volume
- Stoichiometry
- Limiting reactant
- Percent yield
- Partial Pressure
- Gas Laws

Chemistry SOL 5

The student will investigate and understand that the phases of matter are explained by the kinetic theory and forces between particles, Key concepts include, CH 5

- Kinetic Molecular Theory
- Pressure, temperature, volume
- Phase change
- Molar heat of fusion
- Molar heat of vaporization
- Specific heat capacity
- Colligative properties
- Phase diagrams

Chemistry SOL 3

The student will investigate and understand how conservation of energy and matter is expressed in chemical formulas and balanced equations; Key concepts CH.3

- Le Chatelier's Principle
- Reaction rate and kinetics

Chemistry SOL 1

2nd Nine Weeks

Chemistry SOL 3

The student will investigate and understand how conservation of energy and matter is expressed in chemical formulas and balanced equations; Key concepts CH.3

- Writing and balancing chemical equations
- Reaction types
- Endothermic v. exothermic
- Polar molecules
- Molecular geometry
- Nomenclature
- Conservation of matter
- Law of Multiple Proportions
- Law of Definite Proportions
- Writing chemical formulas (molecular, structural, empirical, Lewis dot diagrams)
- Types of bonding (ionic/covalent)

Chemistry SOL 4

The student will investigate and understand that quantities in a chemical reaction are based on molar relationships; CH4

- Avogadro's Principle
- The mole

Chemistry SOL 1

4th Nine Weeks

Chemistry SOL 5

The student will investigate and understand that the phases of matter are explained by the kinetic theory and forces between particles, Key concepts include, CH 5

- Intermolecular forces
- Molar heat of fusion
- Molar heat of vaporization
- Specific heat capacity

Chemistry SOL 4

The student will investigate and understand that quantities in a chemical reaction are based on molar relationships; CH4

- Acid/base definitions
- Strong v. weak electrolytes
- Nonelectrolytes
- Indicators
- Ionization v. dissociation
- pH and pOH
- Titration process
- Solution concentration
- Chemical equilibrium

Chemistry SOL 1

CHEMISTRY SOL TEST