

Topic	Standard	Priority	Essential Question
Inquiry, Process, Problem Solving	Standard: Uses science process skills in laboratory or field investigations, including observation, classification, communication, metric measurement, prediction, inference, collecting and analyzing data.	E	What type of process skills must be mastered in order to perform experiments successfully?
Inquiry, Process, Problem Solving	1.1 Designs and conducts a scientific experiment that identifies the problem, distinguishes manipulated, responding and controlled variables, collects, analyzes and communicates data, and makes valid inferences and conclusions.	E	How is the scientific method used to solve problems?
Inquiry, Process, Problem Solving	1.2 Evaluates procedures, data and conclusions to determine the scientific validity of research	E	How do you evaluate data and conclusions to determine the validity of research?
Matter: Structure and Properties	Standard: Compares and contrasts matter and its characteristics related to its state (solids, liquids, and gases).	E	How does the state of matter define its properties?
Matter: Structure and Properties	4.1 Identifies and classifies examples of matter in the learner's environment as molecules, atoms or ions.	E	What are real-life examples of molecules, atoms, or ions?
Matter: Structure and Properties	4.2 Compares and contrasts the terms atoms, molecules, and ions and provide examples of each.	E	How are atoms, molecules, and ions alike and how are they different?
Matter: Structure and Properties	4.3 Identifies matter in its various forms including pure substances, heterogeneous and homogeneous mixtures and solution.	E	How can matter be classified?
Matter: Structure and Properties	4.4 Describes solutions in terms of solvent, solute, and relative solubility.	E	What are the essential components of solutions?
Matter: Structure and Properties	4.5 Identifies the characteristics of water that make it the universal solvent.	E	Why is water the universal solvent?
Matter: Structure and Properties	Standard: Quantifies mass, weight, volume, density, conductivity, and temperature as physical properties of objects in the learner's environment.	E	In what ways can matter be quantified?
Matter: Structure and Properties	5.1 Measures and records in appropriate units, the quantifiable physical properties identified.	E	What units should be used to quantify matter?
Matter: Structure and Properties	5.2 Distinguishes physical from chemical properties.	E	What are the chemical and physical properties of pure substances?
Matter: Structure and Properties	Standard: Identifies chemical or physical changes conceptually in a laboratory setting. 6.1 Differentiates chemical from physical changes in the following laboratory investigations: combustion, fermentation, melting, dissolving, metabolism, boiling, and electrolysis.	E	How can chemical and physical changes be determined in a laboratory setting?
Atomic Theory and Patterns of Reactivity in the Periodic Table	Standard: Describes the basic structure of the atom as protons, neutrons and electrons in specific arrangements.	E	What are the parts of an atom?

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Atomic Theory and Patterns of Reactivity in the Periodic Table	7.1 Identifies relative location, size and charge of subatomic particles.	E	In what manner can subatomic particles be differentiated?
Atomic Theory and Patterns of Reactivity in the Periodic Table	7.2 Relates the relative number of protons and electrons to chemical charge and reactivity.	E	How does the atomic structure impact chemical change and reactivity?
Atomic Theory and Patterns of Reactivity in the Periodic Table	7.3 Defines radioactivity and describe the properties of radioactive elements and isotopes. Relates their importance to everyday life as in medicine, pollution, industry and electrical power.	E	What are some reral-life applications of radioactivity?
Atomic Theory and Patterns of Reactivity in the Periodic Table	Standard: Applies the law of definite proportions to predict mole quantities of chemicals that combine.	E	How does the Law of Definite Proportion define mole quantities?
Atomic Theory and Patterns of Reactivity in the Periodic Table	9.1 Predicts whether two elements will chemically combine based on their position in the periodic chart.	E	What is the relationship between location and chemical reactivity?
Atomic Theory and Patterns of Reactivity in the Periodic Table	9.2 Applies rules for writing formulas of simple chemical compounds.	E	What are the rules for writing and naming simple compounds?
Atomic Theory and Patterns of Reactivity in the Periodic Table	9.3 Applies rules for naming simple chemical compounds.	E	What are the rules for writing and naming simple compounds?
Atomic Theory and Patterns of Reactivity in the Periodic Table	9.4 Classifies compounds as ionic or covalent.	E	What are the major differences between ionic and covalent compounds?
Chemical Reactions	Standard: Classifies common chemical reaction types as syntheses, decomposition, or single or double displacement.	E	What are the four basic types of chemical reactions?
Chemical Reactions	10.1 Distinguishes chemical reactions as endothermic and exothermic.	E	What are the possible energy changes that can occur in a chemical reaction?
Chemical Reactions	10.2 Writes balanced chemical equations giving names of reactants and products.	E	How does the Law of Conservations of Mass relate to balancing equations?

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Interaction of Force and Motion	Standard: Measures and compares relationships among speed, velocity and acceleration. 14.1 Describes experimentally the effect of unbalanced forces in overcoming inertia, including the effect of sliding, static and rolling friction.	E	What are the relationships between the measurement of motion?
Work and Power	Standard: Measures and/or calculates work and power using several examples from the learner's environment.	E	What is the relationship between work and power?
Work and Power	15.1 Calculates the work done by simple machines and compares the force or direction of force applied.	E	How is the work of a simple machine calculated?
Work and Power	15.2 Calculates mechanical advantage and efficiency of simple machines.	E	How is mechanical advantage related to the efficiency of a simple machine?
Work and Power	15.3 Identifies compound machines as combinations of simple machines and describes how the work is done.	E	What is a compound machine?
Electricity and Magnetism	Standard: Generates an imbalance of electrical charge and experiment with attraction and repulsion of objects.	E	How are electric charges generated?
Electricity and Magnetism	17.2 Demonstrates production of electrical charge in a chemical reaction (e.g. simple cell).	E	How does a battery work?
Electricity and Magnetism	17.3 Evaluates different methods of generating electricity such as electric induction or a simple, piezoelectric, thermoelectric or photoelectric cell.	E	What are different methods of generating electricity?
Electricity and Magnetism	17.4 Builds series and parallel circuits to perform specific tasks.	E	How would you construct a series and parallel circuit?
Electricity and Magnetism	17.5 Measures and/or calculates current, voltage, and resistance at various points in series or parallel circuits.	E	How does Ohm's Law relate to series and parallel circuits?
Electricity and Magnetism	17.6 Illustrates the interactions of electricity and magnetism by using electricity to create a magnetic field and magnetic induction to create an electric field. 17.7 Describes the interplay of electric and magnetic forces as the basis for electric	E	In everyday life, how are electric and magnetic forces used to produce electricity?
Inquiry, Process and Problem Solving	Standard: Learns and uses on a regular basic standard safety practices for laboratory or field investigations.	I	Why are safety procedures important when conducting lab or field investigations in science?
Inquiry, Process and Problem Solving	3.1 Learns and uses safety procedures specific to an investigation or research activity.	I	
Atomic Theory and Patterns of Reactivity in the Periodic Table	Standard: Identifies the symbol, atomic number and mass of each of the first 20 elements in the periodic table.	I	What basic information can be gathered from the Periodic Table on each element?

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Atomic Theory and Patterns of Reactivity in the Periodic Table	8.1 Compares trends of chemical properties of periods and groups in the periodic chart.	I	How does the position of elements on the periodic table relate to its properties?
Organic and Biochemistry	Standard: Names and identifies the structure of simple groups of organic compounds.	I	What is the basic nomenclature and structure of simple organic compounds?
Organic and Biochemistry	11.1 Describes the importance of organic and biochemical compounds to everyday life.	I	How do organic and biochemical compounds affect your everyday life?
Interaction of Force and Motion	Standard: Identifies gravity as a force that is dependent upon mass and the distance between objects.	I	What two factors effect gravity?
Interaction of Force and Motion	13.1 Distinguishes among mechanical, atomic, gravitational, and electromagnetic forces.	I	What are the characteristics of the four basic forces?
Interaction of Force and Motion	13.2 Identifies and measures everyday forces such as gravity, rolling and sliding frictions, and other mechanical forces using common laboratory devices	I	How do forces effect your everyday life?
Waves and Energy Transfer	Standard: Relates frequency and energy of the electromagnetic spectrum.	I	What is the relationship between frequency and the energy of waves in the electromagnetic spectrum?
Waves and Energy Transfer	16.1 Uses wave and particle theory to describe transmission, absorption, reflection, and refraction of light in the visible spectrum.	I	How do the wave and particle theory explain the properties of light?
Waves and Energy Transfer	16.2 Experimentally develops how light interacts with lenses, mirrors, prisms, lasers and optical fibers.	I	How does light interact with various objects?
Waves and Energy Transfer	16.3 Relates color to frequency of light.	I	What is the relationship between color and frequency of light?
Waves and Energy Transfer	16.4 Relates frequencies of the electromagnetic spectrum outside the visible range to technological advances (e.g. microwave, radiowave).	I	What are some technological advances related to the frequencies in the electromagnetic spectrum?
Waves and Energy Transfer	16.5 Describes and varies properties of sound by changing temperatures or medium.	I	What factors impact the properties of sound?
Inquiry, Process and Problem Solving	Standard: Uses traditional reference materials to explore background and historical information regarding a scientific concept. 2.1 Uses current technologies such as CD-ROM, Internet and on-line data search to explore current research related to a science concept.	C	How do traditional and current technologies promote scientific research?
Energy	Standard: Analyze different types of energy in terms of sources, limits and uses, and environmental impact.	C	What is the impact of various types of energy on the environment?
Energy	12.1 Describes some sources and uses of energy such as chemical, thermonuclear, photoelectric, and electromagnetic, etc.	C	What are different sources and uses of energy in everyday life?

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Energy	12.2 Describes the law of conservation of energy. 12.3 Compares the effectiveness of various methods of energy conversion.	C	Why can't energy be destroyed?
Energy	12.4 Identifies and analyzes the nature of heat transfer in the learner's environment and describes and classifies heat transfer as conduction, convection and radiation.	C	What is the nature of heat transfer?
Energy	12.5 Experimentally compares the relative role of conductors and insulators in heat conductivity.	C	What is the role of a conductor and insulator in the transfer of heat?