



### Unit 1: Measurements and metric system

15  
Days

Students will identify measurement tools, use and read them properly, and learn how to measure and calculate weight, length, area, volume, and temperature. Students will learn basic units of measurement in metric system, memorize and use basic prefixes, convert metric units, estimate values, and solve problems using the metric system. Students will understand the process of standardized measurement.



### Unit 2: Graphs

15  
Days

Students will define data, dependent and independent variables, horizontal and vertical axis, and become familiar with graphs' descriptions and labels. Students will be able to plot points and construct line, bar, and circle graphs of measurements. Students will learn how to interpret the data on a graph, read for information from graphs, and create questions on given graphs.



### Unit 3: Matter and Types of Matter

20  
Days

Students will describe the chemical and physical properties of solids, liquids, gases, and plasma; describe how a substance changes from a liquid to a gas; learn four basic properties of matter and four states of matter. They will describe ways that matter changes state and distinguish between physical and chemical changes in matter. Students will learn about three kinds of matter and explain how mixtures and compounds are different. Students will differentiate between ionic and covalent bonds and describe organic compounds. Students will characterize properties of metals, nonmetals, and metalloids.



## Unit 4: Density

14  
Days

Students will define density, specific gravity, and displacement. Students will explain how to find the density of a solid or a liquid. Students will explain Archimedes' principle in terms of buoyancy and displacement and predict if an object will float or sink in water. Students will learn why boats float.



## Unit 5: Elements and Atoms

15  
Days

Students will identify elements and three basic parts of an atom, list the main parts of Dalton's atomic theory, and define and explain how to find an atomic number and atomic mass of an element. Students will describe how the electrons in an atom are arranged in energy levels. Students will trace the development of the modern periodic table of elements and use a periodic table to identify elements' characteristics.



## Unit 6: Chemical Formulas and Reactions

15  
Days

Students will correctly write and name chemical formulas. Students will describe what happens in chemical reactions. They will write and balance chemical equations. Students will compare and contrast oxidation and reduction reactions and classify chemical reactions. Students will learn about acids and bases. They will describe how indicators are used to identify acids and bases and how the pH scale is used to measure the strength of acids and bases.



## Unit 7: Force

10  
Days

Students will define, describe, and calculate forces and pressures. Students will recognize different forces and tools used for measurement of forces and pressures and learn about Newton's and Bernoulli's principles.



## Unit 8: Motion

15  
Days

Students will demonstrate Newton's three laws of motion, differentiate between instantaneous, constant, and average speed; state Newton's three Laws of Motion; and explain how they relate to balanced and unbalanced forces. Students will calculate speed, velocity, acceleration, and momentum.



## Unit 9: Energy and Work

10  
Days

Students will identify six forms of energy and the law of conservation of energy, differentiate between potential and kinetic energy, and explain how energy is conserved. Students will relate work, force, and distance. They will measure and calculate work and power.



## Unit 10: Machines

15  
Days

Students will identify six simple machines and their parts. Students will make and explain a simple machine, identify the three classes of levers, determine a machine's efficiency, and define and construct a compound machine.



## Unit 11: Heat

10  
Days

Students will define heat, differentiate between heat and temperature, and identify freezing, boiling, and melting points. Students will identify conduction, convection, and radiation processes. Students will learn about the thermal expansion and learn about the characteristics and behaviors of endotherms and ectotherms.



## Unit 12: Waves, Sound, and Light

10  
Days

Students will classify waves and their characteristics and explain the refraction of waves. Students will identify and explain the Doppler Effect and characteristics of sound waves. Students will identify the parts of the electromagnetic spectrum and characterize light and its sources, reflection, and refraction.