



# Science

## Grade 8

### 4th Nine Weeks

This academic overview can be used to monitor and support your child's at-home learning progress.

#### Unit 7: Atoms and the Periodic Table

##### Student Learning Targets

- I can identify and describe each component of an atom.
- I can explain how to use subatomic particles to identify an element.
- I can describe the arrangement of elements on the periodic table.
- I can identify and describe the three classifications of elements on the periodic table.

##### Questions to Check for Unit Understanding

- How do physical and chemical properties of an element determine its position on the periodic table?
- How would scientists decide the placement of a newly discovered element on the periodic table?
- How would you determine which elements are most closely related?

##### Key Academic Vocabulary

- atom - pure substance; the smallest particle of an element
- nucleus - the tiny, very dense, positively charged region in the center of an atom that is made up of protons and neutrons
- element - a pure substance composed of the same type of atom throughout
- periods - the rows in a periodic table that classify the elements by the number of electron shells

#### Unit 8: Chemical Reactions

##### Student Learning Targets

- I can define the law of conservation of mass as it pertains to a chemical reaction.
- I can determine if a chemical reaction has taken place and identify the resulting products and new properties.
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##### Questions to Check for Unit Understanding

- What information does a chemical formula tell about the substance?
- How can a chemical reaction alter the physical and chemical properties of a substance?
- What evidence is used to determine that a chemical reaction has occurred?

##### Key Academic Vocabulary

- Chemical equation - chemical formulas and symbols written to represent a reaction
- Chemical reaction - the process by which one or more substances change to produce one or more new substances
- Product - a substance produced during a reaction
- Reactant - a substance that takes part in and undergoes change during a chemical reaction

#### Unit 9: Introduction to Cells and Cellular Processes

##### Student Learning Targets

- I can explain the cellular process of homeostasis.
- I can describe the various methods of transport to maintain homeostatic conditions.

##### Questions to Check for Unit Understanding

- What cellular processes are occurring in your body throughout the day?
- How do homeostatic mechanisms in a mammal differ in cold climates vs hot climates?
- Why is osmosis important to cells?
- Why is it important to know the function and structure of cell organelles?

##### Key Academic Vocabulary

- Active transport - the movement of a substance across a membrane that requires the use of energy; movement is against the concentration gradient
- Diffusion - the movement of particles from an area of higher concentration to an area of lower concentration
- Homeostasis - the tendency for a system, such as a cell, to maintain relatively constant internal conditions
- Osmosis - the movement of a solvent across a semipermeable membrane from an area of low solute concentration to an area of high solute concentration to equalize the solute concentrations on both sides of the membrane
- Passive transport - movement across a cell membrane without using energy