

PHYSICAL SCIENCE EXPLORED elementary

SCOPE & SEQUENCE

Lesson 1: Curious Minds: Exploring Physical Science

Introduction to physical science
Scientific inquiry
The scientific method

Lesson 2: Discovering Matter

Introduction to matter
Physical properties
States of matter
Phase changes

Lesson 3: The Building Blocks of Matter

Introduction to atoms & elements
Atomic structure

Lesson 4: The Power of the Periodic Table

What is the periodic table?
Importance of organizing chemical elements
History of the periodic table
Structure of the periodic table: periods and groups

Lesson 5: Three Faces of the Periodic Table: Metals, Nonmetals, & Metalloids

Finding metals, nonmetals, and metalloids on the periodic table
Characteristics of metals, nonmetals, and metalloids

Lesson 6: Decoding the Periodic Table: Understanding Element Boxes

Reading element boxes on the periodic table

Element symbols

Atomic number

Atomic mass

Lesson 7: Molecular Connections

Difference between atoms and molecules

How atoms combine to form molecules

Introduction to molecular formulas

Lesson 8: Bonding Basics: How Atoms Stick Together

How atoms form bonds

Ionic & covalent bonding

Lesson 9: Chemical Reactions in Action

What is a chemical reaction?

Indicators of chemical reaction (color change, gas production, heat, etc.)

Lesson 10: Chemical Reactions in Action

Introducing chemical equations

The conservation of mass

Closed vs. open systems

Lesson 11: The Power of pH

Introduction to ions

Characteristics of acids and bases

The pH scale

Neutralization of acids and bases

Lesson 12: Solubility Secrets

Solutions, solutes, and solvents

Factors affecting solubility

Lesson 13: Physics in Action: Understanding Motion

Everything is in motion

Describing motion: position, speed, distance, direction

Frame of reference

Lesson 14: Forces at Work

Introduction to forces

Balanced vs. unbalanced forces

Types of forces

Lesson 15: Gravity: The Force that Keeps Us Grounded

Isaac Newton's discovery of gravity

How gravity works

Lesson 16: Friction Forces

What is friction

Types of friction

Lesson 17: The Rules of Motion: Newton's First and Second Laws

Newton's first law of motion: the law of inertia

Newton's second law of motion: the relationship between force, mass, and acceleration

Lesson 18: The Power of Opposites: Newton's Third Law

Newton's third law of motion: for every action, there is an equal and opposite reaction

Review of related motion and forces concepts

Lesson 19: Simple Machines, Awesome Power!

Simple machines defined

Types of simple machines

How simple machines make our lives easier

Lesson 20: Energy in Action

Types of energy

Energy transformations

The law of conservation of energy

Lesson 21: Energy on the Move

Kinetic energy

Potential energy

Lesson 22: Feel the Heat: Understanding Temperature & Thermal Energy

Thermal energy

Temperature

Heat transfer

Lesson 23: Heat in Action

Conduction

Convection

Radiation

Lesson 24: Invisible Waves: Exploring the Electromagnetic Spectrum

Electromagnetic energy

Electromagnetic spectrum

Features of a wave

Lesson 25: The Science of Light

Properties of light

Reflection and refraction

Lesson 26: Unlocking the Rainbow

How light creates color

Additive vs. subtractive color mixing

Lesson 27: Waves of Wonder: Exploring Sound

Introduction to sound

Compression waves

Pitch and volume

Lesson 28: Powered Up

What is electricity?

Static electricity and electric currents

Lesson 29: Electricity in Motion

Electric currents

Electric circuits

Conductors and insulators

Lesson 30: Magnetism: The Invisible Force

Properties of magnets

Magnetic fields

The Earth as a magnet