Ignite! SCIENCE

Curriculum Topics

Ignite! Science is an engaging, standards-aligned middle-school curriculum that powerfully combines learning with technology; presenting animated and interactive media in tandem with comprehensive print materials, assessment questions, and problem-solving activities.

EARTH SCIENCE

Members of Our Solar System
- Our Solar System and the Inner Planets
- Outer Planets of Solar System
- Pluto and Dwarf Planets
- Origin of Solar System
- Sun
- Comets
- Meteors and Asteroids
- Comets, Meteors and Asteroids
- Space Exploration

Earth's Air
- Atmospheric Composition
- Atmospheric Structure
- Cloud Formation
- Cloud Types
- Global Winds

Earth's Weather
- Winds and Weather
- Weather Patterns
- Predicting Weather
- Severe Weather

Earth's Water
- The Hydrological Cycle
- Groundwater Movement
- Water Table
- Springs and Geysers
- Caves and Sinkholes
- River Development
- Watersheds
- River Systems

Earth's Internal Processes
- Basic Structure of Earth
- Earth Features Caused by Plate Movement
- Plate Tectonics
- Continental Drift
- Causes of Volcanoes
- Volcanoes as Systems
- Volcanoes and Igneous Rock
- Impact of Volcanoes on Humans
- Causes of Earthquakes
- Impact of Earthquakes on Humans

Earth's Surface
- Uses of Minerals
- Rock Cycle
- Metamorphism
- Weathering
- Effects of Weathering
- Soil Layers
- Landforms and Erosion
- Effects of Erosion

Earth, Sun and Moon
- Earth and Its Motion
- Earth's Rotation and Revolution
- Earth's Tilt and Seasons
- Seasons
- The Moon
- The Lunar Cycle
- Lunar Geography
- Solar Eclipse
- Lunar Eclipse

Humans and the Environment
- Water as a Resource
- Human Impact on Water
- Water Management
- Air Pollution
- Causes and Effects of Air Pollution
- Reducing Air Pollution and Its Effects
- Population Growth and Earth's Resources
- Sustainability
- Resource Management

Earth's Energy Resources
- The Sun is the Major Source of Energy for Earth
- Solar Energy
- Wind and Solar Energy Technologies
- Biomass
- Nuclear Energy
- Fossil Fuels
- Oil Composition and Uses
- Natural Gas Composition and Uses
- Coal Composition and Uses

Stars and Galaxies
- What Stars Are
- Properties of Stars
- The Milky Way Galaxy
- Other Galaxies
- Light Years and Distance
- Origin of the Universe Theories

Earth's Oceans
- Ocean Water Composition
- Waves
- Tides
- Currents
- Convection Currents
- Climate Factors
- River Mouth Morphology
- Habitats

LIFE SCIENCE

Living Organisms
- Levels of Structure
- Structure in Plants and Animals
- Structure and Function Are Related
- Structure and Function in Plants
- Organisms and Internal Stimuli
- Responses to Internal Stimuli
- Organisms and External Stimuli
- Involuntary Responses to External Stimuli
- Chemical Composition
- Carbon Chemistry
- Molecules in Living Things

Cell Biology
- Cell Basics
- The Functions of Cells
- Important Cell Organelles
- Photosynthesis
- Plant Cell Structures
- Animal Cell Function
- Comparing Plant and Animal Cells
- The Cell Cycle
- The Cell Nucleus
- Mitosis
- Single-celled and Multi-celled Organisms
- Development in Multicellular Organisms
- Processes in Development

Health
- Physical Fitness
- Physical Fitness Benefits
- Safety
- Natural Hazards
- Biological Hazards
- Risks of Tobacco
- Alcohol and Drugs
- Nutrition
- Nutrition Guidelines
- Reproductive Health

Ecosystems
- Populations
- Abiotic and Biotic Resources
- Energy Flow
- Photosynthesis
- Roles of Organisms
- Energy Loss
- Ecological Niches
- Interactions in Ecosystems
- Succession
- Population Size
- Overpopulation
- Sudden Changes in Ecosystems
- Human Population
- Life's Interaction with Earth
- Carbon Cycle
- Nitrogen Cycle

Reproduction
- Sexual and Asexual Reproduction
- Life Cycles
- Sexual Reproduction
- Sexual Reproduction and Variation
- Sexual Reproduction in Plants
- Sexual Reproduction in Humans
- The Placenta in Humans

The Human Body
- Organ Systems
- More Organ Systems
- Organ System Interactions
- Stable Internal Environment

Continued on back

- Feedback in Living Systems
- Muscular and Skeletal System
- A Closer Look at Muscles
- The Eye
- The Ear
- Disease
- The Immune System
- The Heart
- The Circulatory System
- Excretory System
- The Respiratory System
- Gas Exchange

Heredity
- Traits
- Genetic Material
- Genes
- DNA Structure
- Chromosomes (Karyotype)
- Homologous Chromosomes
- Dominant and Recessive Genes
- Genetic Crosses (Punnett Square)
- Genetic Variation
- Genetics and Environment
- Genes and Behavior

Diversity of Life
- Darwin
- Adaptation and Natural Selection
- Examples of Natural Selection
- Artificial Selection (Selective Breeding)
- Fossil Evidence
- Similarities of Organisms
- Classification
- DNA and Classification
- Linnaeus

PHYSICAL SCIENCE

Motion
- Location
- Motion
- Graphing Motion
- Velocity and Acceleration

Physical Properties of Matter
- Matter
- Classifying Minerals
- Hardness
- Density
- Buoyancy
- Thermal Conductivity
- Electrical Conductivity
- Melting and Boiling Points
- States of Matter
- Changes in State

Energy
- Types of Energy
- Potential and Kinetic Energy
- Conduction, Convection, and Radiation
- How Heat Is Transferred
- Specific Heat
- Electricity
- Waves
- Technology of Energy Transformation
- Two Methods of Energy Transformation
- Efficiency of Energy Transformation
- Efficiency Comparisons

Force
- Force Basics
- Reacting to Force
- Introduction to Gravity
- Gravity in Space
- Gravity and Tides
- Friction
- Elastic Forces
- Unbalanced Forces and Motion
- Balanced and Unbalanced Forces
- Types of Forces
- Newton's Laws of Motion
- Work
- Simple Machines
- Machines in the Body
- Pressure

Structure of Matter and Periodic Table
- Structure of the Atom
- Protons, Neutrons, and Electrons
- Discovery of Atomic Structure
- Compounds
- Development of Periodic Table
- Periodic Table
- Grouping Elements by Properties
- Valence Electrons
- Bonding

Chemical Properties and Reactions
- Physical Changes
- Chemical Reactions and Physical Changes
- Forming Compounds
- Chemical Properties and New Materials
- Conservation of Mass
- Compounds and Chemical Reactions
- Chemical Reactions and Heat Transfer
- Chemical Systems
- The pH scale
- Acids, Neutrals, and Bases

Light
- Basics of Light
- Visible Light
- Path of Light
- Reflection
- Absorption and Scattering
- Seeing Objects: Reflection and Scattering
- Colors of Objects
- Refraction
- Lenses

GENERAL SCIENCE

Scientific Method
- Scientific Method
- Hypothesizing
- Testing Hypotheses
- Planning an Experiment
- Collecting Data
- Communication of Results

Earth Science and the Scientific Community
- Earth Science Activities
- Who Are the Earth Scientists?
- Earth Science Skills
- Impact of Research
- Societal Challenges and Earth Science
- Societal Priorities and Earth Science
- Risk
- Risk Analysis
- Contributions of Earth Science
- Earth Science Discoveries

Experimentation
- Safety Techniques
- Some Useful Tools
- Measurements
- Tools of Experimentation
- Create and Use Charts and Graphs
- Create and Use Tables
- Measures of Central Tendency
- Summarizing Data
- Collecting, Organizing, and Using Data
- Direct Evidence
- Indirect Evidence
- Cause and Effect
- Sources of Error
- Communication of Results

Life Sciences and the Scientific Community
- Life Science Activities
- Who Are the Life Scientists?
- Life Science Skills
- Impact of Research
- Societal Challenges and Life Science
- Societal Priorities and Life Science
- Risk
- Risk Analysis
- Contributions of Life Science
- Life Science Discoveries

Other Ways to Understand Science
- Using Maps
- Modeling
- Diagrams
- Mathematical Relationships
- Linear and Nonlinear Graphs

Physical Sciences and the Scientific Community
- Physical Science Activities
- Who Are the Physical Scientists?
- Physical Science Skills
- Impact of Research
- Societal Challenges and Physical Science
- Societal Priorities and Physical Science
- Risk
- Risk Analysis
- Contributions of Physical Science
- Physical Science Discoveries

Enrichment Activities: Reality, Inc.

- Water Cycle
- Groundwater
- Seasons
- Plate Tectonics
- Food Web
- Natural Selection
- Genetics
- Organ Systems
- Gravity and Motion
- Simple Machines
- Buoyancy and Density
- Energy

Ignite! Learning
Transforming Classroom Curriculum