

# Science Curriculum

---

## Kindergarten

### Scientific Method

Observations & Gathering Materials

### Earth Science

- Weather **STC Kit: Weather**
- Repetitive Cycles
  - Day & Night
  - Seasons
- Sun
  - Source of Light & Heat
  - Necessary for Living Things

### Physical Science

- Sorting of Objects According to their Properties

### Life Science

- Basic Understanding of Living Things vs. Nonliving
  - Things
- Basic Understanding of the Human Body **STC Kit: Understanding My Body** (w/ school nurse)
- Five Senses
- Life Cycle of the Painted Lady Butterfly **STC Kit: Hide A Butterfly**
- Exploring Various Animals & Their Habitats

### Technology/Engineering

- Use of Basic Tools (scissors, rulers, tape, hand lens)

## GRADE 1:

### Scientific Method

Observations, Gathering Materials, & limited Recording of Data

### Earth Science

- Earth's Surface
  - Introduction to Rocks & Soil
    - Recognition that the Above are Nonliving
    - Origin & Formation of Rocks & Soil

### Physical Science STC Kit: Comparing & Measuring

- Methods of Measuring
- States of Matter STC Kit: Solids & Liquids

### Life Science STC Kit: Organisms

- Different Types of Living Things
- Seasonal Changes of Plants & Animals
- Different Types of Habitats (woodlands, deserts, wetlands)
- Complete vs. Incomplete Metamorphosis STC Kit: Life
  - **Cycle of Butterflies**

### Technology/Engineering

- Awareness of Materials
  - Characteristics of both Natural & Man-Made Materials
  - Uses of the Above Materials
  - Construction of Simple Structures

## GRADE 2:

### Scientific Method

Observations, Gathering Materials, Predicting, Recording Data, Using Graphs & Charts to Display Data

### Earth Science STC Kit: Soil

- Soil
  - Components of Soil
  - Color & Texture
  - Ability to Retain & Drain Water
  - Ability to Support the Growth of Plants

### Physical Science STC Kit: Changes

- Properties of Matter
  - Size, Shape, Color, Weight, Texture
  - Changes in Matter
- Weighing & Measuring **STC Kit: Weighing & Balancing**
- Movement
  - How Objects Move
    - Direction
    - Inertia
    - Balance

### Life Science

- Animal & Plant Interdependence
  - Adaptations of Animals & Plants to their Habitats (tropical rain forests, oceans, beaches, tide pools, polar ice)

### Technology/Engineering

- Introduction to Simple Machines

- Ramps
- Levers
- Pulleys
- Uses of the Above
- Tools of the Human Body (teeth for cutting, hands for grasping, etc.)
  - Comparison to Animal Tools

## GRADE 3:

### Scientific Method

Observations, Gathering Materials, Predicting, Recording Data, Graphing & the Use of Charts to Display Data, Using Science Log Books

### Earth Science:

- Rocks **STC Kit: Rocks & Minerals**
  - Three Types of Rocks
  - Minerals
  - Physical Properties of Rocks (Luster, Hardness, etc.)

### Life Science STC Kit: Plant Growth & Development

- Plants
  - Plant Structure
    - Roots
    - Stems
    - Leaves
  - Seed Cycle of Wisconsin Fast Plants
  - Importance of Pollination
- Animals
  - Fish
  - Amphibians
  - Reptiles
  - Birds
  - Mammals

### Physical Science STC Kit: Chemical Testing

Introduction to Chemistry

### Technology/Engineering

- Problem Identification Reflecting the Need for Shelter, Storage, or Convenience
- Various Methods in which Problems can be
  - Represented (Sketches, Diagrams, Lists, Graphic Organizers, etc.)

## GRADE 4:

### Scientific Method

- Introduction to Proper Terminology (Hypothesis, Variable, Control Group, etc.)
- Introduction to Proper Lab Write-up

### Earth Science

- Weather
  - Weather vs. Climate
  - Weather Instruments
  - Conduction & Convection of Heat
  - Water Cycle
  - Atmospheric Layers & Movement
  - Global Patterns Over Time
- Solar System
  - Objects in the Solar System
  - Revolution vs Rotation of These Objects
  - Moon Cycle
- Physical Science
  - States of Matter
  - Properties of Matter
  - Phase Changes as a Result of Heat Application or Withdrawal
  - Select Forms of Energy **STC Kit: Sound**
    - Sound
    - Light
      - Reflection, Refraction, Absorption
  - Transformation of Energy from One Form to Another
- Electricity & Magnetism STC Kits: Electrical Circuits
  - Recognition of Various Magnetic Materials
  - Attraction & Repulsion of Magnets
  - Construction of Electromagnets
  - Conductors vs Insulators of Electricity
  - Simple Machines, 6 Types
- Forces of Motion **STC Kit: Motion & Design**

### Technology/Engineering

- Understanding the Difference Between Simple and Complex Machines (ex. Can Opener includes Multiple Gears, Wheel, Wedge, Lever, etc.)
- Identification & Explanation of Appropriate Materials and Tools Required to Construct a Given Prototype Safely

## GRADE 5:

Mastery of Scientific Research Method  
Use of the compound light microscope

**STC KIT: Micro worlds**

## Life Science

### Human Body STC Kit: Understanding Cells & DNA

- **STC Kit: Human Body Systems**
- Cells, Tissues, Organs, Systems
- General Functions of the Major Systems **STC Kit: Food Chemistry**

### Animal Survey

- Invertebrates
- Vertebrates
- Growth & Reproduction
- Life Cycles
- Adaptations to Environment
  - Heredity vs. Environmental Changes
  - Instinctive vs. Learned Behavior
  - Environmental Changes Resulting in Migration or Death

### Plants

- Non vascular plants
- Vascular Plants
- Growth & Reproduction
- Life Cycles
- Variables Affecting Growth
- Tropisms & Responses to Environment

## Technology/Engineering

- Refer To Grades 5-8

## GRADE 6:

Reviewing Scientific Method  
Familiarity with the Metric System

## Earth Science

- The Rock Cycle
  - Igneous, Sedimentary, & Metamorphic
- Mapping the Contours of the Earth
- Layers of the Earth
- Earth's History
- Earth's Changes
  - Atmospheric Movement
  - Plate Tectonics
  - Earthquakes
  - Volcanoes

- Weathering & Erosion
- Geological Time
  - Eras
  - Fossil Remains

### Life Science STC Kit: Ecosystems

- Ecology
  - Nature's Classroom (outdoor environmental program)
  - Populations of Living Things Habitats
  - Changes in Ecosystems Caused by Organisms
  - Adaptations
  - Biomes
  - Producers, Consumers, & Decomposers
  - Chains, Webs, & Pyramids
  - Symbiotic Relationships
  - Changing of Ecosystems throughout Geologic Time

### Earth's Oceans

- Characteristics of the Ocean Floor
- Ocean Ecosystems

### Space Science

- Importance of Gravity in Forming Planets, Stars, & Solar Systems
- Earth, Sun, & Moon
- Tilting of the Earth Causing Seasons
- Tides & Moon Phases
- Our Solar System
- Our Universe
- Stars & Galaxies

### Technology/Engineering

Refer to Grades 5-8

## GRADE 7:

### Reviewing Scientific Method

#### Life Science STC KIT: Organisms: Macro to Micro

- Characteristics & Needs of Living Things
- Cell Structure and Function
  - Organelles of the Cell
  - Unicellular vs. Multicellular
  - Cellular Respiration
  - Cellular Photosynthesis
  - Mitosis
  - Meiosis

- Classification of Organisms
  - Viruses
  - Protista
  - Monera
  - Fungi
- Plants **STC Kit: Experiments with Plants**
- Animals (Invertebrates & Vertebrates)

### Genetics

- Structure of DNA
- Chromosomal Organization
- Punnett Square Usage for Dominant, Recessive, and Incomplete Traits
- Sexual vs Asexual Reproduction
- Evolution
  - Environmental Factors
  - Diversity of Organisms
  - Recognition of Evidence Based Upon Geological History
- Comparative Anatomy of Organisms
- Survival, Adaptation, or Extinction of Species

### Technology/Engineering

Refer to Grades 5-8

## GRADE 8:

### Physical Science STC Kit: Properties of Matter

- Properties of Matter
  - Weight, Mass, Volume Density
  - Correct Use of Measuring Tools
  - Laws of Conservation of Mass
- Boyle's and Charles' Gas Laws
- Familiarity with and Use of the Periodic Table of Elements
- Atomic Structure
- Elements/Symbols
- Molecules
- Mixtures
- Pure Substances
- Melting Points & Boiling Points of Substances
- Physical vs. Chemical Changes
- Chemical Bonding of Elements
  - Ionic Bonding
  - Covalent Bonding
- Chemical Equations
  - Synthesis Reactions
  - Decomposition Reactions

- Single-Replacement Reactions
- Double-Replacement Reactions

### Energy STC Kit: Electrical Energy & Design

- Law of the Conservation of Energy
- Potential vs Kinetic Energy
- Transformation of the Above
- Heat Energy
  - Addition or Subtraction of Heat Resulting in Temperature Changes Within a System
  - Effect of Heat on Molecular Motion
  - Predictable Movement of Heat Energy
  - Energy Resources
- Newton' Laws of Motion
  - Acceleration
  - Forces in Fluids
  - Work & Machines
- Motion of Objects **STC Kit: Energy, Machines, & Motion**
  - Position, Direction of Motion, & Speed Graphing
  - Interpreting Distance using Graphs for Constant Speed

### TECHNOLOGY/ENGINEERING for GRADES 5-8:

- Materials, Tools, & Machines
  - Solution of Problems
  - Construction of Objects
  - Invention of Objects
- Design
  - Process Mastery
    - Ability to Sketch Multiple Types of Drawings
    - Description & Explanation of Purpose of Prototypes
  - Transportation Technology & Motion
    - Lift
    - Drag
    - Gravity
    - Thrust
  - Bioengineering
    - Adaptive Devices
    - Assistive Devices