



Science Program at Oakridge School

The following document outlines the theme and disciplinary core ideas that are taught at each grade level.

In addition to teaching the principles outlined below, our science curriculum is focused on empowering children to employ their natural curiosity and to develop scientific skills and practices that will aid them in their lifelong learning journey.

Third Grade

THEME: Human Interactions

Third Grade students develop and sharpen their skills at obtaining, charting and analyzing data in order to study their environment. They use their scientific skills to study the interactions between humans and their environment.

Third Grade students examine evidence and make predictions about the following topics:

- **Weather Patterns**
- **Climates around the world**
- **Weather hazards/storms and how to reduce their impact** (flooding, wind, lightening)
- **Plants and Animals :**
 - **Life Cycles**
 - **Traits: Environmental vs. Inherited**
 - **Species Survival: Adaptations and Extinction**
- **Force**
 - **Magnets** and their uses
 - Effect of **multiple forces** exerted on an object
- **Engineering Design:**
 - Identify Criteria, Constraints and possible solutions to an engineering problem.

Fourth Grade

THEME: Matter and Energy

In grade 4, students observe and interpret patterns related to the transfer of matter and energy on earth, in physical interactions, and in organisms.

Grade 4 students learn about energy and how the matter on our planet has changed over time. They investigate and explain:

- **Rock Patterns**
- **Weathering and Erosion**
- **Renewable and Nonrenewable energy**



Fourth Grade Continued :

- **Natural Disasters**
 - Volcanoes
 - Earthquakes
 - Solutions to reduce the impact on Natural Disasters.

- **Model of a wave of energy**
- **How energy is transferred and changes** (light, sound, electrical and heat)
- **The relationship between speed and energy**
- **Information transfer through waves**
- **Internal and external animal parts that support life**
- **Engineering:**
 - Plan and Carry out testing of a model/prototype
 - Technological Products

Fifth Grade:

THEME: Connections and Relationships in Systems

Fifth Graders model, provide evidence to support arguments, and obtain and display data about relationships and interactions among observable components of different systems. By studying systems students learn that objects and organisms do not exist in isolation. They are all connected.

5th Grade students will describe, analyze and model observable components of different systems including: :

- **Astronomy**
 - **Sun – Moon- Earth system** (including concept of gravity on earth-pulling towards earths center)
 - **Stars-** Focus is on estimating proximity based on size
- **Earths Resources**
 - **Hydrosphere**
 - **Plants on our Planet** - Relationship with air, water and energy
 - **Balancing Earths Resources-** Reducing Human Impact
- **Food Webs** and the cycling of matter
- **Matter-** Conservation of Matter, Identifying properties of matter , mixing substances

***Fifth Grade is the first and only year that students will take a standardized test in Science. The next standardized test will occur in Eighth grade.**



Sixth Grade:

THEME: Structure and Function

In Sixth grade, students inquire about the structure and function of the world around them. The integration of earth, life, and physical sciences with technology/engineering gives students relevant and engaging opportunities with natural phenomena and design problems that provide the foundation for more abstract and complex topics through grade 7 and 8.

6th Grade students will use models and provide evidence to make claims and explanations' about the structure- function relationship of the following scientific phenomenon : :

- **Astronomy**
 - **Lunar Phases**
 - **Universe-** Solar System, Milky Way, Universe (including the concept of gravity as an attractive force between large objects)
- **Geology**
 - **Geologic Time Scale** (and reasons for the changes)
 - **Continents and Sea Floor Spreading**
- **Cells**
- **Extinction-** Interpreting evidence for causes
- **Evolution** – Evidence for Evolution (anatomical structures)
- **Matter**
 - **Chemical Reactions:** Exothermic/Endothermic
 - **Density**
 - **Pure Substance vs. Mixture.**
- **Waves**
 - Structure and Repeating pattern of waves
 - Encoding, Transferring and Transmitting waves(and digitized wave pulses).
- **Engineering Design Process-**
 - identifying Criteria, Constraints and Impacts of the design
 - Interpreting and apply scale to model
 - Communicating design to an audience