VALWOOD

GO BEYOND

Third Grade Science Curriculum

3rd Grade Overview Science

Course Description

In third grade science, students will be practicing scientific skills such as writing questions, making predictions, and developing logical conclusions in science notebooks. Science content in third grade will include the engineering process, the earth and the moon, and animals.

Topics at a Glance

- Engineering Process
- The Earth and Its Moon
- Animals

Assessments

- Science Notebooks
- Teacher-created performance tasks
- Teacher created assessments
- Teacher observations

Grade Level Expectations

Standard	Big Ideas for Third Grade
Life Science	1. Animals can be classified by their many different characteristics. 2. Animals have different body systems with varying functions.
Physical Science	1. The engineering process is an important and big part of science.
Earth Science	1. The earth and its moon are a major part of our solar system. The Solar System, which includes the sun, moon, and other bodies that orbit the Sun in predictable patterns that lead to observable paths of objects in the sky as seen from earth.

Notes for Third Grade

1. Science in third grade is built upon what the children already know which enables them to connect to new concepts and skills.
2. Students in third grade are given the opportunity to inquire, investigate and experiment using science tools and correct scientific terms. They learn that there is a certain method that scientist use to make valid conclusions. Life Science activities gives students the opportunities to observe and investigate plants and animals and their behavior, systems and habitats.
3. Life science activities give students the opportunity to classify animals and study their body systems.
4. Physical science gives students the opportunity to discover and use the engineering process.
5. Earth science allows students to discover important information about the earth and its moons.
6. Nearby resources that can be used in third grade science include a field trip to the Okefenokee Swamp to study the animal life.

1. Physical Science

Students know and understand common properties, forms and changes in matter and energy.

Prepared Graduates
The preschool through twelfth-grade concepts and skills that all students who complete a Valwwod education must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Physical Science standard:

- Observe, explain, and predict natural phenomena governed by Newton's laws of motion, acknowledging the limitations of their application to very small or very fast objects
- Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions
- Apply an understanding that energy exists in various forms, and its transformation and conservation occur in processes that are predictable and measurable
- *Engage in scientific inquiry by asking or responding to scientifically oriented questions, collecting and analyzing data, giving priority to evidence, formulating explanations based on evidence, connecting explanations to scientific knowledge, and communicating and justifying explanations.*

Content Area: Science - Third Grade

Standard: 1. Physical Science

Prepared Graduates:

Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions

GRADE LEVEL EXPECTATION

Concepts and skills students master:

1. Matter exists in different states such as solids, liquids, and gases and can change from one state to another by heating and cooling

Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: a. Identify the state *(solid, liquid, gas)* of any sample of matter b. Analyze and interpret observations about matter as it freezes, melts, boils and condenses c. Use evidence to develop a scientific explanation around how heating and cooling affects states of matter d. Explain that all matter takes up space and has mass	**Inquiry Questions: *(Examples)*** 1. How can the state of matter of any object be decided? 2. Where around the school would an ice cube take the longest to melt? Why?
	Relevance and Application: 1. Water is distributed on Earth in different forms such as vapor, ice or glaciers, rivers, and freshwater or saltwater oceans. 2. There is only a certain amount of water available for human use.
	Nature of Discipline: 1. Ask a testable question about the heating and cooling of a substance, design a method to find the answer, collect data, and form a conclusion. 2. Demonstrate the importance of keeping accurate observations and notes in science. 3. Share results of experiments with others, and respectfully discuss results that are not expected.

Content Area: Science - Third Grade

Standard: Physical Science

Prepared Graduates:

Engage in scientific inquiry by asking or responding to scientifically oriented questions, collecting and analyzing data, giving priority to evidence, formulating explanations based on evidence, connecting explanations to scientific knowledge, and communicating and justifying explanations

GRADE LEVEL EXPECTATION

Concepts and skills students master:

2. Measures and records data accurately using metric units and appropriate tools and technology

Evidence Outcomes	**21st Century Skills and Readiness Competencies**
Students can: a. Gathers data in an organized fashion using appropriate tools and methods (for example: thermometer, metric ruler, balance, digital devices) b. Uses metric units (meter, liter, gram, degree Celsius) to accurately measure length, volume, mass, and temperature c. Completes graphs, tables, and charts to display data d. Makes and records systematic observations using metric units	**Inquiry Questions:** 1. Why is it important to use a standard? 2. How do you know which tool would be the best when measuring? *3.* Why does the United States use the metric system for science?
	Relevance and Application: 1. Scientific inquiry involves using accurate measurements when collecting and recording data. *2.* The metric system can be found in everyday life as well as the science world; it's important for students to recognize this.
	Nature of Discipline: 1. Ask a testable question that requires the taking of metric measurement of data. 2. Demonstrate the importance of keeping accurate metric measurement in science notebooks.

2. Life Science

Students know and understand the characteristics and structure of living things, the processes of life and how living things interact with each other and their environment.

Prepared Graduates
The preschool through twelfth-grade concepts and skills that all students who complete a Valwood education s must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Life Science standard:

- Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection
- Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment
- Explain how biological evolution accounts for the unity and diversity of living organisms

Content Area: Science - Third Grade

Standard: 2. Life Science

Prepared Graduates:

Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment

GRADE LEVEL / COURSE EXPECTATION

Concepts and skills students master

1. The duration and timing of life cycle events such as reproduction and longevity vary across organisms and species

Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: a. Use evidence to develop a scientific explanation regarding the stages of an organism's development (life cycle) b. Analyze and interpret data to generate evidence that different organisms develop differently over time c. Use a variety of tools and methods to collect and analyze data regarding how organisms develop and compare these results with media sources (scientific literature, non-fiction science resources for children)	**Inquiry Questions:** 1. How are life cycles of a variety of organisms similar and different? 2. How does an organism change throughout its life cycle? **Relevance and Application:** 1. Living things may have different needs at different points in their life cycles. 2. The life cycles of organisms can be observed by studying organisms in an outdoor environment. For example, different life stages of insects and plants can often be observed in the school yard. **Nature of Discipline:** 1. Ask a testable question about the life cycles of a variety of organisms. 2. Compare what is done in class to the work of scientists: a. Scientists evaluate and use data generated by other scientists to further their own ideas, just like students compare data in class. b. A community of scientists weaves together different evidence and ideas to deepen understanding, similar to how students do investigations and read books to deepen understanding about a concept.

3. Earth Systems Science

Students know and understand the processes and interactions of Earth's systems and the structure and dynamics of Earth and other objects in space.

Prepared Graduates:
The preschool through twelfth-grade concepts and skills that all students who complete a Valwood education must master to ensure their success in a postsecondary and workforce setting.

Prepared Graduate Competencies in the Earth Systems Science standard:

- Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet
- Evaluate evidence that Earth’s geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system
- Describe how humans are dependent on the diversity of resources provided by Earth and Sun

Content Area: Science - Third Grade

Standard: 3. Earth Systems Science

Prepared Graduates:

Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system

GRADE LEVEL EXPECTATION

Concepts and skills students master:

1. Earth's materials (rocks, humus, minerals, etc.) can be broken down and/or combined (such as through the rock cycle and the formation of soil and sand) into different materials – some of which are usable resources for human activity

Evidence Outcomes	21st Century Skills and Readiness Competencies
Students can: a. Investigate and identify two or more ways that Earth's materials can be broken down and/or combined (e.g., how minerals combine into rocks, rock cycle, formation of soil and sand) b. Use evidence to develop a scientific explanation about one or more processes that break down and/or combine Earth's materials c. Utilize a variety of media sources to collect and analyze data about Earth's materials and the processes by which they are formed	**Inquiry Questions:** 1. What are some of the ways that Earth's materials are formed? 2. Where do these different materials such as soil, sand, rocks, and oil come from? What is the process by which the materials were formed? 3. How is Earth's surface changing? 4. How do rocks "cycle?"
	Relevance and Application: 1. Many of Earth's materials are usable building or energy resources. 2. Extended processes and time are required to convert fossil fuels and soil into useful material.
	Nature of Discipline: 1. Ask testable questions about the composition and formation of rocks. 2. Use models to demonstrate the rock cycle or other ways Earth's materials are broken down or combined.