3rd Grade American Online School

SCIENCE CURRICULUM

Exploring Life, Earth, and Sky Through Discovery

Version May/2025

1. Introduction

The Role of Science Education in 3rd Grade

The 3rd Grade Science curriculum guides students through hands-on investigations of the natural world, from plant systems and weather patterns to fossils and celestial bodies. Through observation, experimentation, and discussion, students develop foundational scientific thinking and a lifelong curiosity about how the world works.

By the end of this course, students will:

✓ **Describe how plants and animals adapt to their environments.**

✓ **Understand the structure and function of plant parts.**

✓ **Explore evidence of life from the past through fossils.**

✓ **Analyze weather patterns and atmospheric conditions.**

✓ **Understand the roles of the sun and moon in daily and seasonal cycles.**

✓ **Ask scientific questions, make predictions, and share findings.**

---

2. Core Competence Areas

SCI.1 Life Science: Nature Adaptations and Plant Systems

Learning Outcomes

By the end of this course, students will be able to:

✓ **Identify how organisms are suited to their environments.**

✓ **Describe the basic parts of plants and their functions.**

✓ **Explain how living things grow, change, and survive.**

Competencies

SCI.1.A.1 – Understanding animal adaptations and habitats.

- Classify animals based on how they survive in desert, forest, arctic, or aquatic environments.
- Create “adaptation cards” for different ecosystems.

SCI.1.A.2 – Investigating plant structures and roles.

- Observe plant parts (roots, stems, leaves, flowers) and their purposes.
- Grow plants from seeds and log observations in journals.

SCI.2 Earth Science: Dinosaurs, Fossils, and Earth's History

Learning Outcomes

By the end of this unit, students will be able to:

✓ **Describe how fossils form and what they tell us about the past.**

✓ **Recognize that Earth has changed over time.**

✓ **Use models to interpret fossil evidence.**

Competencies

SCI.2.A.1 – Exploring prehistoric life through fossil evidence.

- Differentiate between body fossils and trace fossils.
- Make fossil imprints and classify them.

SCI.2.A.2 – Comparing past and present ecosystems.

- Analyze similarities and differences between extinct and modern species.
- Use timelines to understand ancient life on Earth.

SCI.3 Physical Science: The Air Around Us and Weather

Learning Outcomes

By the end of this unit, students will be able to:

✓ **Observe and describe the properties of air.**

✓ **Track and interpret local weather patterns.**

✓ **Use tools and data to make weather predictions.**

Competencies

SCI.3.A.1 – Investigating air as matter.

- Experiment with air pressure, wind, and temperature.
- Use balloons, straws, and thermometers in hands-on activities.

SCI.3.A.2 – Observing and modeling weather phenomena.

- Track weather using barometers, thermometers, and weather logs.
- Create wind vanes, rain gauges, and weather reports.

SCI.4 Space Science: The Sun and Moon

Learning Outcomes

By the end of this unit, students will be able to:

✓ **Describe how the sun affects light, warmth, and shadows.**

✓ **Understand the phases of the moon.**

✓ **Explain how celestial bodies move in the sky.**

Competencies

SCI.4.A.1 – Exploring sun patterns and daily cycles.

- Track sunrise and sunset times over weeks.
- Create sundials and measure shadow length changes.

SCI.4.A.2 – Observing moon phases and lunar effects.

- Draw and label the moon's changing shape.
- Connect moon cycles to tides and nighttime sky observation.

---

3. Assessment and Evaluation

Formative Assessments – Observation and Feedback

✓ Lab journals, question stems ("I wonder…").
✓ Sketches and labeled diagrams.
✓ Teacher observation checklists during experiments.

Summative Assessments – Performance Tasks

✓ Adaptation Presentation with visual models.
✓ Fossil Timeline Poster.
✓ Weather Report Script and Forecast.
✓ Sun and Moon Cycle Quiz.

Authentic Assessment – Scientific Communication

✓ Class "Mini Science Expo".
✓ Nature Guidebook or Moon Diary.
✓ Peer discussions and reflections on group projects.

---

4. Instructional Strategies for Online Learning

Inquiry-Based Learning

✓ Use guided discovery with minimal pre-teaching.
✓ Scaffold questioning, observation, and reflection.

Hands-On, Real-World Connection

✓ **Link plant systems to gardening, weather to clothing choices.**

✓ **Bring in guest speakers like meteorologists or local park rangers.**

Literacy and Integration

✓ **Read books like What If You Had Animal Teeth? or The Magic School Bus Inside the Earth.**

✓ **Use science notebooks to record questions and "aha" moments.**

Learning Culture

✓ **Foster excitement through mystery bags, nature walks, and show-and-tell.**

✓ **Encourage every student to feel like a "real scientist".**

✓ **Normalize revision and re-investigation of ideas.**