


Kindergarten American Online School

SCIENCE EDUCATION CURRICULUM

Exploring Space, Habitats, and the World Around Us



Version June/2025

1. Introduction

The Role of Science Education in Kindergarten

In Kindergarten, science introduces young learners to the world of observation, exploration, and inquiry. Through hands-on experiences, students explore the concepts of space, habitats, and natural environments. They develop early skills in spatial thinking, descriptive language, and scientific observation. The curriculum encourages curiosity about how things work and how we can describe and make sense of the world around us.

By the end of this course, students will:

- ✓ Understand basic concepts of space, location, and distance.
 - ✓ Recognize different habitats and the animals that live in them.
 - ✓ Use descriptive language to explain objects, places, and living things.
 - ✓ Begin to develop writing and drawing skills to communicate observations.
 - ✓ Observe and discuss the world around them, asking simple scientific questions.
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2. Core Competence Areas

SCI.1 Spatial Thinking

Learning Outcomes

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

- ✓ Understand simple spatial concepts such as "near," "far," "above," and "below."
- ✓ Use these concepts to describe locations and directions in space.
- ✓ Identify and demonstrate position and movement in relation to objects.

Competencies

SCI.1.A.1 – Developing understanding of spatial relationships

- Use toys, blocks, and puzzles to explore spatial concepts.
- Play games like "Simon Says" with spatial commands ("Hop two steps forward," "Walk around the chair").

SCI.1.A.2 – Describing positions and movements

- Create movement patterns using toy cars, animals, or puppets.
- Use visual aids (arrows, lines) to illustrate directions in a simple map or drawing.

SCI.2 Orientation in Space

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

- ✓ Demonstrate an understanding of their position relative to others and objects.
- ✓ Use basic directional words like "left," "right," "up," and "down."
- ✓ Follow and give simple directions to navigate a space.

Competencies

SCI.2.A.1 – Exploring space through movement

- Use large muscle activities like walking, running, and jumping while giving simple directional instructions.
- Build obstacle courses or paths using classroom objects and guide peers through them.

SCI.2.A.2 – Using maps and directions

- Create simple, personal maps of the classroom or home using basic symbols.
 - Play “Treasure Hunt” games where students follow directions to find objects in a set space.
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SCI.3 Descriptive Language – “Spatial Descriptions”

Learning Outcomes

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

- ✓ Use descriptive words to explain the location and features of objects.
- ✓ Share observations using terms related to size, shape, color, and position.
- ✓ Communicate their ideas through simple drawings and explanations.

Competencies

SCI.3.A.1 – Using language to describe space and features

- Describe objects in the classroom using words like “big,” “small,” “round,” “tall.”
- Draw or build simple representations of objects and explain their position using new vocabulary.

SCI.3.A.2 – Building language skills through observation

- Use “I see” statements during nature walks or in the classroom (“I see a big red ball under the table”).
 - Encourage students to ask each other questions to explore and describe the environment.
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SCI.4 Habitats and Environment – “Near and Distant Habitats”

Learning Outcomes

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

- ✓ Recognize different habitats (forest, ocean, desert, etc.) and the animals that live there.
- ✓ Understand the basic needs of animals and how they adapt to their environments.
- ✓ Compare habitats that are near and far from where they live.

Competencies

SCI.4.A.1 – Exploring habitats through stories and images

- Use books and videos to introduce habitats like the rainforest, ocean, and arctic.
- Draw or build simple habitat scenes (e.g., a forest with trees and animals).

SCI.4.A.2 – Recognizing animal adaptations

- Discuss how animals in different habitats have features that help them survive (e.g., fish with fins, camouflaged animals).
 - Create animal masks or costumes for storytelling and roleplay.
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SCI.5 Basics to Writing – “Writing for Science”

Learning Outcomes

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

- ✓ Draw pictures that represent their observations of the world.
- ✓ Begin to label their drawings and write simple sentences to explain their ideas.
- ✓ Share what they learned using pictures and words.

Competencies

SCI.5.A.1 – Drawing and labeling observations

- Use simple science journals to draw animals, plants, or habitats and add labels.
- Create a class mural with animal drawings and labels for each part of the habitat.

SCI.5.A.2 – Writing simple sentences

- Write about their observations of plants, animals, or objects.
 - Use a template or sentence starter for recording ideas (“I see a tree. It is tall and green.”).
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3. Assessment and Evaluation

Formative Assessments – Daily Participation and Reflection

- ✓ Observation checklists during activities (listening, movement, exploration).
- ✓ Journals with simple drawings and labels.
- ✓ Participation in group activities and discussions.

Summative Assessments – Projects and Presentations

- ✓ Habitat Diorama + Presentation.
- ✓ End-of-unit journal with drawings, labels, and simple sentences.
- ✓ “Science Story” student project with labeled drawings.

Authentic Assessment – Applied Learning and Sharing

- ✓ “What I Learned” reflection sheet after each exploration.
- ✓ Collaborative group work in creating habitat displays.
- ✓ Storytelling with visual prompts and interactive materials.

4. Instructional Strategies for Online Learning

Exploratory and Hands-On

- ✓ Create a “Discovery Station” with objects, textures, and natural materials.
- ✓ Use nature walks, plant-growing kits, and simple experiments to stimulate curiosity.

Interactive and Visual

- ✓ Post visual aids, maps, and labels in the classroom.
- ✓ Integrate visual storytelling with drawings, charts, and diagrams.

Playful and Student-Centered

- ✓ Use songs, roleplay, and storytelling to bring concepts to life.
- ✓ Celebrate student discoveries with “show and tell” sessions.