

# GRADE ONE

## Goal

Science education in first grade extends the foundation that began in kindergarten with the unifying concepts of evidence, explanation and measurement and begins to add order and organization as students devise their own rules to classify living and nonliving objects. Teachers build on students' natural inclination to ask questions and investigate common objects in the natural world. Students engage in active construction of ideas and explanations as they observe, collect data, and classify, to provide types and levels of order and organization to their ideas about science concepts. The following explanations characterize the strands at the first grade level.

## Nature of Science

The Nature of Science Strand is designed to help students develop an understanding of the human dimensions of science, the nature of scientific thought, and the whole of science in society. Science is one way of finding answers to students' questions and enabling them to make sense of the natural world. Teaching science as inquiry enhances students' opportunity to develop the abilities to do science. Students are introduced to examples of women and men who have made contributions to science, showing students how scientists work, and the importance of diversity in science and technology.

## Science as Inquiry

First grade science students employ simple equipment and tools to gather data and extend their senses. Students acquire simple skills such as how to observe, measure, connect, record and report data, and to classify objects using their own rules. From their own observations, they begin to ask questions and make predictions. Students' investigations are largely based on systematic observations and simple classifications to bring order and organization to their understanding. As students develop concepts and vocabulary from such experiences, they develop the ability to ask meaningful questions, investigate aspects of the world around them, and use their observations to construct reasonable explanations for their questions.

## **Science and Technology**

Students develop abilities to work individually and collaboratively and to use suitable tools and measurements as appropriate. Students' abilities in technological problem-solving are developed by first hand experiences in doing tasks with an identified technological purpose. They study technological tools and systems as they investigate living and nonliving objects. Students gain the ability to explain a problem in their own words and identify a specific way to find a solution appropriate to the problem.

## **Personal and Social Perspectives**

First grade students should have a variety of experiences that provide initial understandings of personal safety that enable them to take responsibility for their own safety. They should identify and follow simple safety rules while in school and at home. Students understand that resources are found in the living and nonliving environment.

# Science – Grade 1

The focus for first grade is on students using their senses to make observations and using their own rules to classify living and nonliving objects. Identifying types and levels of organization helps students find useful ways of describing objects and organisms. Guide student learning to continue to emphasize the unifying concepts introduced in kindergarten, including evidence, explanation and measurement as well as the introduction at grade one of order and organization. The strands provide a context for teaching the content goals.

**Strands:** Nature of Science, Science as Inquiry, Science and Technology, Science in Personal and Social Perspectives

**COMPETENCY GOAL 1: The learner will conduct investigations and make observations to build an understanding of the needs of living organisms.**

## **Objectives**

- 1.01 Investigate the needs of a variety of different plants:
  - Air.
  - Water.
  - Light.
  - Space.
- 1.02 Investigate the needs of a variety of different animals:
  - Air.
  - Water.
  - Food.
  - Shelter.
  - Space.
- 1.03 Observe the ways in which humans are similar to other organisms.
- 1.04 Identify local environments that support the needs of common North Carolina plants and animals.
- 1.05 Discuss the wide variety of living things on Earth.

**COMPETENCY GOAL 2: The learner will make observations and use student-made rules to build an understanding of solid earth materials.**

## **Objectives**

- 2.01 Describe and sort a variety of earth materials based on their properties:
  - Color.
  - Hardness.
  - Shape.
  - Size.
- 2.02 Describe rocks and other earth materials in more than one way, using student-made rules.

- 2.03 Observe the various components that combine to make soil.
- 2.04 Compare the components of soil samples from different places.
- 2.05 Explore where useful earth materials are found and how they are used.

**COMPETENCY GOAL 3: The learner will make observations and conduct investigations to build an understanding of the properties and relationship of objects.**

**Objectives**

- 3.01 Describe the differences in the properties of solids and liquids.
- 3.02 Investigate several ways in which objects can be described, sorted or classified.
- 3.03 Classify solids according to their properties:
  - Color.
  - Texture.
  - Shape (ability to roll or stack).
  - Ability to float or sink in water.
- 3.04 Determine the properties of liquids:
  - Color.
  - Ability to float or sink in water.
  - Tendency to flow.
- 3.05 Observe mixtures including:
  - Solids with solids.
  - Liquids with liquids.
  - Solids with liquids.

**COMPETENCY GOAL 4: The learner will make observations and conduct investigations to build an understanding of balance, motion and weighing of objects.**

**Objectives**

- 4.01 Describe different ways in which objects can be moved.
- 4.02 Observe that movement of an object can be affected by pushing or pulling.
- 4.03 Investigate and observe that objects can move steadily or change direction.
- 4.04 Observe and describe balance as a function of position and weight.
- 4.05 Describe and observe systems that are unstable and modify them to reach equilibrium.