



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

Discovering Science Outdoors addresses the following strands, which are in the North Carolina Standard Course of Study for all grades:

- Nature of science
- Science as inquiry
- Science and technology
- Science in personal and social perspectives

The course also covers the unifying concepts of science, which is in the SCOS for middle grades (6-8):

The Unifying Concepts of Science:

- Systems, Order, and Organization
- Evidence, Models, and Explanation
- Constancy, Change, and Measurement
- Evolution and Equilibrium
- Form and Function

The course addresses content and skill objectives expected of grades 3-8.

GRADE 3

Competency Goal 1: The learner will conduct investigations and build an understanding of plant growth and adaptations.

1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment.

Competency Goal 3: The learner will make observations and use appropriate technology to build an understanding of the earth/moon/sun system.

3.02 Observe that objects in the sky have patterns of movement including:

- Sun
- Moon
- Stars

3.03 Using shadows, follow and record the apparent movement of the sun in the sky during the day.

3.04 Use appropriate tools to make observations of the moon.

3.05 Observe and record the change in the apparent shape of the moon from day to day over



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

several months and describe the pattern of changes.

3.06 Observe that patterns of stars in the sky stay the same, although they appear to move across the sky nightly.

GRADE 4

Competency Goal 1: The learner will make observations and conduct investigations to build an understanding of animal behavior and adaptation.

1.01 Observe and describe how all living and nonliving things affect the life of a particular animal including:

- Other animals
- Plants
- Weather
- Climate

1.02 Observe and record how animals of the same kind differ in some of their characteristics and discuss possible advantages and disadvantages of this variation.

1.03 Observe and discuss how behaviors and body structures help animals survive in a particular habitat.

1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.

1.05 Recognize that humans can understand themselves better by learning about other animals.

Competency Goal 2: The learner will conduct investigations and use appropriate technology to build an understanding of the composition and uses of rocks and minerals.

2.03 Explain how rocks are composed of minerals.

2.04 Show that different rocks have different properties.

2.05 Discuss and communicate the uses of rocks and minerals.

2.06 Classify rocks and rock-forming minerals using student-made rules.

2.07 Identify and discuss different rocks and minerals in North Carolina including their role in geologic formations and distinguishing geologic regions.



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

GRADE 5

Competency Goal 1: The learner will conduct investigations to build an understanding of the interdependence of plants and animals.

1.01 Describe and compare several common ecosystems (communities of organisms and their interaction with the environment).

1.03 Explain why an ecosystem can support a variety of organisms.

1.04 Discuss and determine the role of light, temperature, and soil composition in an ecosystem's capacity to support life.

1.05 Determine the interaction of organisms within an ecosystem.

1.06 Explain and evaluate some ways that humans affect ecosystems.

- Pollutants

Competency Goal 2: The learner will make observations and conduct investigations to build an understanding of landforms.

2.02 Investigate and discuss the role of the water cycle and how movement of water over and through the landscape helps shape land forms.

2.03 Discuss and consider the wearing away and movement of rock and soil in erosion and its importance in forming the landscape.

2.05 Discuss how the flow of water and the slope of the land affect erosion.

2.06 Identify and use models, maps, and aerial photographs as ways of representing landforms.

2.07 Discuss and analyze how humans influence erosion and deposition in local communities.

Competency Goal 3: The learner will conduct investigations and use appropriate technology to build an understanding of weather and climate.

3.02 Discuss and determine how the following are affected by predictable patterns of weather:

- Temperature
- Wind direction and speed
- Precipitation
- Cloud cover
- Air pressure



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

3.03 Describe and analyze the formation of various types of clouds and discuss their relation to weather systems.

3.05 Compile and use weather data to establish a climate record and reveal any trends.

3.06 Discuss and determine the influence of geography on weather and climate.

GRADE 6

Competency Goal 1: The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.

1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.

1.02 Develop appropriate experimental procedures for:

- Given questions
- Student-generated questions

1.03 Apply safety procedures in the laboratory and in field studies:

- Recognize potential hazards
- Manipulate materials and equipment
- Conduct appropriate procedures

1.05 Analyze evidence to:

- Explain observations
- Make inferences and predictions

1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:

- Measurement
- Analysis of data
- Graphing
- Prediction models

1.08 Use oral and written language to

- Communicate findings
- Defend conclusions of scientific investigations

1.09 Use technologies and information systems to:

- Research
- Gather and analyze data
- Visualize data



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

- Disseminate findings to others

1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:

- Scientific text
- Articles
- Events in the popular press

Competency Goal 5: The learner will build understanding of the Solar System.

5.01 Analyze the components and cycles of the solar system including:

Sun

- Planets and moons
- Phases
- Seasons
- Day/year
- Eclipses

5.03 Relate the influence of the sun and the moon's orbit to the gravitational effects produced on Earth.

7.03 Explain how changes in habitat may affect organisms.

GRADE 7

Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the atmosphere.

3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards:

- Humidity
- Temperature
- Wind speed and direction
- Air pressure
- Precipitation

3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards:

- Satellites.
- Weather maps.
- Predicting.
- Recording.
- Communicating information about conditions.



Discovering Science Outdoors

North Carolina Standard Course of Study Objectives

GRADE 8

Competency Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.

3.02 Explain the structure of the hydrosphere including:

- Water distribution on earth
- Local river basin
- Local water availability

3.05 Analyze hydrospheric data over time to predict the health of a water system including:

- Temperature
- Dissolved oxygen
- pH
- Nitrates
- Turbidity
- Bio-indicators

3.06 Evaluate technologies and information systems used to monitor the hydrosphere.

3.07 Describe how humans affect the quality of water:

- Point and non-point sources of water pollution in North Carolina
- Possible effects of excess nutrients in North Carolina waters

3.08 Recognize that the good health of environments and organisms requires:

- Monitoring of the hydrosphere
- Water quality standards
- Methods of water treatment
- Maintaining safe water quality
- Stewardship

Competency Goal 5: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of evidence of evolution in organisms and landforms.

5.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including:

- Geologic Time Scale
- Index Fossils.