

The Barclay Early Childhood Center  
Science  
Preschool Standards and Benchmarks

Young children have informal experience with science before they enter preschool. They have been using their senses to explore the environment and make sense of their world. They have been constructing knowledge by interacting with objects and people. Young children in a high-quality preschool classroom continue to construct knowledge while exploring their interesting indoor and outdoor learning environments. They will be developing concepts and acquiring processes during their play, as they observe, manipulate, discover and solve problems.

Teachers in a high-quality classroom use their knowledge of child development and experience to interact, encourage, use scientific language, extend and reinforce concepts as these experiences occur. Teachers know that learning science through inquiry requires both child curiosity and adult guidance. Teachers acknowledge and value the child's natural curiosity. Teachers know that some mathematical concepts are essential to solving some science problems and other science process skills are essential for both. They know that math and science are best learned when integrated within real life experiences and into the daily routine during individual and small-group times. Science in preschool will be integrated with other content areas into the day. Teachers plan to introduce materials, techniques and technology that allow for reflecting, making connections, recording, and representing. Observations and predictions are recorded through notes, drawings, graphs etc. Content, however, must be carefully considered in relation to the children's development and sensitive to their interests.

Teachers include parents and community members whenever possible in observation, participation, and sharing in classroom activities and events. Parents' knowledge, experience and efforts are an integral part in the effort to model a positive attitude toward science in school and at home. Thus an effective home-school-community partnership contributes to a strong, well-balanced program.

Summary of Standards and Benchmarks

**Standard 7**

**The student demonstrates an understanding of science.**

Benchmarks	
7.1	Develops inquiry skills, including problem-solving and decision-making
7.2	Observes and investigates the properties of matter, both living and non-living
7.3	Explores the concept of change in both living and non-living entities in the environment
7.4	Develops an awareness for the environment and human responsibility for its care

## Standard 7

The student demonstrates an understanding of science.

**Benchmark 7.1** Develops inquiry skills, including problem-solving and decision-making

Developmental Continuum	Example Behaviors
Asks questions relating to own interests and current classroom activities	<ul style="list-style-type: none"><li>• "What do you think the inside of this nut looks like?"</li></ul>
Makes observations	<ul style="list-style-type: none"><li>• "Look, this tree has big, green leaves. That one has needles."</li></ul>
Makes predictions	<ul style="list-style-type: none"><li>• "This car is really heavy. I'll bet it sinks to the bottom of the water."</li></ul>
Answers questions or tests predictions using simple experiments or research media	<ul style="list-style-type: none"><li>• Cracking a nut to look inside, putting a toy car in water to determine whether it sinks or using a book or Web site to find out about different types of leaves</li></ul>
Discusses, shares and records findings	<ul style="list-style-type: none"><li>• Drawing and "writing" in journals, making rubbings, charting the growth of plants</li></ul>

**Benchmark 7.2** Observes and investigates the properties of matter, both living and non-living

Developmental Continuum	Example Behaviors
Acquires and uses basic vocabulary for plants, animals and humans, as well as their parts and characteristics.	<ul style="list-style-type: none"><li>• Names body parts, names animals and identifies their habitats</li></ul>
Explains that living things have specific needs	<ul style="list-style-type: none"><li>• Water, air, food, light</li></ul>
Demonstrates knowledge that living things exist in different environments	<ul style="list-style-type: none"><li>• "Fish can live in the ocean because they can breathe under water."</li></ul>
Explains the differences between nonliving and living things	<ul style="list-style-type: none"><li>• "The bunny is alive. He needs to eat." "The shell isn't alive. The hermit crab is!"</li></ul>

## Standard 7

The student demonstrates an understanding of science.

**Benchmark 7.3** Explores the concept of change in both living and non-living entities in the environment

Developmental Continuum	Example Behaviors
Uses language to demonstrate knowledge of physical change	<ul style="list-style-type: none"><li>• "When I add the red paint to the white paint, it is going to change."</li></ul>
Describes how some matter can change form	<ul style="list-style-type: none"><li>• Snow melting in the water table, water left in the watering can, making cookies, gelatin, etc.</li></ul>
Demonstrates understanding that living things change as they grow (life cycle) and that only living things grow	<ul style="list-style-type: none"><li>• "When we first got our fish, they were small. Now they are big and have spots."</li></ul>
Uses words related to weather and environmental phenomena and change (sunny, clouds, rain, snow, lightning, temperature, wind, thunder) and night and sky objects (sun, moon, stars).	<ul style="list-style-type: none"><li>• It is rainy today</li><li>• The snow melted.</li><li>• The sun is a star</li><li>• We see stars at night.</li><li>• It is dark at night.</li></ul>
Associates the seasons with changes in the climate and environment.	<ul style="list-style-type: none"><li>• It is hot in the summer.</li><li>• We go to the beach in the summer.</li><li>• We need to wear warm clothes (jackets, scarfs, mittens) in the winter.</li><li>• The leaves change colors in the fall.</li><li>• We see flowers bloom in the spring.</li></ul>

**Benchmark 7.4** Develops an awareness for the environment and human responsibility for its care

Developmental Continuum	Example Behaviors
Demonstrates care of the environment	<ul style="list-style-type: none"><li>• Cleaning up after snack outside</li></ul>
Participates in sorting materials for recycling	<ul style="list-style-type: none"><li>• Items for the trash can, yogurt containers and cups to be used in the art area</li></ul>
Discusses in simple terms how humans can care for or harm the environment	<ul style="list-style-type: none"><li>• "If you throw garbage in the ocean it can hurt fish. The water gets too dirty."</li></ul>