



Archdiocese of Washington Catholic Schools

Academic Standards

Science

Preschool

Standard 1 - The Nature of Science and Technology

Young children are natural scientists. When provided with opportunities to observe and investigate, they will ask questions and comment about their observations and discoveries. Parents, teachers and other caregivers who answer their questions and arouse their interest and curiosity about God's creation help to sow seeds for future scientists.*

Scientific Inquiry

- P.1.1 Observe and describe properties of objects using the five senses (touching, smelling, seeing, tasting and hearing).
Example: Place objects in a brown bag. Have students reach in and describe what an object feels like. Have students guess what the object is based on their sense of touch.
- P.1.2 Develop a growing ability to ask questions about the world around them.

The Scientific Enterprise

- P.1.3 Engage in a scientific experiment, with a peer or with a small group of children, using sharing and turn-taking skills.
Example: Use a simple cooking activity to teach students to measure and mix things. Give each student a turn to perform a cooking task. Have students discuss what they are doing and why.

Technology and Science

- P.1.4 Use a variety of "scientific tools" (balance scales, magnifying glasses, measuring cups, food coloring) to investigate the environment and to gather information.
- P.1.5 Choose an area with science materials as a place to work.
Example: Set up a science learning center with "tools" and other items for students to investigate.
- P.1.6 Make selections from the science objects and materials available.

* observations: gaining information through the use of one or more of the senses, such as sight, smell, etc.



Archdiocese of Washington Catholic Schools

Academic Standards

Science

Standard 2 - Scientific Thinking

Meaningful science learning experiences help young children investigate those pre-existing ideas, such as shapes and patterns, while building a foundation for additional knowledge.

Computation and Estimation

- P.2.1 Participate in activities related to number sequencing and counting.
- P.2.2 Use familiar materials to measure things (i.e. popsicle sticks, paper clips, crayons, hands).
Example: Ask students how many paper clips are needed to measure the length of their shoe.
- P.2.3 Show a curiosity and independent interest in number related activities.

Communication

- P.2.4 Manipulate a variety of objects and tell about what is observed.
Example: Have students add different food colorings to water and describe what they see.
- P.2.5 Classify objects by different attributes (characteristics such as color, shape, or size) and explain how they have been sorted.
Example: Give students a selection of toys and ask them to sort them into piles by how they are alike. Then ask them to tell you why they put certain toys together.
- P.2.6 Use vocabulary that indicates an understanding of scientific principles (e.g., sink, float, melt, solid, liquid, temperature).
- P.2.7 Use charts, drawings, self-published books and/or graphs to share their findings with others.

Standard 3 - The Physical Setting

As natural scientists, young children need multi-sensory opportunities to learn about their physical settings. Having the time for free exploration of a variety of materials and objects as well as teacher guided explorations, young children can acquire scientific knowledge related to physical science.

Universe

- P.3.1 Understand that their environment expands beyond the earth and begin to ask questions and/or make comments about the sun, stars, planets, and clouds.

Earth and the Processes that Shape It

- P.3.2 Investigate the physical surroundings by digging in dirt, collecting and classifying rocks, and recognizing weather.



Archdiocese of Washington Catholic Schools

Academic Standards

Science

- P.3.3 Understand that not all physical environments are the same.
- P.3.4 Be aware of the fact that the physical environment affects the living environment and visa versa.

Matter and Energy

- P.3.5 Investigate and talk about the characteristics of matter (liquids and solids, smooth and rough, hot or cold).
- P.3.6 Participate in activities using materials with a variety of properties (e.g. color, shape, size, name and type of material).

Forces of Nature

- P.3.7 Gain a natural sense of the forces of nature by experiencing wind blowing, temperature changes, changing seasons of the year, or things falling.
- P.3.8 Actively explore simple machines (e.g., pulleys, levers, wheels).

Standard 4 - The Living Environment

Young children ask questions about a variety of living things and everyday events that can be answered through shared observations.

Diversity of Life

- P.4.1 Observe and explore a variety of live plant and animals. Talk about the different types of plants and animals that inhabit the earth.
Example: Provide opportunities for students to observe and interact with live animals and plants by taking field trips to a farm, zoo, garden center, or science museum.
- P.4.2 Identify plants and animals as living things.
- P.4.3 Identify non-living things.
- P.4.4 Use characteristics of living things to make finer distinctions.
Example: Have students discuss the fact that donkeys have shorter legs and longer ears than horses or that a tulip looks like a cup, while a daffodil looks like a cup with a saucer.
- P.4.5 Take care of familiar plants and animals.
Example: Allow students opportunities to water the school's plants or feed the class pet.



Archdiocese of Washington Catholic Schools

Academic Standards

Science

- P.4.6 Participate in activities related to preserving their environment.
Example: Talk about God's creation and the ways in which we can help to care for it. If the school or parish recycles, have students help set up a recycling center in the classroom.

Standard 5 - The Mathematical World

Students begin to understand how things are similar and how they are different. They look for ways to distinguish between different objects by observation. Students will use shapes to compare objects.

Shapes and Symbolic Relationships

- P.5.1 Recognize and talk about the fact that everything has a shape.
- P.5.2 Observe shapes and look for objects that are the same shape.

Standard 6 – Patterns in Science

A fundamental skill for young scientists is the ability to observe and reproduce patterns. Children are attracted to patterns in the early months of life. This innate interest can be used to build a good foundation of observation, comparison, and discrimination skills that will enable the young child to be a better scientist.

Models and Scale

- P.6.1 Recognize, copy, extend and create patterns with objects and in drawings.
Example: Have students repeat a pattern of beads on a string.
- P.6.2 Participate in activities using materials with a variety of patterns.
Example: Provide opportunities for students to create their own patterns using blocks.