

Everyday Science in Play

Science is observation, exploration, and discovery. It's built into children's natural curiosity!

Kentucky Early Childhood Standards for Science (Preschool)

Scientific Inquiry

Children explore the world around them by observing, questioning, and investigating. They use their senses, tools, and simple experiments to find out how things work and to solve problems.

Physical Science

Children explore objects, materials, and physical phenomena. They experiment with movement, force, sound, light, temperature, and how materials can change (melting, mixing, sinking, floating).

Life Science

Children observe and understand living things and life cycles. They care for plants and animals, notice how living things grow and change, and describe characteristics of living and nonliving things.

Earth and Space Science

Children observe and discuss the natural world, including weather, seasons, land, and sky. They notice changes in the environment, track daily weather, explore rocks, soil, and water, and observe the sun, moon, and stars.

What Makes a Complete Science Center (Based on ECERS-3)

A well-developed science or nature center should invite hands-on exploration, reflection, and discovery. It's not just a table of materials, it's a space that encourages children to observe, predict, test, and talk about what they notice.

1. Living Things

Children need opportunities to observe and care for real living things.

Examples:

- Classroom plants (flowers, herbs, seedlings, or vegetables)
- Class pets (fish, snails, worms, butterflies, tadpoles)
- Ant farms, terrariums, or worm bins
- Gardening tools, watering cans, and plant care charts
- Photos or drawings documenting living things' growth and change

Intentional Teaching Tip:

Include children in the care process: watering, feeding, or checking for growth builds responsibility and observation skills.

2. Natural Objects

Provide real objects from nature that children can handle, sort, compare, and discuss.

Examples:

- Collections of rocks, shells, pinecones, feathers, leaves, acorns
- Tree bark, driftwood, or sand and soil samples
- Seasonal nature trays or baskets
- Sorting containers, magnifiers, and labels for collections

Intentional Teaching Tip:

Rotate natural materials seasonally and encourage children to add their own finds from outdoor play or nature walks.

3. Factual Books and Nature/Science Games

Include books and games that extend science learning and connect to real-world concepts.

Examples:

- Nonfiction picture books about plants, animals, weather, or space
- Books showing life cycles, habitats, and seasons
- Science or nature-themed matching or sequencing games
- Simple classification or sorting games (living vs. nonliving, types of weather)

Intentional Teaching Tip:

Read factual books during group time, then link them to hands-on experiences. For example, reading *Planting a Rainbow* before planting seeds.

4. Tools for Exploration and Discovery

Provide real tools children can use to observe, measure, and experiment safely.

Examples:

- Magnifying glasses, binoculars, tweezers, droppers
- Measuring cups, scales, rulers, thermometers, or funnels
- Clipboards and pencils for drawing or recording observations
- Simple microscopes or bug viewers

Intentional Teaching Tip:

Model how to use each tool, then let children explore freely. Encourage them to describe what they notice or measure.

5. Sand and Water with Toys

These materials help children explore scientific and mathematical concepts through sensory play.

Examples:

- Sand and water tables (available daily)
- Measuring cups, spoons, funnels, and containers
- Floating/sinking toys, sieves, or scoops
- Natural items added to sand or water (pebbles, shells, ice, sticks)

Intentional Teaching Tip:

Enhance the learning by adding vocabulary (“full,” “empty,” “heavier,” “lighter”) and inviting prediction (“What do you think will happen if...?”).

Meeting ECERS-3 Expectations**Daily Science Ideas**

Goal: Provide at least **two activities** every day.

1. During Centers

- **Science/Nature Table:** Keep rotating materials: shells, rocks, leaves, or living plants.
- **Water Table:** Experiment with floating, sinking, and pouring.
- **Sensory Play:** Explore textures, melting ice, or mixing ingredients.
- **Dramatic Play:** Add real-world science props: gardening tools, first-aid kits, magnifiers.

2. Outdoors

- Observe and describe the weather, shadows, and seasonal changes.
- Collect natural items to compare, sort, or graph.
- Start a simple garden or compost bin; invite children to help water or check soil.

3. Group Time

- Make simple predictions and revisit results:
“Do you think the ice will melt faster in the sun or shade?”
- Talk about cause and effect in everyday routines:
“What happens if we add more water to the sand?”

4. Teacher Language

- Use observation and curiosity words:
“What do you notice?” “How can we find out?” “What changed?”
- Encourage children to explain their thinking, not just answer questions.

Tips for Consistency

- **Plan intentionally:** Add “math and science” to your daily planning template.
- **Rotate materials weekly:** Keep centers fresh while maintaining core materials.
- **Integrate naturally:** Science doesn't have to always be something planned. Look at everything that is going on around you and engage children in question and wonder throughout the day.
- **Engage in conversation:** Teacher talk makes the learning visible and intentional.