

Find a Head Start job near you or anywhere in the U.S. </job-center>

News You Can Use: Early Science Learning for Infants and Toddlers

Infants and toddlers are natural scientists. They are curious and they love to explore and learn. Adults can help infants and toddlers find answers to their questions and discover more about things that interest them. In this News You Can Use, we discuss ways teachers, home visitors, family child care providers, and families can be more intentional in how they support young children's early science learning—and school readiness.

See PDF version: News You Can Use: Early Science Learning for Infants and Toddlers 

<<https://eclkc.ohs.acf.hhs.gov/sites/default/files/pdf/nycu-early-science.pdf>>

What Is Science?

The Scientific Process

Science Knowledge

How Might Staff and Families Support Early Science Learning for Infants and Toddlers?

Science and School Readiness for Infants and Toddlers

Conclusion

Summary

Have you ever heard people say, “Science for infants and toddlers? That can’t be right!” Or, “I don’t know how to do that?” Or even “Science is for older children?” Science learning may seem to be the stuff of high school and college students, but it all begins with infants and toddlers!

What Is Science?

Science is not just a body of knowledge—it’s “a way of thinking and acting ... a way of trying to discover the nature of things.”¹ Science learning at any age involves curiosity, exploration, and discovery. These come naturally to most infants and toddlers. Adults can help young children find answers to their questions and discover more about things that interest them. Do you do some of that already? If so, you’re helping them learn science!

The Scientific Process

Fifteen-month-old Jasper is exploring a basket of different kinds of balls that his home visitor brought with her. Jasper finds a large, rubber bouncy ball. He hands it to his mother, Adria, and says “Ball.” Adria says, “Yes, it’s a rubber ball. Drop it and see what happens.” Jasper drops the ball, and it bounces back up to his waist. He laughs in delight. Adria laughs too and says, “It bounced. You like that!” Then he finds a plastic ball and says, “Ball!” When he drops this ball, it just lands on the floor and rolls. He looks at his mom with wide open eyes. Adria smiles and says, “Uh, it didn’t bounce. You look surprised!”

“communicates” the results of dropping the plastic ball. Over time, and with lots of experiences like this, Jasper will learn more about balls, including why some bounce and why some don’t! So, knowing about the scientific process helps adults recognize when young children naturally follow these steps.

Science Knowledge

Heath (infant teacher) sits on a blanket with Clara (26 months old) under a tree on the center’s outdoor play space. Clara lies quietly on her back, looking up toward the tree branches where a shiny silver chime is hanging. Heath says, “Clara, I see you looking up at the chimes. Do you think we’ll hear them make a sound today?” Just then, a gentle wind blows and the chimes tinkle. Clara says excitedly, “I hear them just now!” Heath laughs and says, “I guess the answer is ‘yes’! Did you feel the wind? It blew and moved the chime, and the chime made a tinkling sound!”

Where can science learning happen? Everywhere and anywhere; it doesn’t have to stay at the science table! In this everyday experience of being outside and noticing chimes, Heath helps Clara wonder about (hypothesize) whether the chimes will make a noise or not and connect blowing wind (something that cannot be seen) with the effect it can have on a solid object (causing the chimes to make a tinkling noise). As Clara has more experiences seeing and hearing the wind’s effects on objects such as chimes, trees, streamers, and hair, she will begin to learn more about wind, such as what it is and what happens when it blows. She will also learn to connect the wind blowing with the sounds that some objects make and to predict what sounds she might hear before the wind blows.

If the scientific *process* is the “how” of science exploration, science knowledge is the “what.” There are many ways to organize science knowledge. Here is one.³

- Physical science: exploring the properties of objects and materials, such as shape, color, texture, weight, temperature (e.g., hot, cold), solid, or liquid; how objects move, work, and change; what objects and materials are made of; sound and light
- Natural science: exploring the natural world of living things, including plants and animals; and exploring things related to the earth (e.g., dirt, rocks, sand, wind, weather, sun)
- Social science: exploring people—who they are (e.g., relationships between people), what they do, and where they live

How Might Staff and Families Support Early Science Learning for Infants and Toddlers?

Cristina, a family child care provider, has noticed the way that infants and toddlers naturally explore and behave like scientists. She watches 5-month-old Liam explore large plastic snap beads with his mouth. He is learning about their properties! She notices that 13-month-old Hanna has discovered—through trial and error—that the couch is an excellent structure for pulling herself up, while large cardboard boxes are not as stable. Twenty-one-month-old Xander seems driven to discover what he can and cannot fit his finger into. Cristina believes that the children she cares for are curious and capable. They will discover more about the world around them than she could ever hope to “teach.” She knows that her nurturing relationship and safe home together create an inviting environment for learning.

Conclusion

Infants and toddlers are natural scientists! They explore physical, natural, and social science anywhere and everywhere. They observe, are curious, and investigate to find out more about their world. They gather information as they solve problems. They communicate the results of their explorations through babbling, laughing, crying, physical gestures, facial expressions, and words. However, even though “science” exploration might come naturally to most infants and toddlers, they benefit from adult support. Adults build and expand on young children’s scientific interest when they interact with infants and toddlers as they engage in the scientific process. Adults also provide opportunities, materials, time, and space for exploring and discovery. This support from staff and families in the early years can lead to positive outcomes later as young children carry their interest and excitement about science and learning into preschool and beyond!

Study Guide

Summary

This *News You Can Use* (NYCU) talks about the scientific process and building science knowledge for infants and toddlers. It also provides strategies that adults can use to support early science learning.

Key Messages:

- Infants and toddlers are natural scientists! They are curious and investigate to find out more about their world.
- The scientific process (also known as the scientific method) is a series of steps for exploring questions and discovering answers. It is the “how” of science exploration.
- Science knowledge is the “what” of science exploration. It includes learning about physical science, natural science, and social science.
- Early science learning is related to developmental domains and school readiness.
- There are many ways adults can help young children find answers to questions and discover more about things that interest them.

Think:

- This NYCU provides some examples of how early science learning relates to two developmental domains: (1) approaches toward learning and (2) cognition and general knowledge. What are some examples of how early science learning relates to social and emotional development, language and literacy, and physical development and health?
- How do engaging in the scientific process and learning about physical, natural, and social science help infants and toddlers become ready for preschool and beyond?

Reflect: