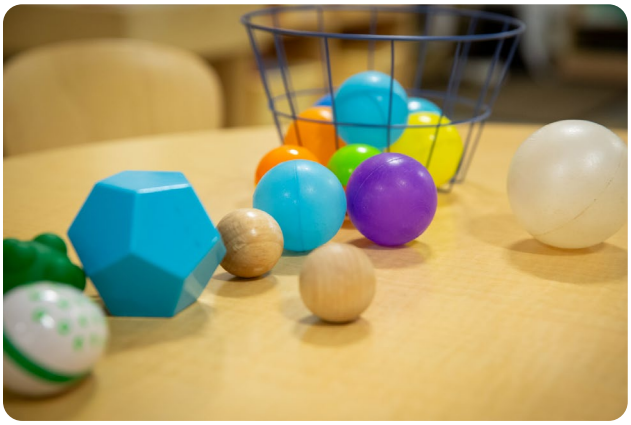
Supporting Children to Observe and Investigate

This handout describes ways educators can support children to observe and investigate science concepts and phenomena.

Provide Direct and Meaningful Experiences

- **Notice what children are interested in and consider what they can experience directly.**
  - What is meaningful in children's lives? Consider ways children's home lives, communities, and cultures can provide meaningful experiences in observation and investigation.
  - What can they observe directly or investigate firsthand to learn more about an object or phenomena?
- **Provide time and space for children to engage in open-ended exploration.**

Offer Purposeful Materials

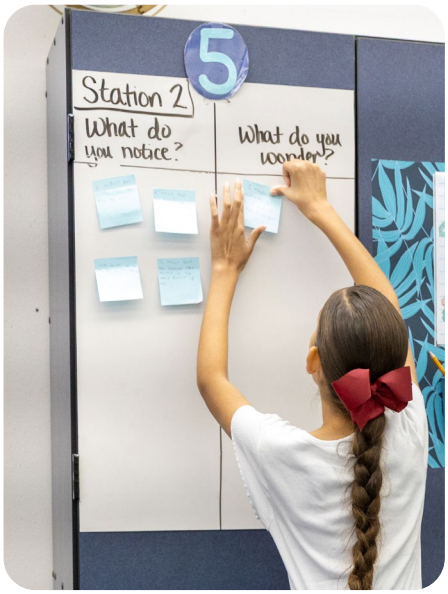


- **Provide a variety of objects and materials that children can observe and investigate to learn about a concept or phenomenon. For example, if children investigate rolling objects, you may provide a variety of round and non-round objects and also objects with wheels. Ask yourself:**
  - Do the materials allow children to make comparisons?
  - Are there interesting textures, smells, shapes, or sounds that will capture children's attention?
  - Are there ways to reduce or expand the number of materials to help children notice specific concepts or phenomena?

- **Include objects and materials that reflect children's cultures and experiences.**
  - Offering materials that reflect children's homes, cultures, and communities creates opportunities to build on their strengths and prior knowledge.
- **Offer open-ended materials that allow children to use them in ways that meet their diverse abilities and needs.**
- **Offer tools that extend children's abilities to observe and investigate. For example,**
  - Measuring tools (balance scales, thermometers, rulers, measuring tape)
  - Observation tools (containers or trays to hold objects, magnifying glasses, digital microscopes, tweezers, pipettes)
  - Consider ways to adapt tools to support children with different abilities to use them (using adaptive handles so children can hold objects or tools).

Facilitate Observation and Investigation

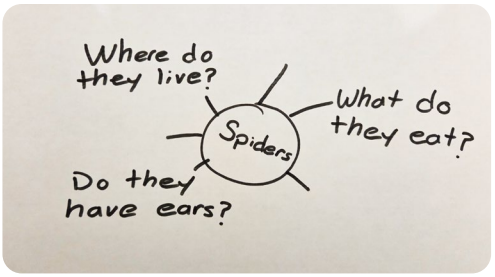
- **Notice and build on different ways children communicate what they observe—using verbal descriptions in different languages, drawing, gesturing, or changing facial expressions.**
- **Use open-ended prompts and questions to invite children to observe, wonder, predict, and investigate. For example:**
  - "What do you notice about …?"
  - "How might we find out?"
  - "Why do you think …?"
  - "I wonder what will happen if …?"



- **Provide language for children.**
  - Model language, in English or the home language, for children to expand their vocabulary and enhance their observations (for example, model how to describe different characteristics).
  - Pair new vocabulary with physical objects or real phenomena.
- **Encourage children to document their observations and investigations in different ways (for example, creating representational drawings or models, taking photographs, or writing descriptions).**

Reflect and Revisit

- **Document and display children's observations and investigations.**
  - Create and display charts that document what children notice using their different senses.
  - Develop wonder webs to capture children's questions about a particular science concept or phenomenon.
  - Revisit documentation to reflect with children and learn more about their thinking.



- **Encourage children to make connections between different investigations, drawing on past experiences to inform new ideas.**