Mini Lesson: Science and Supporting Cognition

Basket 2 Learning to See

Focus

Science and Supporting Cognition

Introduction

Children have an incredible amount to learn in the first few years of life. Children are natural scientists. They learn from observations, predictions, and exploration. Children are constantly building theories about the world. A theory is a guess or possible explanation for something. It's how children learn about everything, from relationships to language to scientific ideas like gravity.

Science is about asking questions and trying to figure out how things work. You don't need microscopes or test tubes to do science. Exploring, making observations, asking questions, developing predictions, and discussing the results are key science skills that will set the foundation for a lifetime of exploration and discovery.

Adults play a fundamental role in guiding children's science learning. Educators may add new information or facts that children may not know and ask more questions that children may explore. By observing what children are doing and then asking questions and working with them as they puzzle through their own understanding of the world, adults can, in a sense, walk them through increasingly complex ways of thinking. The resources provided below provide information on this topic and offer interconnected information.

Instructional Videos

Based on what you know about yourself and your learning preferences, choose two of the videos below to learn about the topic. Notice that these resources build on one another around a common topic.

- Everyday fun with science: Let's talk about STEM
- Practices in action: Making gak
- Practices in action: Salt melts ice
- Blubber experiment

Supporting Materials

Review the articles below to become more familiar with how children develop cognition and ways to support it, in particular when it comes to science learning.

- Angier, N. (2012, May 1). Profiles in science: From the minds of babes. The New York Times https://www.nytimes.com/2012/05/01/science/insights-in-human-knowledge-from-the-minds-of-babes.html.

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Supporting Materials cont.

- U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start. (2014, May). 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.
- U.S. Department of Health and Human Services, Administration for Children and Families, Office of Head Start. (2020). Exploring science with preschoolers. https://eclkc.ohs.acf.hhs.gov/school-readiness/teacher-time-series/exploring-science-preschoolers.
- National Association for the Education of Young Children. (2005). Playdough power. https://www.naeyc.org/our-work/families/playdough-power.

Linked Media

Title

Everyday fun with science: Let's talk about STEM

Source Link

https://vimeo.com/180894660

Embeddable Media

<iframe src="https://player.vimeo.com/video/180894660?h=925a1a3b54" width="640" height="360" frameborder="0" allow="autoplay; fullscreen; picture-in-picture" allowfullscreen></iframe>

Description

This video describes how science skills develop from birth to age 5.

Duration

4:19

Title

Making gak

Source Link

https://cultivatelearning.bynder.com/asset/4699a07b-78a8-4ad8-99d6-f4ac370971bf/Making-Gak_SUBS-mp4.mp4

Embeddable Media

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Description

In this video an educator and group of children are adding water and stirring liquid in a bucket. The educator reminds children of the predictions they made and narrates what is happening. She uses novel words and repeats and extends children's responses.

Duration

0:51

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Linked Media, cont.

Title

Salt melts ice

Source Link

https://cultivatelearning.bynder.com/asset/2d640423-05d0-480b-8ee2-7a6714163fd9/Salt-Melts-Ice_SUBS-mp4.mp4

Embeddable Media

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Description

This video features an educator asking children open-ended questions about what happened when salt was used to melt ice. The educator prepares children for how they will continue the discussion during circle time.

Duration

1:02

Title

Blubber experiment

Source Link

https://cultivatelearning.bynder.com/asset/7710dfb3-447f-4074-b43d-c1dd4b87f0af/Blubber-Experiment-AIAN_SUBS-mp4.mp4

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Description

An educator explains to a child that a bag filled with shortening is like a polar bear's blubber and asks whether she predicts it will feel warm or cold if she first puts her hand into the bag and then into cold water. Another girl watches and comments. The child experiments with one hand in the bag and one hand without the bag and points out which hand feels colder. The educator asks follow-up questions An educator conducts an experiment with two children to learn about blubber on a polar bear. The educator encourages scientific inquiry and uses strategies to foster thinking by encouraging children to predict and compare. The educator provides information and corrective feedback.

Duration

1:16

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