

Tips for Interacting with Young Learners

Young children are natural scientists. Educators can encourage scientific behaviors in children ages 0-5 by recognizing natural scientific tendencies and engaging them in developmentally appropriate ways. Approach activities as opportunities for children to investigate their world. Exposure to a scientific phenomenon, concept, or skill is very valuable for a young child, but you shouldn't expect mastery or be too focused on very specific learning goals. You are providing the stepping-stones to later scientific understanding and skills. Consider the following approaches when working with young children.

Interacting with a real phenomenon

Whenever possible, engage children with science phenomena through real experiences, photos, video, and/or models. Provide physical materials that extend children's ability to make sense of the phenomenon they are exploring.

Connect at their level

Kneel down so that you can make eye contact and interact with children at their level. Tell them your name and ask for theirs. Try to remark on something that might be personally interesting to the child before launching into the topic you want to discuss. For example: *"I see a butterfly on your shirt. I love to watch the butterflies in the museum's garden!"* If a child seems shy, don't force them to talk to you—let the adult caregiver take the lead.

New experiences and skills

Young children are experiencing many things in their world for the first time. Let them exercise and show off newly developing skills (counting or recognizing shapes). And remember, they are just developing their fine motor skills, so they may need more time for detailed tasks such as cutting, taping, or drawing.

Non-verbal communication

Children may not yet have the vocabulary to verbally articulate a concept, so rather than asking them to do so, encourage them to demonstrate their understanding non-verbally by manipulating the materials in front of them or by asking them to complete a task.

Ask questions

Ask open-ended questions and validate children's answers by acknowledging or repeating what they say and then rephrasing it as needed. Ask questions that guide children toward comparing and making sense of observations. For example: *"How did the water move when you tipped the tray?"*

Sportscasting

Avoid non-specific praise, such as "good job!" Instead, try simply narrating ("sportscasting") the child's actions. This shows them that you are noticing and taking interest in their efforts, and allows them to verbally elaborate if they choose to. For example: *"I see that you are pouring that water very carefully."*

Have fun!

A positive, playful experience will encourage learning.

Learn more about working with young children

The My Sky Tonight program from the Astronomical Society of the Pacific provides a collection of hands-on activities and educator resources for engaging pre-K children in astronomy.

www.astrosociety.org/MySkyTonight

The National Association for the Education of Young Children provides guidance and resources for working with young children through Developmentally Appropriate Practice (DAP). A good starting point is their "10 Effective DAP Teaching Strategies."

<https://www.naeyc.org/resources/topics/dap/10-effective-dap-teaching-strategies>

For more comprehensive guidance on engaging young children in science, we recommend the book *Preschool Pathways to Science: Facilitating Scientific Ways of Thinking, Talking, Doing, and Understanding* by Rochel Gelman Ph.D., Kimberly Brenneman Ph.D., Gay Macdonald M.A., and Moises Roman, published by Brookes Publishing and recommended by the National Science Teachers Association.

<https://products.brookespublishing.com/Preschool-Pathways-to-Science-PrePS-P573.aspx>

Developed and distributed by the National Informal STEM Education Network.

These recommendations are based on materials and resource developed for *My Sky Tonight* from the Astronomical Society of the Pacific. For more activities and resources for engaging young children in the science of astronomy, visit www.astrosociety.org/MySkyTonight

My Sky Tonight is based upon work supported by the Division of Research On Learning (DRL) of the National Science Foundation under Grant no. AISL #1217441. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation

Copyright 2020, Sciencenter. Published under a Creative Commons Attribution-Noncommercial-ShareAlike license: <http://creativecommons.org/licenses/by-nc-sa/3.0/us/>
This material is based on work supported by NASA under cooperative agreement award number NNX16AC67A. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).