

# Early Childhood Resources Review

Evaluating science resources for preK and primary classrooms

## Starting With Science

By Marcia Talhelm Edson. Stenhouse Publishers. 2013. ISBN: 9781571108074



This book portrays children as able: curious, asking questions, describing their observations, intensely engaged in working through problems, and reporting their findings. This view is consistent with statements in *A Framework for K–12 Science Education* (NRC 2012) that describe children as having the capacity to reason in sophisticated ways. Marcia Talhelm Edson writes with the helpful voice of the teacher down the hall whose successful teaching you have admired—the one you seek out to explain the research behind her techniques and get tips on how to implement them.

Right from the beginning, in Chapter 1: Understanding Inquiry-Based Science, the author uses research and examples from classrooms to show readers how to plan and implement an effective science inquiry. But readers might want to begin with Chapter 6: Teachers Talk About Inquiry-Based Science Teaching to read teachers' responses to six key questions about teaching science and science inquiry. This chapter highlights how appropriate the practice of science inquiry is for early childhood settings.

The book is a step-by-step guide to understanding how science inquiry builds young children's capacity for reasoning and to implementing the practices of science while considering their social-emotional and cognitive skills. The author demonstrates the planning and implementation with a detailed description of an in-

vestigation that engages students in researching and discussing the question, "What animal would make a good classroom pet?"

The focus on planning, based on important science concepts and developmentally appropriate practices, supports both preservice teachers and veteran teachers. In Chapter 5, the list "Summing Up the Steps of Inquiry Unit Design," directs teachers to choose topics that are relevant and meaningful to children and introduce developmentally appropriate scientific concepts, with consideration of national and local learning standards. Guidance is provided for implementing a host of strategies for engaging children in inquiry and assessing their learning. Noting that science teaching can also be a context for developing literacy skills, Edson includes information on using KLEW<sup>1</sup> charts, research group discussions, science notebooks for drawing and writing, tips for reading nonfiction aloud, expert interviews, and culminating activities for students to communicate their new science understandings.

The text also describes how teachers can model the dispositions and practices of science, organize a classroom for inquiry, and build assessment into the process to identify where students are struggling. An entire chapter discusses the importance of assessment for finding out what the children know about the selected concepts, how competent they are at using the science practices, and what attitudes the children have developed that support science investigation. Edson tells us how to integrate forma-

<sup>1</sup>KLEW: What do we think we know, what did we learn, what is our evidence, and what are we wondering?

tive assessment throughout an investigation; she describes specific techniques to guide instruction, gather evidence of thinking and understanding, and use a culminating activity to demonstrate proficiency in science.

The author recognizes ongoing investigation over a length of time, as a strength of science inquiry. She urges teachers to begin their planning with a broad question and, relating it to the standards, narrow it to a question that children find engaging and can investigate through hands-on experience. Edson notes that the final draft of the plan can change as children's discussions and research directs the investigation. Often, early childhood teachers see examples of activities, games, crafts, and songs that relate to a theme, such as "pets," that are fun but don't illuminate or engage students at a conceptual level. Rather than using every activity that children might like, the book emphasizes using the science concepts as the filter to keep planning focused on teaching the important ideas in science.

The *Next Generation Science Standards* (NGSS) were in draft form when this text was written, but Edson urges readers to connect their program and state standards to the new national standards (NGSS Lead States 2013). While the activities described in the book are carried out safely, safety guidelines are not discussed and readers will need to add their own.

This book is a thorough guide to teaching science through inquiry in early childhood settings and will be a valuable tool for every preK to grade 2 teacher. ■

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### References

National Research Council (NRC).

2012. *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Washington, DC: National Academies Press.

NGSS Lead States. 2013. *Next Generation Science Standards: For states, by states*. Washington, DC: National Academies Press. [www.nextgenscience.org/next-generation-science-standards](http://www.nextgenscience.org/next-generation-science-standards).

Science learning in the early years has gained renewed importance in recent years, with research pointing to young children's capacity to develop conceptual abilities. A natural outgrowth is attention to science as a topic of study in preK, Head Start, and childcare programs. Practitioners, often with little background in science, are wondering what young children can learn about science and how best to teach them. To help answer these questions, *Science & Children* publishes this column that reviews some of the best resources about teaching science to young children. Reviewers select resources that present relevant and appropriate science content and describe inquiry-based approaches to engaging young children in the practices of science and engineering, as described in the *Next Generation Science Standards*. We hope you find this column supports your work with children and/or teachers.

Please share your comments or suggestions with column editor Ingrid Chalufour at [ingridchalufour@gmail.com](mailto:ingridchalufour@gmail.com).

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