How to Promote Language Development during Science Experiences

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Quick Overview

Curiosity is natural for young children. Through questions and observations, adults can promote children's science concept development and language development. Science is a great context through which children can be curious about the world around them. This article puts into practice the evidence-based strategies written about by Drs. Hope K. Gerde and Barbara A. Wasik in their article, *Developing Language Through Science*. Using these approaches you can support language development while also teaching the content of science!

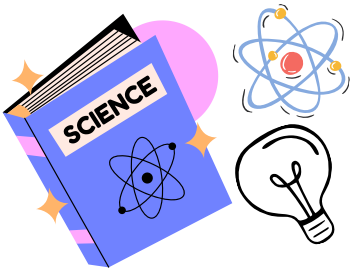
Key-Points

1. Modeling
2. Talking through observations
3. Focus on Inquiry not Answers
4. Provide Feedback
5. Promote New Vocabulary

Modeling

One way teachers model language is by using the thinking out loud method. The teacher verbalizes their observations, questions, and ideas (Gerde & Wasik, 2021). The teacher makes their thinking public to help children understand the concepts as well as hear the words they are thinking.

Take a look at this:
Ms. Williams teaches kindergarten and is planning an observation about the properties of rocks. When introducing the investigation, Ms. Williams presents the rock and verbally describes it herself by saying aloud, "This rock is heavy and I see the colors orange and brown. It feels soft like chalk and I can create marks on it if I scratch it. I wonder what kind of rock is this?" She is modeling what the students will do once they have their own rocks to observe.



Observations

A child's curiosity about the world around them will help spark interest in questions and it is important for families or educators to ask follow up questions to invite the children to express more about their ideas and findings. Observations and having the child explain what they see can help support language acquisition (Gerde & Wasik, 2021).

For example, Ms. Williams poses the question as the students are investing the rocks by saying, "What do you see? Can you describe what you are noticing about the rock? How does your rock feel, smell, or sound like?

Inquiries

Focusing on inquiries, or questions, instead of making sure children have correct answers is crucial for language development and developing approaches to learning new information. Asking open-ended questions and having more inquiry-based experiments will help activate deeper thinking (Schwarz et al., 2017).

Think about it this way:
As the students are looking, touching, smelling, and formulating ideas about the rock, Ms. Williams supports oral language development by asking, "What do you want to learn about your rock?" "What are some similar parts of your rock compared to your partner's rock?" or "How do you think we could classify these rocks? Why?"

Vocabulary

Science instruction has many big, advanced vocabulary that could be difficult for all children. Educators should teach this vocabulary in a way that students will understand, such as connecting new words to familiar words, showing examples, and describing phenomena. In addition to having inquiry-based projects, it will be easier for the children to define the vocabulary once the child has visually seen what happens through the experiment.

For example, when introducing new terms for texture, Ms. Williams provides materials of various texture for children to touch and manipulate; she defines each texture. Though this experience, student will retain that terms much easier than if provided just a definition.

Example questions to promote: Observation
What do you see? How does this make you feel?
Describe what you are noticing
Tell me what you know about _____.
What are some similarities/differences?
Can you predict what will happen during the experiment?
Example questions to promote: Investigation
Can you explain the idea?
What would happen if you tested your theory this way?
Are you able to see any patterns presented in the content?
How is _____ related to _____?
How could you change _____ to make it more efficient?
Example questions to promote: Explanation
What conclusions can you draw?
Can you explain why that happened?
How would you see this in everyday life?
What could your plan be for _____?
Would there be any alternatives for this experiment?

For more ideas on questions, refer to Table 1 in the article on page 5.

Feedback

Providing feedback on children's work scaffolds children's ideas about the concept while supporting children's language development. Children gain confidence in their opinions and are more likely to express what they are thinking. In addition, teachers can guide through any misconceptions.

Last but not least:
Once the child has answered a question or presented an idea, Ms. Williams responds with, "Tell me more about it" or "Explain what you mean by..." This will help set up the child to fully explore their idea and expand their language.

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