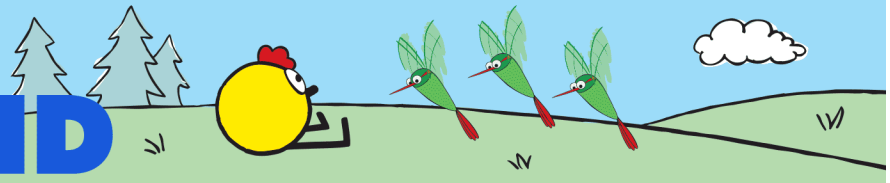




Explore SOUND



Teaching Strategies Science Talk

What Is Science Talk?

- **Language is crucial to learning and communication** in all subjects. Science is no exception. As children investigate and explore sound, they need to talk about their work just the way scientists would—this is "science talk."
- **Science talk happens when** children ask questions, make comparisons and predictions, share and discuss results, and learn new words to describe what they are seeing and doing.

Examples:

When you splash water, it makes a sound.

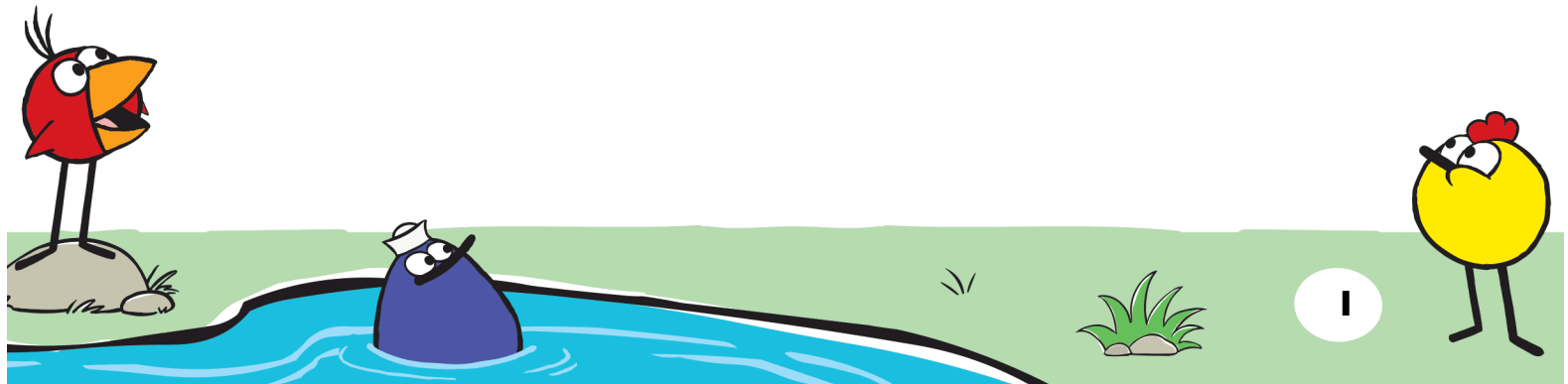
I think that whistle is going to sound high like a bird.

First I made a quiet whisper, then I made a louder one.

- **One misconception** educators sometimes have is that science talk needs to sound "scientific." As you can see from the examples above, that's not always the case—but they clearly show a child's active and curious mind predicting, observing, and making distinctions.
- **Science talk can happen any time and any place**—not just during science explorations. It happens during snack time as children compare amounts of water in their cups or the colors of their apples. It happens outside on the playground as children inspect an anthill or crunch leaves.

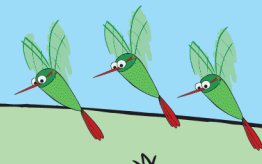
Why is science talk important?

- **Language is a tool for thinking and learning as well as communicating.** When children use science talk, it helps them develop understanding, share ideas, build vocabulary, and increase their listening and comprehension skills.
- **Science talk helps children to go deeper in their science explorations** by encouraging them to think through an idea, ask a new question, or try something new. Science talk is not just a way of communicating—it is part of how we think and learn about the world.





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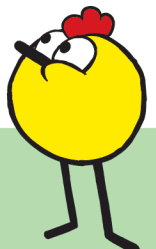
Teaching Strategy: Modeling Science Talk

Why is modeling science talk an effective teaching strategy?

- By modeling how to pose questions, keep a discussion going, or how to narrate your actions and thoughts, you help develop children's abilities to listen, reflect, and communicate.
- You also help them build vocabulary and discover the power and importance of words.

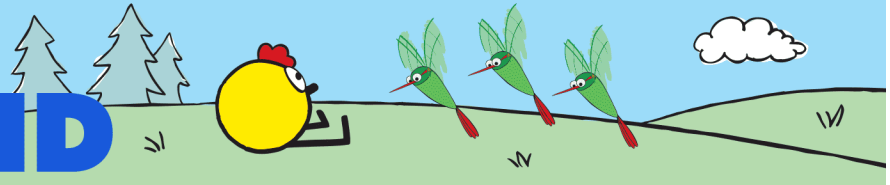
Here are some ways to model science talk while exploring sound.

- **Mention sounds you notice throughout the day.** Compare and contrast sounds and talk about how they remind you of things at home and elsewhere.
Example: *Wow! You just made a neat clicking sound. It reminds me of the sound my door makes when I lock it. What other things make a clicking sound? Can you see anything in the room that you think will make a clicking sound? Let's test it out and find out if it clicks.*
- **Let children know what you're wondering about.**
Example: *You might hold up a tube and say, I wonder what my voice will sound like if I talk through this tube? What do you think it will sound like?*
- **Incorporate new words as children do hands-on activities.**
Example: *You might introduce the word vibration as you sing a song. You can say, What do you feel when you put your hands on your throat and sing? Can you feel a vibration? It's like a little tickle. Can you think of other things that vibrate?*
- **Narrate your actions so children learn to describe aloud what they are doing.** Use action words (such as *observe, compare, change, and discover*) and descriptive words (such as *louder, softer, same, and different*). Introduce action verbs like *scratch, rub, and knock*, and process words like *listen and notice*.
Example: *You might say, I wonder what will happen if I scratch the drum? What do you think it will sound like? What do you think it will sound like if I pat the drum? When you investigate more closely, children will be encouraged to do the same.*
- **Use rich, descriptive language.**
Example: *That sound is loud and rumbling like the motorcycle we heard yesterday.*





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Your Experiences

- What are some of your own stories about modeling science talk? What's been successful? What's been a struggle?
- What are some ways you've encouraged children to enrich their language and incorporate science vocabulary?
- What did you learn from the video that you might try in your own teaching?

Teaching Strategy: Asking Open-Ended Questions

How does asking open-ended questions encourage science talk?

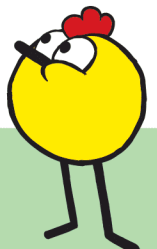
- An open-ended question is one that usually can't be answered with just one or two words, or with a simple *yes* or *no*. They are phrased in a way that encourages children to explain and expand upon their thoughts.
- As children answer open-ended questions, they build expressive language skills, reflect on what they're observing, and go deeper into their explorations.

Composing open-ended questions takes a little practice.

- Most people discover that it's an acquired skill.
- It's a good idea to come prepared with a list of such questions when leading a science activity, until it becomes a natural part of your teaching.

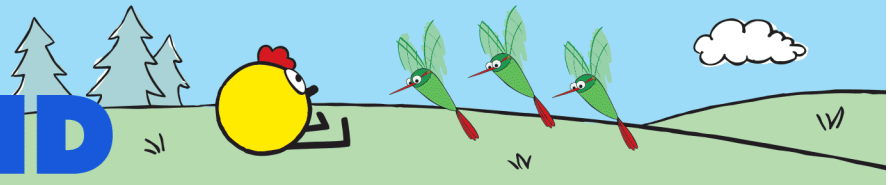
Some examples:

- **How questions:** *How did you make that sound? How would you describe that sound? How is that sound different from that other sound? How is it similar?*
- **What questions:** *What are some other ways you can make different sounds? What happens if you tap or scratch the tube? What does that sound like to you? What do you think would happen if . . .*
- **Do you think . . . questions:** The use of "do you think" when relevant, encourages children's thinking—instead of focusing on getting the right answer. *What do you think we'll hear when this cotton ball drops? Do you think we'll still be able to hear the birds sing if we shut the window? Do you think we'll hear a difference if we bang the floor with the plastic spoon and the metal spoon? What do you think that difference will be?*





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Open-ended questions aren't always the answer.

- Keep in mind that they aren't always the best choice in all situations and for all children. Some children may need more structure and guidance.

Example: Instead of asking, *Can you describe the sound you made?*, you might get more from some children by asking an either/or question: *Would you describe that sound as low or high? Did that sound soft or loud?* That way, they begin to learn to make distinctions and comparisons.

Your Experiences

- Do you intentionally use open-ended questions with children? What's your experience been?
- What differences have you noticed in the way children answer when you ask open-ended questions?
- Since formulating open-ended questions takes a bit of practice, try turning a few yes/no or either/or questions into open-ended ones:
 - Do you think this whistle will make a high sound?*
 - Did his voice sound louder when he talked into the tube?*
 - Do you hear the guitar in this song?*

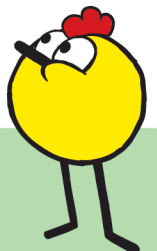
Teaching Strategy: Encouraging Science Talk Among Children

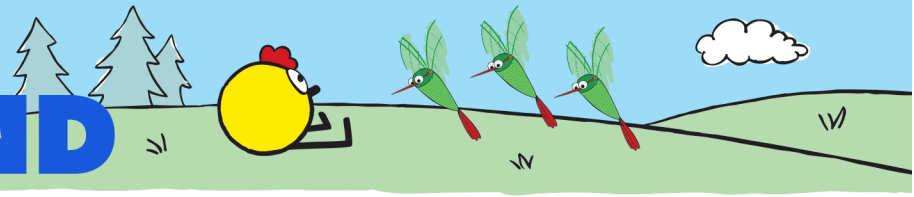
How does encouraging science talk among children benefit your teaching?

When you select an activity that excites them, or have a discussion that piques their interest, you encourage children to participate more actively and to spontaneously talk about what they are doing and thinking.

Here are some ways to engage them:

- **Find out what excites children.** Take the time to observe them. Notice their interests and incorporate these interests into your activities.
Example: Begin your sound explorations by taking a survey of children's favorite instruments. On another day, you might probe a little deeper, asking them to tell you about a song that includes their favorite instrument or to describe how their favorite instrument is played.

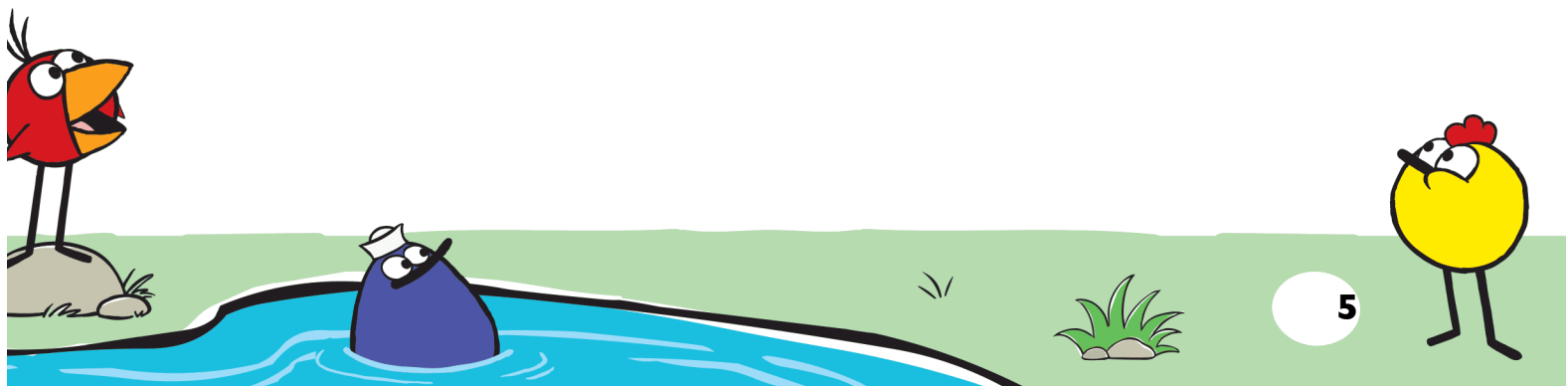




- **Personalize the learning by incorporating children's experiences** into the things you are doing.
Example: You might have children bring in a favorite song from home. You can listen to the songs together, comparing and contrasting the different sounds.
- **Promote science talk among children.** By encouraging children to discuss things together, you give them the chance to teach and guide one another. Through their collaborations, children often take the learning in new directions you might never have anticipated. You can even ask children to discuss and plan during their lunch and give them afternoon time to put their plans into action.
Example: You can pair children up and present them with a problem that they have to solve together, such as, *Can you two make an instrument using these containers, buttons, and paper clips?*
- **Introduce mystery.** Children always have a lot to talk about when there is a mystery involved. Mysteries engage children in science talk because they inspire children to wonder, make predictions, and become detectives.
Example: Almost any activity can be turned into a mystery. During circle time you might play a game where children try to identify their peers by the sound of their voices through a tube.

Your Experiences

- Are there certain activities that seem to stimulate children's conversation? How do you get children curious, excited, and asking questions?
- What are ways you relate science explorations to children's own lives? How has personalizing the learning been effective?
- How do you encourage children to talk to each other about their science explorations? Have any challenges come up, and how have you handled them?
- Presenting children with a mystery is a great way to get them talking and wondering. What other approaches have worked for you?





Additional Resources

For more information on science talk

There are additional Teaching Strategy PDFs on the PEEP Web site along with instructional videos. These illustrate science talk related to the other PEEP science units: Plants, Water, Shadows, Ramps, and Color.

For more videos and information on other topics

In addition, the Web site offers Teaching Strategies and videos on other professional development topics: Learning Environments, Individualized Instruction, and Documentation and Reflection.