



Explore PLANTS



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 plants, 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:

I think it's going to grow really big if we give it water!

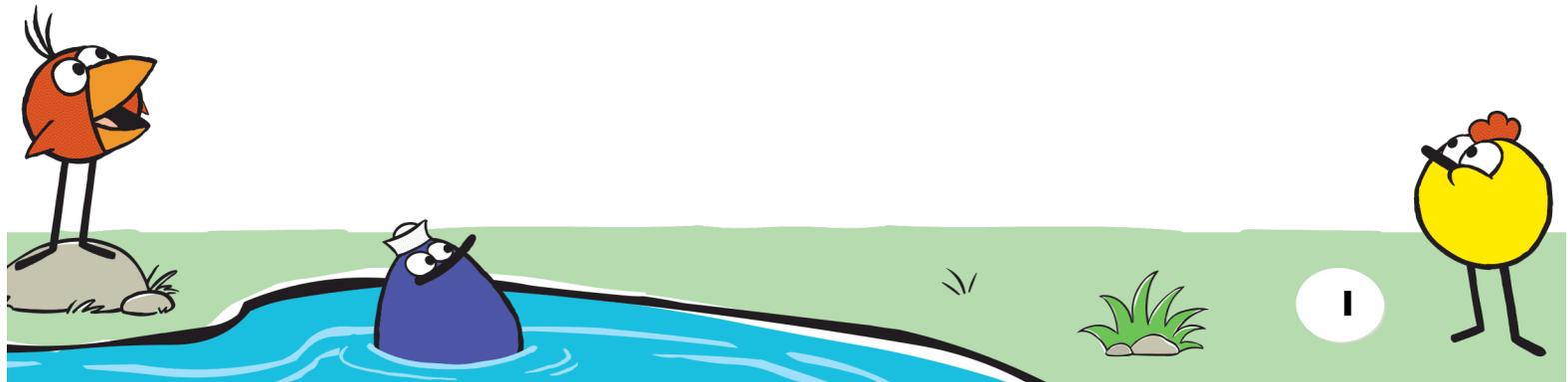
This plant has green leaves but this one has orange leaves.

Some fruits have lots of tiny seeds and others have one big 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.





Explore PLANTS



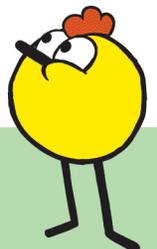
Teaching Strategy: Modeling Science Talk

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 plants.

- **Compare and contrast plants you notice throughout the day.**
Example: *Look, at that bouquet of flowers! The petals on the roses look different today! More of the roses have opened up and some petals have even fallen off the rose and onto the table. Look at the edges of some of the petals—some look like they are wilting or drooping. I'm curious about what the roses will look like when we check them tomorrow.*
- **Let children know what you're wondering about.**
Example: *You might hold up a seed as you say, I wonder which seed pack this belongs in? How do you think I can figure that out?*
- **Incorporate new words as children do hands-on activities.**
Example: *You might introduce the word sprout as you observe your seeds growing. Look, this seed has sprouted! What do you think the sprouts look like? Do they remind you of anything you have seen before?*
- **Narrate your actions so children learn to describe aloud what they are doing.** Use action words such as *observe, compare, change, discover, and measure.* Use descriptive words such as *longer, taller, soft, rough.*
Example: *You might say, I wonder what will happen if I put this plant clipping in the sun and this one in the dark closet. When you investigate more closely, children will be encouraged to do the same.*
- **Use rich, descriptive language.**
Example: *Look! This piece of bark is rough and bumpy and the grooves make a swirling pattern.*





Explore PLANTS



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?

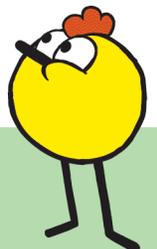
- An open-ended question is one that usually can't be answered with just one or two words, or with a simple yes or no. They are phrased in a way that encourages children to explain and expand upon their thoughts.
- As children answer open-ended questions, they build expressive language skills, reflect 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 do you think we can help this seed to grow? How is this leaf different from that leaf? How is it the same?*
- **What questions:** *What do you notice about this tree? What's different about it from that one over there? What would happen if we did not water this seed? What do you think is inside this fruit?*
- **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 the inside of this fruit will look like? How long do you think it took these tall trees to grow? Why do you think that?*





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 plant?*, you might get more from some children by asking an either/or question: *Do you think we'll see the first sprouts growing on the paper towels or in the cups? Why do you think so?* 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, let's try turning a few *yes/no* or *either/or* questions into open-ended ones:

Do you think this plant will grow if we water it and give it light?
Will the seeds in this fruit be large or small?
Is this leaf rough or smooth?

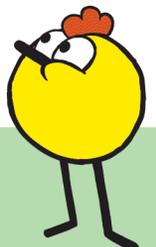
Teaching Strategy: Encouraging Science Talk Among Children

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 plant explorations by going on a nature walk together. When you get back to your classroom ask children to describe or draw one plant that they noticed and liked.



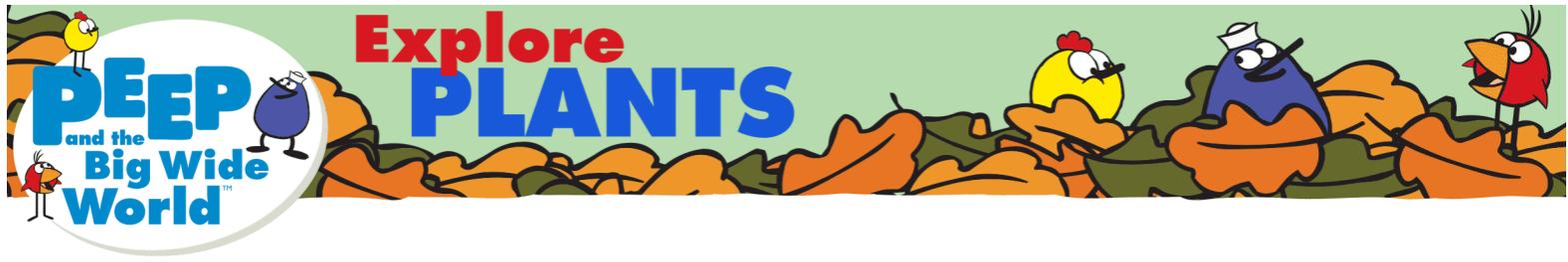


- **Personalize the learning by incorporating children's experiences** into the things you are doing.
Example: You might have children bring in leaves that they find in their yard or a favorite park. They might also bring in a clipping from a plant that they have at home and see if they can make it grow in the classroom.
- **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, *Which of these branches do you think come from the same tree?*
- **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: Create a Mystery Bag with leaves, grasses, seeds, and twigs in it. Say, *To play the game, reach into the bag, pick one item, and describe what you are feeling. Then try to guess what it is. After you've guessed, pull it out and see if you guessed right!*

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?





More 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: Colors, Water, Shadows, Ramps, and Sound.

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.