

Explore RAMPS



Teaching Strategies Science Talk

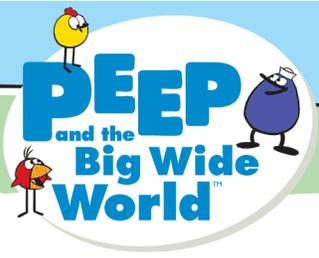
What is Science Talk?

- **Language is crucial to learning and communication** in all subjects. Science is no exception. As children investigate and explore ramps, 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 this ball is going to roll really fast down this ramp.*
 - This cup rolled down the ramp, but this block slid.*
 - Some things don't roll or slide. Some things stay put, like this eraser.*
- **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 on a walk outside 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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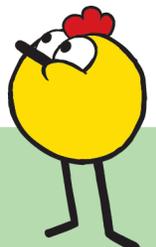
Teaching Strategy: Modeling Science Talk

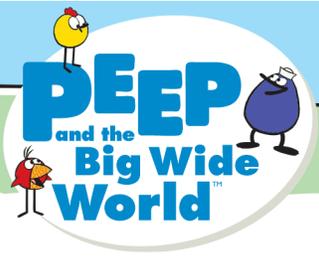
Why is modeling science talk an effective teaching strategy?

- 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 ramps.

- **Compare and contrast the way different objects move down a ramp.**
Example: *Look, that ball rolled down really quickly, but that book didn't roll at all—it slid. I wonder why? Let me feel the book. It's smooth and flat. The ball is smooth and round.*
- **Let children know what you're wondering about.**
Example: *You might hold up two different sized balls and say, I wonder which one of these will go down the ramp faster. How do you think we can figure that out?*
- **Incorporate new words as children do hands-on activities.**
Example: *You might introduce the word texture as you move objects down a ramp. I wonder which ramp this block will slide down more easily? This ramp has a smooth texture and this one has a bumpy texture.*
- **Narrate your actions so children learn to describe aloud what they are doing.** Use action words such as *observe, compare, change, discover, and notice.* Use descriptive words such as *flat, steep, smooth, rough, bumpy, fast, slow.*
Example: *You might say, Let's compare what happens when we roll these two balls down the ramp. I wonder whether one will go faster than the other? I notice that one of these balls is much heavier than the other. I wonder if that will make a difference in how fast it goes. Let's test it out. When you investigate more closely, children will be encouraged to do the same.*





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- **Use rich, descriptive language.**
Example: *Look! This cup is sliding down the ramp. It's moving quickly and making a swishing sound.*

Your Experiences

- Can you share 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?

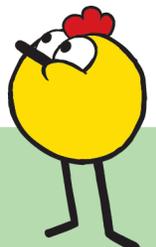
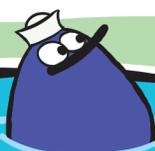
- An open-ended question is one that usually can't be answered with just one or two words, or with a simple *yes* or *no*. They are phrased in a way that encourages children to explain and expand upon their thoughts.
- As children answer open-ended questions, they build expressive language skills, reflect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

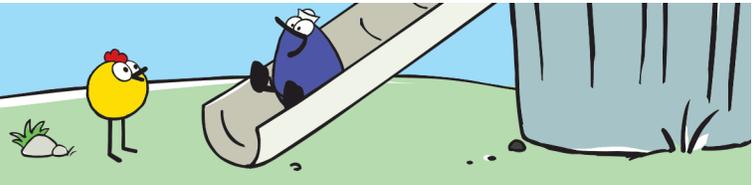
Some examples:

- **How questions:** *How do you think we can turn this piece of cardboard into a ramp? How is this object different from that object? How do you think we can make this ramp steeper?*
- **What questions:** *What do you notice about this ramp? What's different about it from that one over there? What do you think would happen if we put this block on the ramp?*





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- **Do you think . . . questions:** The use of “Do you think...,” when relevant, encourages children’s thinking—instead of focusing on getting the right answer. *How high do you think our ramp should be? Which parts of our body do you think we could use as a ramp? 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 this ramp?*, you might get more from some children by asking an either/or question: *Do you think this ramp is steep or flat? 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 toy will roll or slide down the ramp?
When that ball hit the obstacle, did it stop moving?
Is this ball of clay sticky or smooth?*

Teaching Strategy:

Encouraging Science Talk Among Children (15 min.)

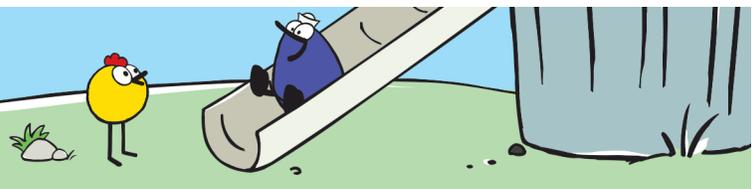
How does encouraging science talk among children benefit your teaching?

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.





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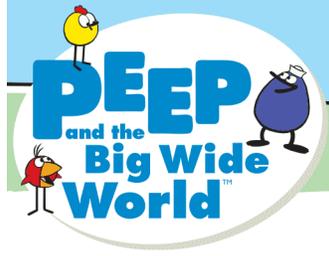
Here are some ways to engage them:

- **Find out what excites children.** Take the time to observe them. Notice their interests and incorporate these interests into your activities.
Example: Have children make games and rides out of ramps—roller coasters for marbles, ramp races, or bowling games.
- **Personalize the learning by incorporating children's experiences** into the things you are doing.
Example: You might ask children to see if they can discover any ramps in their homes and tell you about them the next day.
- **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.
Example: You can pair children up and present them with a problem that they have to solve together, such as, *What's one thing you can change about this ramp so that it will work even better?*
- **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 to "find out."
Example: Say, *Did you know there are ramps hiding outside? They are in the grass, trees, and dirt and also on the playground. Let's go on a hunt and see if we can find them.*

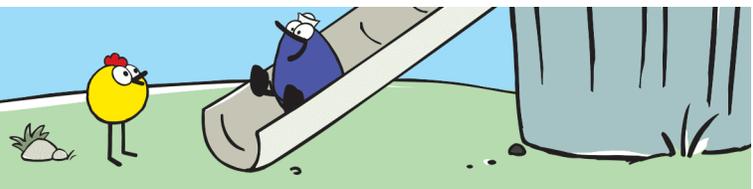
Your Experiences

- 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?





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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, Plants, 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.

