Engaging Interactions: Using the Scientific Method

Narrator: Welcome to this short module on using the scientific method. The purpose of this module is to identify and describe the steps of the scientific method and to help you think about how you can incorporate these steps into your interactions with children.

Using the scientific method fits into the foundation of our house framework. These foundational practices represent one component of quality teaching and learning. All the components are essential for quality teaching and learning and school readiness for all children. The foundation highlights the engaging environments and interactions that are so important for children's social and academic development.

The scientific method is a series of steps that help children expand and extend their knowledge of the world around them. Of course, scientists use the scientific method. So do teachers, and so do children. What are the steps? Question, observe, predict, experiment, and discuss. Those are the steps, but they don't need to occur in that order. Let's see how it works.

Teachers encourage children to form questions about the world around them. Children are curious. They want to figure things out. Teachers plan enticing activities and also take advantage of natural phenomena. Teachers give children time to express their questions. And teachers notice children's interests and model asking a few questions of their own. Observing is how children gather information to answer their questions, to learn more about something, or to figure out how to solve a problem. Teachers encourage children to notice details, to compare, and to use all their senses.

[Video begins] Teacher ... Magnifying glass.

Boy: When I look in it, it kind of looks like a different color.

Teacher: Oh, good observation. So Zeke's going to shake it and see what he sees.

Zeke: It's blue now! [Video ends]

Narrator: To predict is to describe what you expect will happen.

Predicting is a little bit like guessing, but it involves more sophisticated thinking because predictions are based on knowledge and observations. To predict, children try to think about what happened in similar previous situations and then imagine what might happen in the current situation. Teachers encourage prediction by asking questions, giving children time to think and answer, and participating along with the children in the problem or experiment.

[Video begins] Teacher: If a polar bear is in ice water and if your hand's in here covered with the blubber, what do you predict will happen? What do you think will happen? Do you think your hand'll be cold, or will it be warm?

Girl: Warm.

Teacher: Warm? Let's try it. [Video ends]

Narrator: After the child makes a prediction, the teacher provides opportunities to test it out. If necessary, the teacher also encourages the child by saying, "Let's see," or, "Let's try it." The teacher can guide children to observe the results. Was their prediction accurate? What's the evidence? Should we think about this some more?

[Video begins] Teacher: You were saying you thought if we mixed red and orange together it would make purple. So let's find out what happens if we mix red and orange together. [Video ends]

Narrator: And so, children and teachers discuss and talk about the results. Children and teachers share their questions, observations, predictions, and conclusions with others. Children can communicate their ideas by talking and also by drawing or demonstrating what they observed.

[Video begins] Teacher: What!? Wow! Tell me about how you made that color.

Boy: And this and this and this and this and this.

Teacher: So you mixed all of the colors, and what did it make?

Girl: I want to paint! I want to paint!

Teacher: Sure.

Boy: Black.

Teacher: Blackish brown, right? Wow! You are being a scientist and making different colors with your paints today. [Video ends]

Narrator: The scientific method can be used across the areas or domains of learning in all kinds of places. It might seem like the scientific method requires fancy experiments, but there are all sorts of opportunities that teachers plan for and take advantage of. So let's look at a few.

[Video begins] Teacher 1: Or you can put them in water and cook them.

[Kids exclaiming] Teacher 2: What is inside of there?

Kids: Seeds.

Teacher 2: Seeds.

Teacher 3: What do you think is making them so happy?

Girl 1: Talking.

Boy: The water!

Teacher 3: They're talking. They may be talking and having fun.

Girl 2: Like brrrrr! [Laughter]

Teacher: And the water... How do you think they sound?

Girl 2: Brrrrr!

Teacher 3: Brrrruh?

Teacher 4: Everybody show me how you hibernate! Pretend you're a bear and hibernate. Yeah.

Girl 3: Grrrr!

Teacher 4: Yeah. Hibernate. [Video ends]

Narrator: This module highlighted the scientific method and gave a few examples of how teachers might use this method in their classrooms to expand their children's thinking and understanding. Using the scientific method takes some practice and planning, but it's exciting to watch and listen to the children as they use these skills.

Check out our tips, tools, and resources. Thank you for listening, and have fun with the scientific method.