



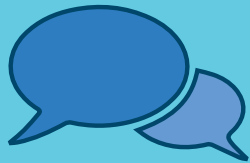
**Ask
Questions**



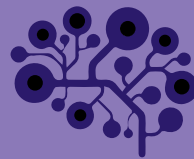
**Encourage
Scientific
Thinking**

Leap
into
science

core
four



**Cultivate
Rich
Dialogue**



**Make
Connections**

Leap into Science

Core Four

Strategies for Building Science and Literacy Skills



1. Ask Questions

Ask questions when reading stories and exploring science concepts to deepen children’s thinking and engagement.

- Why:**
- Questions bring out people’s natural curiosity, motivating them to explore and learn.
 - Questions allow children to express their ideas through language.

- How:**
- Ask *open-ended* questions—questions with multiple possible responses—to help children explain their thinking. Examples: *What do you notice? Why do you think that?*
 - Ask *closed-ended* questions—questions with one or a few possible responses—to guide children toward a particular area of focus. Examples: *Where do you think the balancing point is? Where did the ball go when it fell?* Often follow up with an open-ended question: *Why do you think that? How can you tell?*



2. Encourage Scientific Thinking

Encourage children and their caregivers to think scientifically by observing, asking questions, making predictions, testing their ideas, and learning from repeated attempts.

- Why:**
- These practices strengthen critical thinking skills that are essential in both science and literacy learning.
 - Focusing on the *process* of science rather than a specific *product* or outcome frees children and their caregivers to explore and take risks.

- How:**
- When reading a storybook, invite children to make observations about the book’s cover, predict what they think will happen next, ask questions about the illustrations, and draw conclusions about the story.
 - During science explorations, point out occasions when people notice things, guess what will happen, test a new idea, or learn from something that didn’t work.
 - Model scientific thinking yourself. If you don’t know the answer to a participant’s question, respond with: *I don’t know! Let’s find out together!*



3. Cultivate Rich Dialogue

Provide opportunities for children and their caregivers to learn new vocabulary words, use them in different contexts, and have meaningful conversations while learning together.

- Why:**
- Literacy skills develop when children use language in relevant contexts, such as everyday science concepts. Similarly, science learning requires language through describing, questioning, and communicating ideas.
 - Rich dialogue during learning allows people to explore new concepts together, and strengthen their ability to express their ideas.

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- How:**
- Define and use key vocabulary during the explorations.
 - Encourage children and families to connect their ideas and discoveries back to words and concepts from the book(s).
 - Encourage children and their caregivers to explain their ideas to each other during their explorations.



4. Make Connections

Connect learning experiences to people's everyday lives and interests to make the learning more meaningful and memorable.

- Why:**
- People understand new information better, and are more motivated to learn, when the topic is connected to their own experiences.
 - Highlighting how children behave like scientists during their explorations can help them see themselves as scientists, and potentially increase their future interest in science careers.

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- How:**
- Draw connections between children's everyday experiences and the books, activities, and science concepts by asking children about their interests relating to the topic; for example: *What do you like to do outdoors? What is it like to do that on a windy day?*
 - Encourage children and their caregivers to reflect on the ways they were scientists during the workshop. Ask questions like *How did you feel like a scientist today?* or use a book, such as *What is a Scientist?* by Barbara Lehn, to guide the discussion.
 - Introduce children and their caregivers to science role models who reflect their race, ethnicity, gender, and/or cultural background, either in person or through books, photos, articles, or credible websites.