



## Inquiry Learning Using Open-Ended Questions

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This 7-minute training video and these instructional materials will support your use of the lesson plans on the Lesson Center.

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# How can the video and materials be used?



These instructions are designed to supplement the video on open-ended questions.



Each page presents information about what the video content addresses, and the video shows an in-class demonstration of that content.

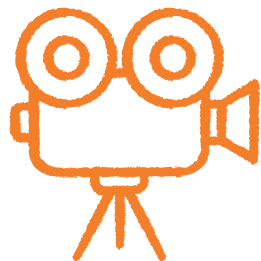


Throughout the presentation, there are three *Pause and Reflect* opportunities for the viewers to think about and reflect on what the video shows.



*Pause and Reflect* questions are accompanied by *Key Takeaways* that highlight significant ideas.

# The Training Video and Supplemental Materials



The **7-minute video** demonstrates inquiry-based learning and can be used by individual teachers or as a group training tool. It includes:

- Asking open-ended questions
- Scaffolding children's responses

The supplemental materials include:

- *Pause and Reflect* questions
- *Key Takeaways* to think about and learn from
- *Open-Ended Question Stems* include examples of open-ended questions

# Inquiry Learning: Using Open-Ended Questions



## INTRODUCTION

### Asking children open-ended questions allows them to...

engage in conversations  
about that information

use varied language  
and vocabulary in  
response to questions

reflect on new information

have the opportunity to think  
about possible answers

answer questions with more  
than a one-word response

# Step-by-Step Directions



1:11



Play the video from the beginning to timestamp **1:11**

Pause the video at timestamp **1:11**

Review the *Pause and Reflect* question below

After consideration, click to continue and see the *Key Point*



## Pause and Reflect

- Notice how the children responded with more than a “yes” or “no” answer.
- What are the benefits of encouraging the children to respond with more than a “yes” or “no” answer?



## Key Point

When children have the opportunity to provide more than a one- or two-word answer, it allows them to think more deeply and critically about their response and to use extended language and vocabulary to express their ideas.

# Step-by-Step Directions



**2:26**



Play the video from timestamp **1:11** to timestamp **2:26**

Pause the video at timestamp **2:26**

Review the *Pause and Reflect* question below

After consideration, click to continue and see the *Key Point*



## Pause and Reflect

- In the video, the children are exploring the concept of “sink and float” while playing in the water.
- Reflect on how, during play, asking open-ended questions supports children’s inquiry learning.



## Key Point

Hands-on experiences that promote inquiry learning provide opportunities for children to construct knowledge about topics. Teachers can encourage children to explore, question, and try out new discoveries by asking thought-provoking, open-ended questions, such as “What might happen if you try this?” or “How do you know...?” Even deeper and more critical thinking can be scaffolded by inviting children to “show you” what they mean and “tell you more” about what they are doing.



# Step-by-Step Directions



**3:05**



Play the video from timestamp  
**2:26** to timestamp **3:05**

Pause the video  
at timestamp **3:05**

Pause the video, and review  
the question stems below

Consider the question stems,  
and offer additional suggestions

## Examples of open-ended question stems to promote deeper thinking and dialogue:

▪ What are you working on?	▪ Explain...
▪ Can you tell me how you made that?	▪ Why do you think...?
▪ How do you know...?	▪ How could we find out...?
▪ What might happen if...?	▪ What is the same about...?
▪ Describe how...	▪ What is different about...?

## Step-by-Step Directions



**5:27**



Play the video from timestamp **3:05** to timestamp **5:27**

Pause the video at timestamp **5:27**

Review the *Pause and Reflect* question below

After consideration, click to continue and see the *Key Point*



### Pause and Reflect

How did the teacher's use of open-ended questions challenge the children and encourage them to think like scientists?



## Key Point

Open-ended questions challenge children to think like scientists as they observe, describe, make predictions, provide explanations, use their senses, communicate, and share ideas. These are the same methods that scientists use in their investigations. Continuing to ask questions based on children's responses validates what each child has said and encourages them to think more deeply about the topic. The goal is to encourage children to think reflectively, express their ideas, and expand the conversation.

# Step-by-Step Directions



Play the video from  
timestamp **5:27** to the end



Print each of the following documents  
for quick reference:

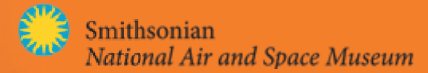
- **Open-Ended Question Stems**
- **Key Takeaways and Ideas to Think About**



The training video and supplemental materials will help teachers to effectively use the Science and Arts lesson plans on the PNC Grow Up Great Lesson Center website:

[www.pncgrowupgreat.com/lessoncenter](http://www.pncgrowupgreat.com/lessoncenter)

#### THANK YOU TO THE FOLLOWING ORGANIZATIONS



For more information on teaching science in Pre-K classrooms, visit Science in Pre-K on the Smithsonian's National Air and Space Museum website:

<https://scienceinprek.si.edu>