

Student Questions

Often students raise questions while they experience doing a science activity. Using the science notebook, teachers should provide opportunities for them to ask their own questions. They could be research questions or testable questions for investigation. Scientists raise testable questions, which teachers can promote with their students.

Teacher Planning:

Students might raise questions at the start of a unit during a pre-assessment. Keeping a record in the notebook and/or in the classroom allows the teacher to raise these to be explored at appropriate times during the activity/investigation. For example during lifecycle studies, students usually ask questions such as, “How long will it be a larva? How much will it grow? Will it look different as an adult? Why did it shed its skin?” Their observations lead to questions. Helping students make detailed and accurate observations will lead to better questions.

Questions do not have to be answered immediately. They can be recorded in the notebook and revisited at appropriate or convenient times during a unit / investigation.

Having a record of questions also helps us learn about their curiosities. Students ask questions out of curiosity some lend to investigating more than others. Teachers can capitalize on their curiosity.

- Help students rephrase some of their questions – often they are yes/no questions so they promote investigating. Teach students to ask more open ended questions rather than their yes/no. The ‘Questioning guide’ can help you create prompts and sentence stems to help students think about asking good questions.
- Creating a research board or questioning board on chart paper or a computer is a way to create a place to capture class questions for future reference. This may work best for k-1 students rather than in a notebook. Questions can be recorded on sentence strips and categorized those that “the class can investigate” or questions for consulting an expert, Internet, or book. This will help students identify and begin to ask their own open-response questions. It’s okay to have some questions that require looking at books.
- When teachers give students an opportunity to make observations, students need to write questions they wonder about as well.

Asking Questions

Source: Source: Pearce, C.R. (1999). *Nurturing Inquiry*. Portsmouth, NH: Heinemann.

Question Search

Select an object. Write its name or make up a name

Write a description about this object

Make a sketch of the object. Use labels to help describe it.



Write as many questions as you can think of about the object:

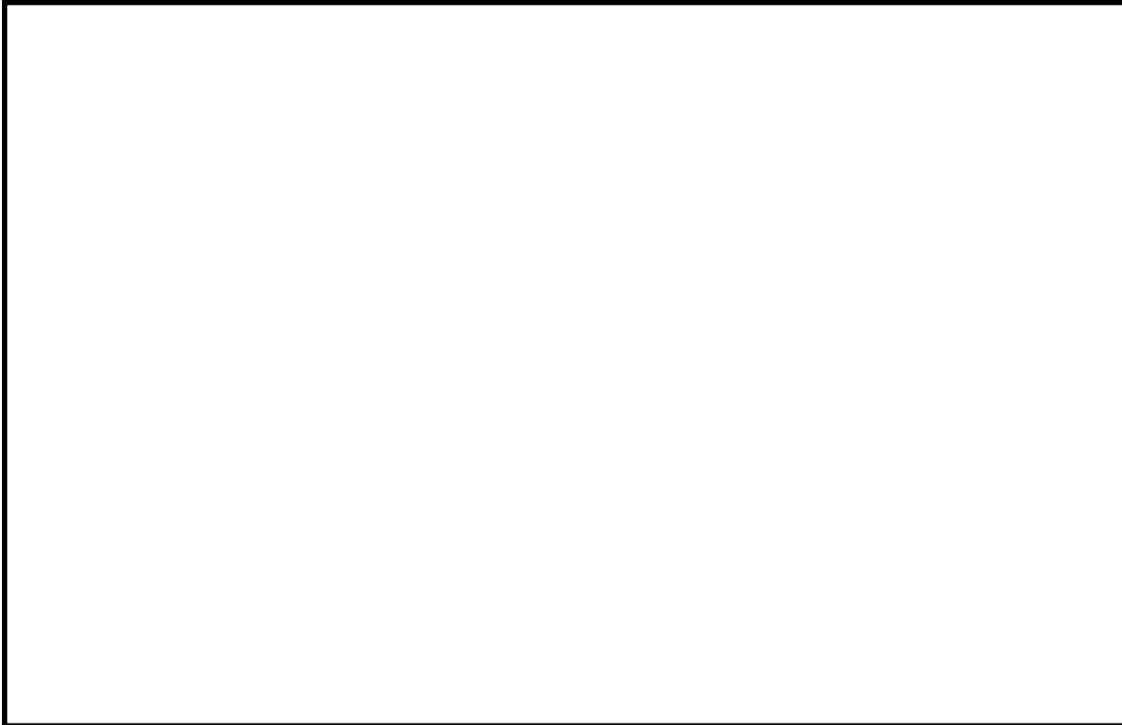
List ways you might be able to find answers to your questions.

Observations

Today is week _____

Draw a sketch of your organism. And describe what you observe below.

Sketch of Observations



Encouraging Students to ask their own questions:

I wonder if....

Today I am curious about...

**The Philosophical question:
Why do we have animals?**

The way we can deal with this is to validate student's question by acknowledging how interesting it is and pointing out that this is not a question that scientists can answer.

This helps children begin to appreciate that science has limits; there are questions that scientists do not have the tools to answer.

**Complex questions:
Why does the magnet stick to the nail?**

Teachers can turn these questions into related investigable questions by identifying variables you think may be relevant.

In the above example, two variables involved include (a) the magnet and (b) the material the nail is made from.

Teachers also need to model how to turn the 'why' question into something more manageable like

"What would happen if"

You can point out to the student that you are doing this because you want to think of things you can do to learn more.

For example, by changing the first variable (various characteristics of the magnet) one might come up with the following questions:

- What would happen if we put another object/metal close to the nail?
- What would happen if we put a small magnet close to the nail?
- What would happen if we put a magnet covered with masking tape close to the nail?

These questions model asking questions that lead to developmentally appropriate practical investigations and ones which broaden a child's understanding of factors that affect how magnets interact with different materials. Source: Sharawry, A. (2010). A quest to improve. Science and Children. 48(4): 32-35

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