Workshop 3.

The Process Begins: Launching the Inquiry Exploration

To inquire into specific scientific phenomena, students need to draw upon a foundation of experience. This program shows how you can encourage students to share and discuss what they already know, and to explore the materials and phenomena in an open-ended manner.

On-Site Activities and Timeline

Getting Ready

30 minutes

Share Homework (15 minutes)

In pairs, participants should share their homework. Describe to each other a change you made in a social aspect of your science classroom? Did it make a difference in the nature of the learning community? How did students behave? What were the challenges? What were the benefits?

Focus for Viewing (15 minutes)

Today we will look at starting the inquiry process in the science classroom. As a group, discuss how you motivate your students when starting a new topic. How do you engage your students? How do you assess your students' level of understanding of a new topic?

Watch the Workshop Video

60 minutes

Video Pause Point

Discuss the launching activity you just saw in Michael Beason's classroom.

Going Further

30 minutes

Discussion (10 minutes)

Discuss your reactions to the workshop. What did you see that you would like to try? What do you have questions about?

Discussion (20 minutes)

Arrange yourselves into groups based on similar topics you are teaching, or by grade level. Consider the pros and cons of different approaches to engage students in inquiry learning. Make a list of the approaches you saw today, and others you might think of. Why is each launching activity appropriate for the content to be learned?

For Next Time

Homework Assignment

There are many ways to launch an inquiry investigation. One strategy you can try is a **KWL chart.** (A sample KWL chart is included in the handouts for this workshop.) Many teachers find the use of a KWL chart a rich source of indicators of students' prior knowledge and interests. The KWL technique calls for eliciting information from students during a class discussion to gauge where they are before starting a lesson. Students share what they *know* (**K**); what they *want to know* (**W**) and at the end of the lesson, refer back to what they have *learned* (**L**). Using the topic your class is studying now, or one you will be studying in the future, design a KWL chart this week. You can use the KWL chart handout as a guide to create your own on a large flip chart (you may also copy the chart so your students can use it along with you during class discussion). Here are some additional tips:

1. Use a piece of chart paper rather than the blackboard so that you can refer to the information repeatedly during the lesson or unit.

2. Write on the chart: "**K:** What do we know about (selected science topic)?" When the students are providing "facts" on the topic, write down comments without judgement or correction. (Example: "What you're saying is....") Correcting or editing students at this stage may inhibit participation, making it difficult for you to assess prior knowledge.

3. Student areas of interest are assessed using the "**W:** What do we want to know about (selected science topic)?" Again, write the question on the paper and have students offer questions on the topic. Watch for nonverbal student reactions to each question. If several students turn their head toward the questioner, look up, etc., this may indicate an area of wide appeal.

4. Progress may be witnessed through the "**L:** What we have learned about (selected science topic)?" Record findings on the topic on the chart paper, as well as additional questions that arise during investigations.

Observe and take note in your journals of what can be learned about student knowledge, interests, and experience to guide your teaching. Bring your KWL chart to the next session for a discussion of what can be learned about student knowledge, interests, and experience.

For more information about KWL charts, go to www.learner.org/channel/workshops/inquiry and click on **Implementing Inquiry.** You will find there a KWL activity called "Using KWL to Introduce Inquiry: Balls and Ramps." Also under **Implementing Inquiry,** you will find Chris Collier's Decomposition Unit, as seen in the video program. You may want to review this science learning plan, which follows Chris' procedures for inquiry investigations.

Reading Assignment

You will find the following assignment in the Appendix of this guide (pages A-38 through A-49), or you can find it at http://www.nsf.gov/pubs/2000/nsf99148/ch_6.htm.

- **Recognizing Inquiry: Comparing Three Hands-On Teaching Techniques,** by Barry Kluger-Bell

The following assignment can also be found in the Appendix (pages A-51 through A-52).

- **Questioning Strategies,** from the Exploratorium's Institute for Inquiry

For Next Time

Handouts

You will find the following handout in the Appendix of this guide (page A-53):

- **KWL chart**

Find Out More

Go to www.learner.org/channel/workshops/inquiry and click on **Find Out More** for a list of monographs, essays, articles, and books that further explore the topics from this workshop.