

Details



Completion Time: Less than a week

Permission: Download, Share, and Remix

Asking Significant Questions

Overview

An important science skill that needs to be developed is asking significant questions that advance knowledge. This activity helps students to understand the difference between significant and trivial questions.

Objectives

Students should be able to distinguish between significant questions that advance knowledge and trivial questions.

Lesson Preparation

N/A

Procedure

1. Have the students define significant question and trivial questions in a class discussion. Write their definitions on the board and have them write them down into their composition notebooks. Have the students use a dictionary to define significant and trivial, and write these definitions into their notebooks.

Have the students come up with examples of significant and trivial questions, write some examples on the board and have the students write the questions in their notebook with two columns; significant on the left and trivial on the right.

2. Have students read the journal articles for one of the PolarTREC expeditions (at www.polartrec.com) and take summary notes in their composition books (can be done as a class or individually). Have the students propose significant questions to ask the team. Remind the students if the question can be answered by just reading the journal then it probably isn't significant. After reviewing the questions with the students have the students post their significant questions in the "Ask the Team" section of the PolarTREC website. Note: you

Materials

- Computer and Internet access
- Composition notebook
- Pen or pencil

might want to limit the number of questions asked each day to one expedition. Have students record the posted questions and research team answers in their composition books.

3. To check student learning in a testing setting have students use their composition books to write a two page paper showing their understanding of the difference between significant and trivial questions, the type of scientific work that is taking place on the PolarTREC expedition, and the knowledge that the researchers hope to gain.

Extension

Now that students understand the difference between significant and trivial questions, students are ready to learn about asking questions that are experimentally testable and forming a hypothesis.

Resources

www.polartrec.com

Assessment

Teachers may check composition notebooks for learning.

Credits

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National Science Education Standards (NSES):

Content Standards, Grades K-4

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry
- b. Understandings about scientific inquiry

Content Standard G: History and Nature of Science

- a. Science as a human endeavor

Content Standards, Grades 5-8

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry
- b. Understandings about scientific inquiry

Content Standard G: History and Nature of Science

- a. Science as a human endeavor

Content Standards, Grades 9-12

Content Standard A: Science As Inquiry

- a. Abilities necessary to do scientific inquiry
- b. Understandings about scientific inquiry

Content Standard G: History and Nature of Science

- a. Science as a human endeavor
- b. Nature of scientific knowledge

Other Standards:

N/A