

Is it a Scientific Explanation?



A group of students were talking about Scientific Explanations. They each had a different idea about the definition of a Scientific Explanation. Which student do you most agree with?

Katie: I think a scientific explanation is a summary that uses evidence from text.

Angel: I think a scientific explanation is a story about what you observed or did in an experiment.

Blake: I think a scientific explanation is a presentation, like a science fair project.

Jada: I think a scientific explanation is an answer to a question that has a claim, evidence, and reasoning.

Cori: I think a scientific explanation is when you write a procedure for how to conduct an investigation.

I agree with _____. Explain why you picked this idea and why you did not pick the others.

Is it a Claim?

Facilitation Notes

Purpose

The purpose of this assessment probe is to elicit learners' ideas about what constitutes a CLAIM in a scientific explanation. If these ideas are not uncovered they could prevent a learner from fully understanding the CER framework.

Explanation

Students may have some confusion about how a *scientific explanation* differs from an everyday explanation.

The best answer is **JADA's**- that a scientific explanation answers a question with a claim, evidence, and reasoning.

The other students' ideas represent possible preconceptions that students may have about scientific explanations.

Facilitation Considerations

This probe is a Formative Assessment Classroom Technique (FACT) called a *Friendly Talk Probe*. It begins with a scenario about a concept. Examples that fit (or possibly do not fit) the scenario are then listed via Student Talk. Learners pick the student idea that best matches their own and provide justification explaining their rule or reasons for their selection. This assessment probe can also be used to provide an opportunity for learners to engage in the ideas and modify their thinking based on new evidence or research.

Misconceptions

Learners may have a variety of misconceptions regarding what constitutes a scientific explanation. The examples in the probe represent a range of common ideas students may express when considering a scientific explanation.

Administering the Probe

This probe is best used at the beginning of instruction on a CER framework OR just after some initial

instruction. Learners should be encouraged to share their choices and thinking with a partner. The teacher should circulate around the room to observe the responses, and the conversation occurring between partners. Use this information to inform your ongoing instruction on the CER framework.

It is recommended to immediately use this probe to debrief as a whole class. Are they noticing how a scientific explanation is different than other explanations? Do students have a broad or specific definition of a scientific explanation? How could you use this information to influence your upcoming instruction on how to write a scientific explanation?

References

Supporting Grade 5-8 Students in Constructing Explanations in Science, McNeill & Krajcik (2011)
http://books.google.com/books/about/Supporting_Grade_5_8_Students_in_Constru.html?id=PzlbwAACAAJ

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Based on the Formative Assessment Probe framework developed by Page Keeley in her [Uncovering Student Ideas in Science](#) series