Scientific argumentation: How to reason like a scientist

03/02/18 Agenda

1) Journal
2) Introductions
3) Key pointers
4) Jigsaw
5) Socratic Seminar
In your classroom, which of the NGSS Scientific and Engineering Practices are you most comfortable with and which are you least confident with?
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Transforming Lives through Education
Discussion Prep!
Step 1: Vocab!

**Photon**
- Definition: a quantum of electromagnetic radiation
- Related Concepts: quanta - specific packet of energy, wavelength - the distance between waves
- Scientist Connection: Albert Einstein was credited with using this phrase to explain the photoelectric effect.
- Max Planck helped pave the way with his work on quanta.

**Ethereal**
- Adjective - light, airy, ethereal
- Synonyms: angelic, airy, gossamer, gauzy, gossamer, gossamer
- Examples: ethereal music, ethereal quality

**Organs acetic acid**
- Related to: cells, made of: ethyl, carbon, hydrogen, oxygen

**Alkali**
- Definition: a base with basic properties
- Examples: Li, Na, K, Rb, Cs, Fr
- Facts: has a silvery luster, the neutral red, electronic configuration
- Non-Examples: acid, hydrogen ion, pH=7 or less

**Isotopes**
- Are atoms that have the same # of protons but different #’s of neutrons
Scientific Discussion

Science and Engineering Practices:
7 - Engaging in argument from evidence
8 - Obtaining, evaluating, and communicating information
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## Jigsaw Groups

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Jigsaw Question

How can each SEP help to prepare your students for scientific discussions in the classroom?

Science and Engineering Practices:

1 - Asking questions (for science) and defining problems (for engineering)
2 - Developing and using models
3 - Planning and carrying out investigations
4 - Analyzing and interpreting data
5 - Using mathematics and computational thinking
6 - Constructing explanations (for science) and designing solutions (for engineering)
Socratic Seminar

How will you use the NGSS Science and Engineering Practices to empower your students to reason like a scientist?

1 - Asking questions and defining problems
2 - Developing and using models
3 - Planning and carrying out investigations
4 - Analyzing and interpreting data
5 - Using mathematics and computational thinking
6 - Constructing explanations and designing solutions
7 - Engaging in argument from evidence
8 - Obtaining, evaluating, and communicating information
Thank You For Joining Us!

SCECHS Code: 70988

Use the link or the QR code for examples and this presentation: