

VIDEO HANDOUT: CONSTRUCTING EXPLANATIONS & ENGAGING IN ARGUMENTATION

A culture of curiosity and science talk deepens student learning and improves instruction. It is also important to learning the scientific practices of Constructing Explanations and Engaging in Argumentation from Evidence of the Next Generation Science Standards. For both of these you need open discussion of ideas, respectful disagreement, and curiosity, as well as tentative, evidence-based, and open-minded thinking. These are not just science skills, but are also important skills for discussion in everyday life, and for becoming responsible citizens of the world. Students can get practice developing such skills and mindsets through carefully planned and guided discussions.

Constructing Explanations & Engaging in Argumentation video: <https://www.youtube.com/watch?v=WfkCVpm4Ljg>.

- Encourage students to find nature mysteries, and to try to explain them using evidence and reasoning.
- Emphasize and model these argumentation skills with students by:
 - Using the language of uncertainty (Maybe..., I wonder if..., The evidence seems to show that..)
 - Making evidence-based explanations
 - Explaining your reasoning
 - When appropriate, disagreeing (respectfully)
 - Evaluating the strength of evidence
 - Comparing the strengths and weaknesses of different explanations and claims

Video discussion prompts (discuss any that you find interesting):

- Was there anything in the video that surprised you or that was particularly striking?
- Do you have questions about using strategies shown in the video? What challenges might you face using these with students, and how might you deal with them?
- What are some nature mysteries that students might enjoy trying to explain during your field experiences?
- What could you try out when you're teaching to support your students in learning how to construct explanations and to engage in scientific argumentation?
- Which argumentation skills do you think your students might need some extra support or practice with? What can you do to help them develop these skills?

REFLECTIVE TEACHING DIAGRAM

Research has found that thinking about teaching as a cycle that involves planning for instruction, teaching lessons, collecting evidence, reflecting, and making adjustments with the goal of improving learning, can all help instructors make the subtle shifts to continually improve their practice over time. You can use this diagram to help visualize the steps in a reflective teaching cycle and then think about how to engage in this type of iterative process.

