

VIDEO HANDOUT: BUILDING A CULTURE OF SCIENCE TALK & CURIOSITY

Quality outdoor science experiences should be rich with opportunities for students to talk about science ideas. Students need to talk to learn, just as they need to read and write to learn. Talking helps students form and connect ideas. This includes talking with peers and also with those who know more about a topic, such as an instructor. Student talk also gives an instructor windows into what students are thinking, which gives the instructor information about how to guide the learning experience. One of the most interesting things about teaching is listening to students' ideas and getting glimpses into their brains, while trying to figure out what they're thinking, what their ideas are based on, what they understand, and what they're confused about. Taking the time to build a culture of respectful discussion and curiosity creates an environment in which students are ready and excited to share their ideas. If you give students interesting science ideas to talk about, and support them by creating a culture of discussion, they'll deepen their knowledge in meaningful ways through collaboration with their peers. It will also be more likely that students will keep talking about interesting science ideas, even when you don't tell them to, and you will learn a lot more about what your students are thinking.

Building a Culture of Science Talk & Curiosity video: <https://www.youtube.com/watch?v=OcsePIU0cnQ>

Suggestions to keep in mind when building a culture of science talk and curiosity:

- Introduce and use discussion agreements to make sure students feel supported and valued as individuals to participate in discussion.
- Posting and discussing science discussion agreements makes expectations visible for students. It lets them know what's expected of them, and of others, and allows them to actively participate.
- Ask interesting, broad questions that inspire divergent thinking.
- Create a group culture where it's cool to be curious, to wonder, and to try to figure things out during outdoor experiences.
- Encourage students to be curious about their surroundings, and to look for nature mysteries wherever they go.
- Model curiosity about nature, and seek out the edges of your own understanding.
- If students find or bring up something you're not familiar with, don't avoid the subject. Wonder about it with them.
- If students ask a question, instead of answering it right away, say, "let's try to figure it out together."
- If students ask what something is, rather than telling them immediately, ask, "what do you notice and wonder about it? What does it remind you of?" These questions help them become more curious about the object.
- Try to come up with new observations, questions, ideas, and perspectives, even about things you are already familiar with.
- Ask questions, listen, and ask follow-up questions.
- Be genuinely curious about student ideas.
- Encourage students to address each other, not just you, and to build on each other's ideas.
- Help students try to answer their questions through observation and discussion.
- Guide students to discuss science ideas.
- Coach students on making evidence-based explanations.

Sample science discussion agreements:

- Listen actively and share ideas.
- Share and ask for evidence.
- Build on ideas of others.
- Keep an open, curious mind.

- Disagree respectfully to increase understanding.
- Pay attention to participation.

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

- Was there anything from 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?
- Why is discussion important to learning?
- What could you try out to help you build a culture of science talk with your students?
- What can you do to encourage more-respectful disagreement and building on each other's ideas?
- What can you do to encourage more curiosity during exploration, and curiosity about ideas?

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.

