

BROAD QUESTIONS

Broad questions (also known as “open-ended questions”):

- have no specific answer
- require higher-level thinking, exploration, observation, or an opinion
- promote discussion and divergent thinking
- open the door for authentic discussion
- tend to be underused by instructors

Broad Question Examples:

- What are some differences between insects and spiders?
- How does wood decompose?
- Make a diagram of how decomposition happens in this ecosystem.
- What kinds of things affect where plants can grow?
- What kinds of structures and behaviors does this beetle have that might help it survive in its habitat?
- What might happen to these organisms if the environment changes?
- What do you notice about the water currents here?
- What affects the water quality where you live?
- How might inter-tidal organisms survive living in and out of water?
- Should we use pesticides?
- How are these young insects similar to and different from their adult stage?
- What do you think has caused the shapes of the landscape we’re seeing?

Broad questions can be about specific topics and about science:

- Broad questions can focus on a specific topic. The name “broad” might make it seem like broad questions can only be about broad topics. But what makes them broad is that they have multiple acceptable answers, while narrow questions have only one acceptable answer. Broad questions can be about either general or specific topics.
- Broad questions can be about science content. Many instructors use broad questions about feelings, values, and opinions, but broad questions are also an important part of instruction about science content. Teaching science is not just delivery and recall of information. Asking students broad questions gives them the opportunity to engage in higher level thinking and productive struggle with science content, leading to deep learning and understanding.

Broad questions encourage exploration and curiosity:

- Broad questions encourage exploration and curiosity. Asking a broad question about something found in the field, such as, “What do you notice about this plant” tends to encourage deeper and longer exploration than a narrow question, such as, “what is this plant called?” Our curiosity tends to decline once we hear the name of something. Names and facts are useful, but it’s better to share them after encouraging observation and exploration using broad questions.

Broad questions provide opportunities for thinking & learning:

- Broad questions give learners opportunities to think and learn. Broad questions prompt a variety of acceptable and generally unpredictable responses. To answer broad questions, students need to think in ways unique to the individual rather than planned by the instructor. Broad questions allow students to make sense of and explore their own ideas. When students respond to broad questions, it helps them clarify their thinking and form explanations. Broad questions encourage students to blend ideas, extend ideas, figure things out through reasoning, predict, and organize things they've learned into fresh patterns.
- Broad questions can initiate discussions that are important for learning. Learning is social. Students need to discuss and weigh new ideas to fully construct knowledge and understand science in a meaningful way. If students get the opportunity to share different viewpoints and participate in authentic discussion and an open exchange of ideas, their experience will be more memorable.
- Broad questions help students develop understanding of ideas and concepts, and to recognize their misunderstandings. While engaging in the higher level thinking needed to respond to a broad question, students may come to new understandings. By saying their thinking out loud, they may realize that they don't understand something.

Broad questions can promote cultural relevance:

- Broad questions help promote inclusive learning environments. Because broad questions have many acceptable answers, they encourage divergent thinking, multiple perspectives, and broad participation from group members. Using broad questions can help build a group culture where students value each others' ideas, and have space to share and relate learnings to their lived experiences.

Broad questions provide windows into student thinking:

- Broad questions give instructors opportunities to hear what students are thinking. Broad questions give instructors a chance to hear and understand how students are making sense of concepts, and what they might be struggling with. This window into student thinking gives instructors information they can use to customize instruction to where students are at.