OpenSciEd 3 Discussion Types

OpenSciEd units use specific types of discussions to help draw out student ideas, support students in communicating with one another in scientific ways, and support student sensemaking. These different types of discussions serve different purposes, are useful in different phases of a lesson or unit, and have different characteristics depending on their purpose.

Discussion Type Summary

Initial Ideas Discussions

Purposes/Goals

- To get students' initial ideas and experiences on the table
- To provide a chance to share and make sense of ideas-even if those ideas are tentative.
- Help students realize that there are gaps in our understanding to promote curiosity and what we could do next to figure something out.
- NOT: a KWL, open brainstorm, quiz, consensus building

When This Type of Discussion Is Useful

- During anchoring phenomenon routine at the start of a unit
- During the problematize phase of the launch of a new learning set
- When we are thinking about how to plan an investigation.
- Any time students are beginning the process of making sense of a phenomenon.

Building Understanding Discussion

Purposes/Goals

- Share claims and reasoning based on evidence.
- Connect, critique, and build on others' findings, claims, evidence, and explanations.
- Arrive at tentative conclusions.
- NOT: just sharing or reporting results nor a quiz about what students have learned

When This Type of Discussion Is Useful

- During Navigation (Where are we now?)
- After an Investigation.
- At the end of a lesson(s) where the class has built some piece of understanding.

Consensus Discussion

Purpose/Goals

- To collectively work towards a common (class-level) explanation or model.
- Capture areas of agreement for which we have evidence and where we still disagree/need more evidence.
- Take stock of where we are in our figuring out and support the public revision of earlier ideas.
- NOT: not just used for putting the pieces together lessons.

When This Type of Discussion Is Useful

- When we have figured out some pieces and need to take stock of where we are (e.g. after a couple of key investigations or during the Putting Pieces Together routine).
- When we need consensus about what questions to investigate next.
- When we need consensus about next steps for investigation.

Adapted from Michaels, S. and Moon, J. (2016) Discussion as a Form of Productive Talk. Next Generation Exemplar Program. ngsx.org

Initial Ideas Discussions

Teacher Role:

- Encourage all students to share their own ideas and experiences
- Clarify ideas
- Encourage student to student talk with a focus on raising questions, clarifying, or adding on to what someone has said rather than on debating or arguing
- Ask for or provide a synthesis of the ideas that have emerged from the discussion.
- Ask students how they might test or further explore their ideas

Student Role:

- Share ideas and experiences
- Clarify own thinking
- Ask each other questions
- Listen to each other to understand and clarify
- Consider how others' ideas contribute to developing shared understanding

When eliciting initial ideas:

- What are your ideas about how to explain this phenomenon/solve this design challenge?
- What experiences do you have that might help you think about this phenomenon?
- What did you notice about....?
- What do you think you will see when...?

When clarifying ideas and pressing for reasoning:

- Can you say more about that?
- Is that something you've heard, observed, or experienced before?
- What do you mean when you say the word "_____"?
- Who has a different way of thinking about this topic?
- Can you think of an instance when that was not the case?

For encouraging student to student interaction

- Who has a similar/different way of thinking about this topic?
- Who thinks they understand what ___ is saying and can say it in their own words?
- Who wants to add on to what ___ is saying?
- Who can explain what _____ means when she says that?

When asking for or providing a synthesis of the initial ideas:

- Who can summarize some of the ideas we've heard today?
- Does the summary capture our ideas accurately?
- So I'm hearing _____ and _____. Do I have that right? Is there something I missed?

When asking students for how to investigate their initial ideas:

- What are some ways we could test our initial thinking?
- What ideas are we unsure about that we need to know more before we can be confident in them?

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Building Understanding Discussions

Teacher Role

- Set and maintain focus around the specific lesson question.
- Invite students to share claims, explanations, solutions.
- Push for elaboration of evidence and reasoning.
- Encourage critique and alternative explanations.
- Help the group come to tentative conclusions and next steps.

Student Role

- Attempt to explain a phenomenon.
- Use data as evidence to support their claims
- Compare, contrast and critique others claims, evidence, explanations.
- Agree and disagree respectfully.
- Ask questions to clarify

Setting and maintaining focus:

- Can someone remind us the question we are trying to answer/the phenomenon we are trying to explain?
- So remember our question is.... Let's stay focused on this question and see what we think we have figured out.

When inviting a group to share:

- What are some of your claims?
- What are some of the key components of your model/solution?
- How does this model explain the evidence we have so far about this phenomenon?
- How does this solution fit the criteria we identified for a possible solution?

When pushing for elaboration of evidence and reasoning:

- What's your evidence?
- How did you arrive at that conclusion?
- Does it always work that way?
- How does that idea fit with ___'s claim?
- Can you clarify _____ aspect of your model/solution?
- So let me see if I understand this aspect of your model/solution here. Are you saying...?

When encouraging critique and student to student interaction:

- What questions do you have for this group about their model/solution/claim?
- Does any group have evidence to support Group A's claim?
- What data do we have that challenges Group B's claim?
- Is there anything you can add to this model/solution?
- How well does this model fit the evidence we've gathered so far?
- ___ and ___ you made similar claims. Did you have the same evidence?
- _____, what do you have to say to ___ about her idea? It sounds pretty different from yours.

When helping the group come to tentative conclusions and next steps (without expectation to come to complete agreement)

- What seems to be true about all of our claims about....?
- What can we conclude? What new questions do we have?
- What else do we need to find out? What might we do next?
- It sounds like we still have some questions. Perhaps we need to go back and try_____to see if the evidence holds up.

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Consensus Discussion

Teacher's Role	Student Role
• Help students take stock of our current models/ explanations/arguments. • Encourage critique and alternative explanations. • Solicit ideas to modify the model or explanation. • Press towards a common explanation or model/next questions/next steps for investigations (at that point)	• Agree on what we know so that we can agree on what we don't know and need to move forward. • Agree and disagree respectfully. • Challenge and defend ideas.

During stock-taking:

- Could someone restate our question (or our charge)? What are we building consensus about?
- What are some things we think we can say at this point about our anchoring phenomenon?
- What is our evidence for those ideas (those explanations)?

When soliciting ideas to develop or modify the model or explanation:

- How should we represent it? Are we Ok with that?
- Do we all agree with that?
- How are these explanations similar? How are they different?
- Both groups seem to be using the same term but in a different way, could someone explain the difference?
- How could we modify what we have, so that we account for the evidence we agree is important to consider?
- What modifications might you make to clarify confusion or address the discontent that this group feels?
- Is there more evidence or clarification needed before we can come to agreement? What is that?

When inviting support or critique:

- Who feels like their idea is not quite represented here?
- Would anyone have put this point a different way?
- What ideas are we in agreement about?
- I'm hearing (Idea X) and (Idea Y). Why (Idea X)? Why (Idea Y)?
- Are there still areas of confusion or discontent?
- Are there still places where we disagree? Can we clarify these?

When soliciting ideas for next questions or investigations to pursue:

- Where should we go next to help us with areas where we are not sure/not in agreement?
- What new questions do we have that might help us move forward?

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