Importance of Classroom Discussions

Purpose

NSTA's *Principles of Professionalism for Science Educators* calls for "promoting the growth of all students by orchestrating discourse among students about scientific ideas." This call is also evident in the NRC's 8 Science and Engineering Practices, with emphasis on constructing explanations and engaging in arguments from evidence (Practices 6 and 7). Incorporating communication into instruction helps students organize their thinking, communicate coherently and clearly, and examine and evaluate both their own and others' thinking and pathways. Classroom discussions are integral to classroom instruction and are important vehicles for supporting students' learning and communication. Through classroom discussions, students share what they know, explain how they reason, ask questions, try out new ideas, critique ideas based on evidence, and get feedback on their thinking, both from the teacher and from other students in the class. Discussions give students access to ideas and give teachers access to what students understand.

Powerful scientific, evidence-based discussions do not just happen. They must be purposefully facilitated through the use of Accountable Talk. Academically productive classroom talk addresses three broad dimensions.

Accountability to the Learning Community

- Students and teachers listen to one another.
- Students and teachers expand upon one another's contributions.
- Students and teachers make an effort to clarify.
- Students and teachers disagree respectfully.
- Students and teachers challenge a claim and not a person.
- Students and teachers move an argument forward.

Accountability to the Knowledge

- Examples and claims should be as specific and accurate as possible.
- Speakers should provide evidence and build on available knowledge.
- Listeners should request definitions, clarifications, elaborations, and question relevance.

Accountability to Rigorous Thinking

- When facts are supportable, rigorous thinking builds a line of argument.
- Rational and compelling arguments link together claims and evidence (facts) in a logical, coherent, and rigorous manner.
- Students and teachers push each other for clear statements of claims and sound reasoning.
- Students and teachers examine evidence critically. Are sources good, sufficient, authoritative, relevant, and unbiased?

A Framework for K-12 Science Education by the National Research Council
How Students Learn: Science in the Classroom by the National Research Council
"Deliberative Discourse, Idealized and Realized: Accountable Talk in the Classroom and Civic Life" (2007) by Sarah Michaels, Catherine O'Connor, and Lauren B. Resnick
NSTA Position Statement: *Principles of Professionalism for Science Educators*
http://www.nsta.org/about/positions/professionalism.aspx

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It often helps students to collect their thoughts for a class discussion by having some Private Reasoning/Think Time or rehearsing with a partner or small group. Some teachers refer to this as *turn and talk* and others refer to it as *think, pair, share*. In science, we also use S*tructured Science Talk* such as A/B dyads. Talking in this way helps keep the discussion scientifically productive, status-free, and equitable. It also holds all students accountable for participating and lets them know their input is valued. Students should know that participating in classroom discussions is part of their responsibility as members of your class.

Three Productive Talk Formats

Talk Format 1: **Whole-Class Discussion**	The purpose is for the teacher to get students to share their thinking, explain their reasoning, and build on one another's contributions. This is **not** about the teacher delivering information or quizzing.
Talk Format 2: **Small-Group Discussion**	The teacher circulates as groups discuss. The teacher does not control the discussions but observes and questions and sometimes interjects when appropriate.
Talk Format 3: **Partner Talk**	The teacher asks a question and then gives the students time to put their thoughts together with a partner. Although a strong structure for all students, it is very effective for ESL students. The extra time allows all students to be ready to participate in the whole-group discussion.

Five Productive Talk Moves

Each talk move listed below is a suggested action that is found to be effective for making progress toward supporting thinking and learning. Each move can be used to support productive talk and also establish a status-free classroom environment in which all students have an equal voice.

Talk Move	Definition/Ideas
Revoicing Teacher revoices. "So you're saying that it's acting as a catalyst?"	• This talk move allows teachers to interact with a student who is unclear. • The teacher tries to repeat some or all of what the student has said. • Then the teacher asks the student to respond and verify whether or not the revoicing is correct. • Few students will improve if teachers only call on the students who are easy to understand. • This move can also be effective when the teacher understands what a student has said but is not sure that the other students in the class understand.
Restating (Repeating) Student restates. "Can you repeat what he just said in your own words?"	• This talk move extends the responsibility to the students in the classroom. • By asking one student to repeat or rephrase what another student has said, it requires the class to listen to each other and make sense of ideas shared. • After the student has restated, go immediately back to the original student for follow up. • This move also allows the rest of the class to hear the idea shared one more time so they have more time to process what was shared.
Agree/Disagree (Reasoning) "Do you agree or disagree and why?"	• This move encourages students to apply their own reasoning to someone else's reasoning. • The teacher should not support one position or another but should use the talk move to elicit other ideas. • It is critical that students support their decision by explaining their reasoning as it supports students' learning.
Add on "Who can add an idea to this discussion?"	• This move increases participation by asking other students to add comments to previous statements. • This prompting for more input on previous statements will, over time, result in students showing more willingness to weigh in on what the group is considering.
Wait Time Wait Time 1 Wait Time 2	• This move is not about talking at all but instead about silence. • Wait Time 1: Occurs after a teacher has posed a question and before accepting a response • Wait Time 2: Occurs after a student response has occurred and before the teacher or other students respond or comment. • The amount of time to wait should be determined based on what the students must think about.

Classroom Discussions: Using Math Talk to Help Students Learn 2nd Edition by Suzanne H. Chapin, Catherine O'Connor, and Nancy Canavan Anderson
Thinking Through Quality Questioning: Deepening Student Engagement by Jackie A. Walsh and Beth D. Sattes