



SPICE

Science Projects Integrating
Computing and Engineering

Class Discussion Practice Brief

SRI Education



Class Discussion Brief

What is Class Discussion?

Researchers have argued that learning is embedded in the process of participating in classroom discourse. As students engage in the discourse they acquire ways of talking and thinking that characterize a particular curriculum area. In most classrooms, teachers and students talk. This is classroom discourse. But how that discourse happens can take different shapes and forms. For example, sometimes, teachers may ask a question and one student responds with a one word answer. On the other hand, a teacher may ask a question, one student responds, and the teacher probes the student to elaborate on their ideas. Or, a teacher may ask a question, one student responds, and the teacher invites other students to provide counter arguments or responses. Even still, a student may ask a question, and the teacher invites other students to respond, making the role of the teacher less pronounced. These are all different ways discourse happens in the classroom.

Classroom discussions are a type of classroom discourse. Classroom discussions are complex discursive interactions between the students and teacher. In a classroom discussion, teachers and students engage in back and forth dialogue. As the participants talk, each participant makes meaning about what is being said. As each person works to make meaning, they ask clarifying questions, ask follow-up questions, revoice each others' ideas, listen, disagree, agree, and much more. The result of the discussion is often a shared understanding of a topic that is developed while the discussion was taking place.

What isn't Class Discussion?

Often times, in science classrooms in particular, classroom discussions are mistaken as opportunities to answer very concrete questions with defined answers. But, classroom discussions can have various purposes and goals. Classroom discussions are not lectures, where the teacher talks and the students listen. Classroom discussions are not when the teacher asks a question and only invites one student to respond.

How is Class Discussion used in the Curriculum?

In SPICE, classroom discussions are integrated as a way to 1) help students make sense of an activity or 2) come to an agreement about a design decision. Classroom discussions take on 2 forms: whole class discussions and small group discussions. In whole class discussions, the discussions are led by the teacher. In small group discussions, the discussions are led by the students. In each case, the lesson plans provide the teacher with a set of prompts to encourage the students to talk, explain their ideas, provide evidence, and more.

Class Discussion Types in SPICE

Sensemaking Discussion

Sensemaking discussions help students review and confirm information that they gather and synthesize during an activity or reading. It also helps students organize the information in order to use it later. It is more than just sharing what they did or observed; more importantly, it is analysis—finding connections and relationships in the data in an effort to construct conceptual knowledge. Furthermore, during sense making discussions, students make conceptual models of the science that they are learning about. It is an opportunity for students to use each other as resources to collectively build a common and shared idea about a topic.

Consensus Building Discussions

During the curricular unit, several opportunities arise for students to build a class consensus around their designs and the requirements for the designs. Consensus building discussions avoid settling on ideas that are based on one person or a minority of people. It is also not a majority vote activity. Instead, consensus discussions work to make sure that all opinions, ideas and concerns are taken into account. Through listening closely to each other, the group aims to come up with ideas that work for everyone. During these opportunities, students are encouraged to share their ideas and the reasoning behind their ideas. Students are also encouraged to listen carefully and critically to ideas being presented, ask questions, and work to understand other points of view.

Quick Tips for Facilitating Classroom Discussions

A couple important things to keep in mind during these discussions:

- It is okay if students disagree.
 - Having students provide evidence and reasoning behind their ideas allows other students to consider their own perspective and decide if they want to shift their ideas.
 - Hearing multiple students' reasoning behind a particular perspective will decrease the pressure on that one student to have all of the evidence.
- Consensus is about coming to an agreement.
 - There does not have to be a “winner” or a “right answer” in these discussions, but we do need to have agreement.
- Some questioning tools for supporting students to develop their reasoning:
 - Have them write a scientific explanation about it first.
 - Have them talk to their partner and explain their reasoning to their partner.
 - Have them share a perspective they did not take and the evidence and reasoning for that perspective. Why were they different?
- Asking students questions can help to support consensus building. Some helpful questions might be:
 - Why do you think that?
 - Does anyone agree with _____? Why do you agree?
 - Does anyone disagree with _____? Why do you disagree?
 - How should we decide on our decision?
 - What are some of the important aspects to consider when deciding?

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- Does anyone have evidence for the perspective they haven't taken?
- What are the trade-offs that we are considering?