Science Class

ESTABLISHING CLASSROOM NORMS FOR DISCUSSION

It takes time to get students to understand that more than one explanation for a scientific event is possible and that alternative explanations should always be examined. One way to encourage this thinking is for teachers to frequently introduce and discuss alternative beliefs and explanations or describe the ways scientists disagree and resolve their disagreements.

Some researchers, in collaboration with science teachers, have found that argumentation in classrooms is more likely to occur when students are permitted and encouraged to talk directly with each other, rather than having their discussions mediated by the teacher. Other researchers have found that teacher-mediated whole-group discussion is more productive. Most successful teachers use a combination of talk formats to provide opportunities for both of these types of discourse. No matter what the format, teachers need to work actively to support classroom norms that emphasize responsibility, respect, and the construction of arguments based on theory and evidence.

As we described earlier, the most productive classroom environments, in all subject areas, are those that are enriched by talk and argument. But many students and teachers are not accustomed to or comfortable with extensive student talk in the classroom, so it is important to understand how to define and establish effective, acceptable classroom norms for discussion. Following is a case study that illustrates some methods for establishing and using norms for discussion.

Gretchen Carter’s 28 sixth-grade students are a diverse and challenging group, with over 70 percent of them eligible for free or reduced-price lunches. Among her students are six children who recently immigrated to the United States and who leave the room each day for intensive English language instruction. In addition, she has four students using individualized education plans (IEPs), including one student, Lucy, who has been diagnosed with autism. Lucy rarely speaks in class but is treated by her teacher and peers as a full participant in classroom activities.

Ms. Carter works hard to establish an environment of cooperation and respect in her classroom. Her mottos are “No single student is as smart as all of us put together” and “You have the right to ask for help, and the duty to provide it to others.” She has also established norms for her students for respectful participation in small-group work and whole-group discussion. Each student has a set of rights and obligations printed on green paper and pasted into the first page of their science notebooks.

The students and Ms. Carter refer to these rights and obligations as the “Green Sheet.” The Green Sheet outlines the rules for talk in Ms. Carter’s class. She developed the rules over a number of years, so she no longer negotiates them with her students at the beginning of each year. Instead, she hands out the Green Sheet and discusses it with her students, asking them to describe the rules in their own words and to give reasons why the rules are appropriate and effective. The Green Sheet rights and obligations are as follows:

Student Rights:

1. You have the right to make a contribution to an attentive, responsive audience.
2. You have the right to ask questions.
3. You have the right to be treated civilly.
4. You have the right to have your ideas discussed, not you, personally.
Student Obligations:

1. You are obligated to speak loudly enough for others to hear.

2. You are obligated to listen for understanding.

3. You are obligated to agree or disagree (and explain why) in response to other people’s ideas.

Once the rules have been discussed, Ms. Carter consistently reminds her students of them, pointing out any infractions. Ms. Carter uses a color-coded discipline system in conjunction with these rights and obligations. Each student starts the day on green. A warning is given for misbehavior, and a further infraction results in a change to yellow. After one more warning, another infraction puts a student on red and the parent is called after school. If there is a serious infraction, she stops the class and has everyone turn to their Green Sheets to find the right or obligation that relates to that particular infraction. She then discusses that right or obligation at length with her students. Disrespectful comments get a warning. Repeat offenses get the offender a color change. Over a period of weeks, the rules become thoroughly internalized by her students and Ms. Carter rarely needs to refer to the Green Sheet. It remains a resource, however, available for review if discussions get off track.

Students know that she will keep enforcing the norms consistently, week in and week out. As a result, Ms. Carter’s class is known for its good behavior. In addition, her students appear to be willing to ask questions, put forward their ideas, and respond fully and respectfully to each other’s questions. These are all signs that Ms. Carter has succeeded in making her classroom a safe place for students to engage in challenging academic thinking, problem posing, theorizing, and problem solving—by making their thinking visible to one another and to themselves.