Discourse Circles

Promoting Scientific Language Use in Elementary Classrooms

by Jennifer L. Tilson

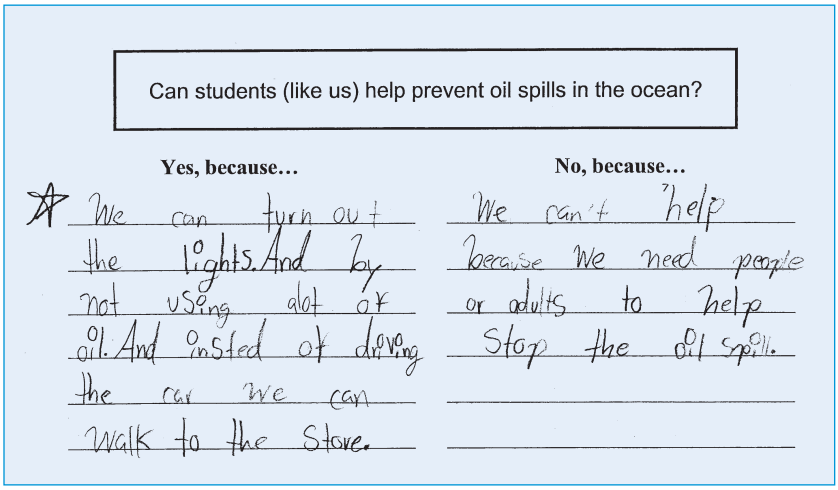
A third-grade class is thinking carefully about the statement: *Students like us can help prevent oil from spilling in the ocean.* Students are asked to consider evidence that both supports and refutes this statement. They discuss both sides of this issue with a partner and take some notes, preparing to take a position. The evidence that they gather comes from multiple sources: investigations of a simulation, nonfiction text, and previous class discussions. After being reminded that they may hear convincing evidence that could cause them to change their minds, students meet in small groups composed of some students who agree with the statement and some who disagree. A lively discussion ensues.

Students take turns sharing their evidence, discussing their positions, and trying to either come to a consensus or to, "agree to disagree." They ask each other questions such as, "Why do you think that?" and, "What's your evidence?" Then, the whole class debriefs what happened in the small group discussions, comparing evidence. At the end of the period, students discuss how what they have just done is similar to what real scientists do when they meet to discuss their ideas.

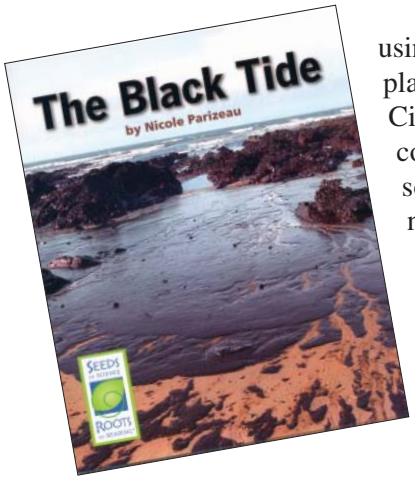
The Discourse Circle

This structured discussion is called a *Discourse Circle*, and it occurs toward the end of an integrated science and literacy unit about the shoreline ecosystem, *Shoreline Science*. Prior to the Discourse Circle, students have discussed how industrial oil is used by humans, and how oil and other substances sometimes reach the ocean. They have read *The Black Tide,* a book that describes a real oil spill that happened off the coast of Spain. They have made a model of an oil spill. They have also investigated methods for cleaning feathers dipped in oil, to see what impact oil might have on shorebirds. After concluding that the oil spills would be difficult to clean up, students read about how scientists attempt to clean up oil spills.

They also learn through reading that the majority of oil in the ocean comes from small amounts of oil from leaking cars and other sources, and that items containing plastic use industrial oil. This gives students evidence that there is a lot they can do to help prevent oil spills—such as asking parents to fix oil leaks in their cars and not



This material is based upon work supported by the National Science Foundation under Grant No. 0242733. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.



The Black Tide *is one of many titles which can be purchased separately or as part of the comprehensive unit* **Shoreline Science**, *from the Seeds of Science/Roots of Reading curriculum, available from Delta Education, 800-258-1302,* http://www.delta-education.com.

using as many products with excess plastic packaging. After the Discourse Circle, students typically come to the conclusion that although there are some situations over which they have no control, they also do have many ways that they can help protect the ocean by not using as much oil in the first place.

The Discourse Circle then provides an opportunity for students to synthesize the ideas they have been learning, gather evidence from multiple sources, apply their newfound science knowledge to a compelling issue, and discuss important science content with peers in a meaningful way.

Seeds and roots

The unit *Shoreline Science* was developed as part of a National Science Foundation-funded curriculum development and research project called *Seeds of Science/Roots of Reading*. This project is a collaboration between the Lawrence Hall of Science and the Graduate School of Education at the University of California at Berkeley. The goal of the project is to explore the interface of science and literacy, and to research the benefits that accrue for student learning when these two disciplines are taught in an integrated way. We believe that science and literacy are a natural and powerful pair; in fact, there are many ways in which they are synergistic.

Communicating science reasoning

Science is a rich context for purposeful literacy learning, and literacy development further fuels students' involvement in science. One of the main ways that the *Shoreline Science* unit does this is through explicit attention to developing students' facility with the language of science; that is, the words, phrases, structures of argument, and ways of discussing ideas that characterize science as a discipline. When these elements of language are taught explicitly, and when students are given the chance to practice them, even young students can learn to communicate their scientific reasoning effectively.

We have identified four elements of instruction that, over time, guide students to have meaningful conversations about science.

1. SCIENCE CONCEPTS

Science is an authentic and rich context for language development. When students are investigating the natural world, they are motivated to talk to others about their findings. Instruction that provides access to big ideas in science is likely to spark students' need to discuss their findings. Carefully building students' background knowledge through classroom experiences allows students to have concepts to discuss—as well as to have the shared experience and the vocabulary to discuss them. In the Discourse Circle, students have had a variety of experiences with oil spills before coming to the discussion. This provides them with both the evidence that they will draw upon in the discussion as well as the background knowledge to be able to make sense of it.

2. STRUCTURED OPPORTUNITIES

Students need opportunities to talk to each other about science. This enables students to consider more of the available evidence, hear different explanations, and have the opportunity to process science concepts through oral language. Even a quick discussion with a partner in response to a question is helpful, because it gives students the chance to employ the language that they are learning to process ideas. However, it's important that

these opportunities be structured so that students know exactly what to talk about.

Discussing a specific question or analyzing some tangible evidence yields richer discussions than if students are asked to discuss a broad concept all at once. In the Discourse Circle, we provide structure by requiring the students to discuss the evidence on both sides of one specific statement. The grouping of students during the activity also provides structure, and students have learned exactly how the format of the discussion should proceed. Making expectations and procedures for partner and group discussions explicit is helpful to ensure students' success with and participation in the conversation.

DISCOURSE CIRCLE DIRECTIONS

A Discourse Circle is a group of four people. It works like this:

1. One person presents her position and her evidence.
2. Other students who agree add their evidence.
3. Then a student who disagrees says why and presents his evidence.
4. The group discusses with each other to see if they can come to agreement.
5. If the group cannot agree, the group can talk about all the reasons why they are convinced of their own positions.

3. LANGUAGE SCAFFOLDING

Scientific language is complex. Students need to know what the component parts are, and they need concrete examples of how to use them. One simple way to do this is to provide sentence starters for students to use during conversations. These sentence starters can help students frame their ideas (for example, *I think… because…*) or facilitate interactions with peers (with questions such as *Why do you think that?*). A class or personal glossary that lists brief but accurate definitions of key science terms can also help students remember to use scientific language. In the Discourse Circle, groups of students are reminded by the teacher to use phrases such as *My evidence is…* And, they are able to ask each other questions because they've had lots of practice doing so.

Providing scaffolding in the form of sentence starters, glossaries, and teacher modeling helps students practice generating just part of an argument on their own. As students hear and see this language repeatedly, they will begin to be able to spontaneously use phrases such as *My evidence is…* in their talk.

4. REFLECTION

It is important that students understand that science is a discipline that has its own ways of talking and writing; these ways are particular to science (*not* better—just different) from the ways that they might interact with friends or family, or even ways that they might talk about ideas in other subject areas. Students need time to reflect on how what they do is similar to what scientists do in the broader scientific community. Students can learn about this through reading about the work of other scientists, and by being reminded periodically that what they are doing—investigating, analyzing, communicating—is just what scientists do in the world.

A running list titled, "How were we like scientists?" is an extremely helpful tool for keeping track of these understandings. By making these connections, students come to understand that part of being a scientist is talking like one. They should know that they are spending time discussing and debating evidence because that's what scientists do, too. In the Discourse Circle, after the discussion, students are encouraged to make the connection between themselves as classroom scientists and the broader scientific community.

Science offers valuable ways of communicating about the natural world. The students engaged in the Discourse Circle begin to internalize this way of communicating. It is powerful when students begin to learn the language of science. The realization that they can participate in academic conversations and talk confidently about important ideas is motivating and exciting for students. Recently, I asked a fourth-grade class using a *Seeds of Science/Roots of Reading* unit to reflect on how they were like scientists. One student looked at me as if I had just asked the most obvious question in the world. "We talk to each other about our ideas," she said. "And we talk about what we're doing in science. That's what scientists do."

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