

Peanut butter and jelly science

If only middle school students could communicate in writing as well as they do verbally!

When I find myself completely frustrated with the quality of my students' writing or lack thereof, I head for the peanut butter and jelly. I begin the lesson by asking students to write out numbered steps for making a peanut butter and jelly sandwich. Most are eager to attempt this, and question if they'll be graded on it. After giving students 10 to 15 minutes to work, I collect the student directions.

Students laugh and wiggle in their seats waiting with anticipation to see what's next and why on Earth I'd assign them such a silly task. I move about the room with all seriousness as I take out a loaf of bread, one jar of peanut butter, and one jar of jelly. (Safety note: Use a substitute, such as honey, if any student has a peanut allergy.) They'll ask me, "What are you doing"? I simply say, "We are going to make a peanut butter and jelly sandwich." Now, they are sure I've lost my mind and move in closer to see what happens.

Next, I randomly choose one of the student directions from the pile to begin construction of the sandwich. A typical set of directions might look like this.

1. Get peanut butter.
2. Get jelly.
3. Put them on bread.
4. Pat down.
5. Eat.

As I act out their written directions, there is typically a lot of laughter followed by an immediate realization by students of the level of clarity and description needed to communicate understanding. As I do exactly what the students have written, it becomes obvious that small, yet critical details, such as "unscrew the lid of the jar," are often overlooked. Once the laughter subsides, we discuss the importance of writing in science, not only in the classroom, but in real-world laboratories and other scientific facilities as well. This visual lesson sticks with students like peanut butter to the roof of a mouth.



Students often forget they have to write in science class because they tend to think of writing as a separate part of their education. While most students are capable of expressing their needs verbally, the majority of adolescents are less likely to express themselves clearly and articulately in their writing assignments. In some cases, it's not as if students don't know or understand the content, but rather that they assume the reader knows what they are trying to communicate. This activity can be extended by having students write out directions for tying shoes, folding a paper airplane, opening a carton of milk, or other similar tasks.

In the end I pay a small price for this dramatic lesson—the cost of the materials and the class time. In return, the procedure sections of student lab reports turned in after this assignment are typically much longer and more detailed. And when students do cut corners and make assumptions about a reader's prior knowledge, I can comment on their papers clearly and effectively with three simple letters—P B & J!

Donna Farland (farland.3@osu.edu) is an assistant professor of science education at Ohio State University in Mansfield, Ohio.