A 9th-grade environmental science teacher changes her teaching experiences…

Working with the literacy tools and professional development has changed my perspective on the role of text in planning and implementing lessons. One lesson where this change was particularly effective was with teaching the *greenhouse effect*. When I first began teaching, I presented the lesson in the traditional way that textbook described. The students were assigned to read the text on the greenhouse effect and answer the questions at the end. Then I gave a lecture about what was in the text, with the students passively taking notes. The lab was done after the reading and lecture, where the purpose was to confirm what students had read and been told about the greenhouse effect and how it contributes to global warming.

When considering the reading as part of inquiry learning, the whole lesson was constructed differently. This year students began by discussing a car on a hot day and the difference between the outside and inside temperature of a car. Then students conducted a lab with 2-liter soda bottles, measuring the temperature difference inside the covered and uncovered bottles. During the post-lab discussion, I probed students on why the temperature increased. This uncovered the common misconceptions that light and heat energy are the same thing, and that they both can pass through a barrier like glass (in the case of the car), or plastic wrap (in the lab). The students were perplexed when this did not fit with their observations that the temperature increased in the covered bottles, and the heat could not escape.

The students next used the text to investigate an answer. They read the text and annotated with partners to help dissect the reading. Then as a class, we discussed what they had found to explain the lab results. We worked together as a class to create a DEJ (double-entry journal) describing the analogy and how it relates to the atmosphere. This tied together the opening example of the car, the 2-liter bottles in the experiment, the example of a greenhouse presented in the text, and how these are all analogous to the Earth and the atmosphere. Finally, the students returned to their lab group to answer questions that synthesized all of this information and ultimately how the greenhouse effect is the mechanism for global warming.