

Vocabulary Instruction with Inquiry Learning

Teacher learners in the Rocky Mountain Middle School Science and Mathematics Partnership began by extending their content knowledge through intensive summer courses taught collaboratively by university faculty and district science or mathematics instructional experts. During four day-long monthly *Structured Follow-up* classes for the *Cells, Human Systems, and Heredity* professional learning course held during the subsequent fall, teachers from Kyffin Elementary and Lucus Elementary in Jefferson County studied and refined a student lesson on the human respiratory system.

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One of the goals for the teacher learners is to create or adapt an inquiry-based student lesson. Teachers want their students to “think like scientists” who use observation of a phenomenon to develop hypotheses that can be tested to determine causes and effects. The first experiment was designed to have students determine what causes oxygen to get into the body. The teacher learners also know that “real” scientists do collect information through reading, video, and computer-based resources as well as through observation.



In planning an inquiry-based student lesson, *they were undecided about whether “front loading” vocabulary instruction would detract from the discovery aspects of inquiry learning.* They decided to teach vocabulary up front in one class and consider vocabulary instruction after the initial experiments in the second class.

In the first class groups of students were asked to match such words as *bronchi, inhale, diaphragm, exhale, and windpipe* with definitions prior to reading and watching video clips for background information. The students were also provided with a labeled diagram of the human respiratory system and directed to keep it out as they did the reading and viewing. In the second group the students were provided with an unlabeled diagram of the human respiratory system but were not provided with vocabulary prior to reading and viewing. The teachers discovered that the students in the first class “increased their focus on the science” earlier. They didn’t feel that the up-front vocabulary instruction compromised the inquiry during the first experiments nor the concrete level of understanding provided through student inquiry.

Both teachers will continue to front-load vocabulary instruction for each lesson and/or unit of instruction.