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Multimodal Learning with Laboratory Experiments

For culturally responsive instruction to occur classrooms must be inclusive and provide students with fair opportunities to learn and understand new topics.  Content area literacy is a key way to demonstrate culturally responsive instruction and can be incorporated through graphic organizers, and differentiated learning.

An anticipation guide presented prior to the main activity will engage students to think about the upcoming activity. By returning to the anticipation guide after the lab activity, students can see how their ideas have changed and how they better understand the knowledge behind each statement.

In our lesson, we give students a chance to learn in multiple ways, appealing to all learning styles.  Science lends itself perfectly to multimodal learning. Through lab experiments, all components of VARK can be hit. VARK (Visual, Aural, Read/Write, Kinesthetic) allows students to learn through a diverse selection of methods. Our video demonstration appeals to visual learners by allowing them to see the lab they are about to do, aural learners through spoken instructions and definitions, read/write learners through written definitions and charts, and kinesthetic learners by performing the hands-on lab activity. All students are given a chance to learn in a way that benefits them the most.

In Biology, students will be more successful if they can understand the meaning behind the scientific terms as well as lab procedures. A Word Web Graphic Organizer will help students with connecting vocabulary pertaining to the lab. It creates a visual representation of how certain biological and environmental factors interact with respiratory system components to alter lung capacities. If presented as a post-lab activity, students will have had a chance to search their lab handouts for terms applicable to each category. This is similar to a closed sort word sort activity where students know the categories in advance (Vacca, Vacca, Mraz 253).

One of the characteristics of culturally responsive instruction is to use groups and pairs to create low anxiety.  Students are able to work individually as well as in small groups or pairings, enabling them to help one another understand the content of the lesson (Vacca, Vacca, Mraz 73). Throughout the class, working with partners makes the experiment more fun for students. As well, paired-learning allows students who are having difficulty understanding the procedures or follow-up questions to gain assistance from peers. Think-pair-share activities allow students think about their own answers, pair with a partner to compare answers and share their answers in a guided class discussion. Information-centred, guided discussion would benefit the whole class. As a teacher, we can build on the students’ ideas they present and steer them away from unsupported answers. This is a type of scaffolding (Vacca, Vacca, Mraz 166). Guided discussion can also turn into reflective discussion by asking students to follow up their knowledge of hormone use in races with implications in everyday life.

By engaging students with activities throughout the lesson and motivating them to understand the concepts through paired-learning, we can teach the content of Biology in a way that all students can enjoy and learn.

Citation

Vacca, Richard, Vacca, Jo Anne, and Mraz, Maryann. *Content Area Reading****.*** 11th ed. United

States of America: Pearson Education Inc, 2014. Print.