



THUMBS ON SCIENCE: *Putting the DOS Cards into your Science Scope and Sequence*

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Metamorphosis: Nature Transforming Lives Transforming Nature

5-E Lesson Plan

Engage

These activities mentally engage students with an event or question. Engagement activities capture students' interest and help them to make connections with what they know and can do. The teacher provides an orientation to the unit and assesses students' prior understanding of the concepts addressed in the unit.

Explore

Next, students encounter hands-on experiences in which they explore the concept further. They receive little explanation and few terms at this point, because they are to define the problem or phenomenon in their own words. The purpose at this stage of the model is for students to acquire a common set of experiences from which they can help one another make sense of the concept. Students must spend significant time during this stage of the model talking about their experiences, both to articulate their own understanding and to understand another's viewpoint.

Explain

Only after students have explored the concept does the curriculum and/or teacher provide the scientific explanation and terms for what they are studying. The teacher may present the concepts via lecture, demonstration, reading, or multimedia (video, computer-based). Students then use the terms to describe what they have experienced, and they begin to examine mentally how this explanation fits with what they already know.

Elaborate

The next stage of the model serves to help students elaborate on their understanding of the concept. They are given opportunities to apply the concept in unique situations, or they are given related ideas to explore and explain using the information and experiences they have accumulated so far. Interaction between the students is essential during the elaboration stage. By discussing their ideas with others, students can construct a deeper understanding of the concepts.

Evaluate

The final stage of the model has a dual purpose. It is designed for the students to continue to elaborate on their understanding and to evaluate what they know now and what they have yet to figure out. Although the key word of the stage is *evaluate*, the word does not indicate finality in the learning process. Indeed, students will continue to construct their understanding of these broad concepts throughout their lives. Evaluation of student understanding should take place throughout all phases of the instructional model. The evaluate stage, however, is when the teacher determines the extent to which students have developed a meaningful understanding of the concept.

"No Thumbs" Activity

Theme: Adaptations

Focus Words: adaptation, opposable thumb

Objective/Outdoor Lab:

Students will be able to understand adaptation and look for examples of adaptations in the garden.

Classroom App: Announce to the class that they can bring a special treat to eat in class. (Treats are better if they are in packages and having different kinds of treats makes for a livelier discussion!) Once they have their treats out, tell them that they are going to eat like an animal. Pass out gloves and demonstrate that they are to keep their thumbs out of the glove and fold it in. Allow students to experiment opening their treats and eating it. Discuss what would have made it easier to open and eat their treat. Lead to a discussion of adaptations. Discuss other adaptations that humans have that allow them to do things that other animals can't. Go to the outdoor lab and have students work in groups to brainstorm plant and animal adaptations that they observe. List these in their science journals and allow students to share adaptations and what the adaptation helps the animal do.

TEKS: 3.9A