

Teacher Reflection

Video 1: Structure and Function: Plants

Before the Video

The focus of this video is to learn how teachers may teach a unit that combines science standards (*NGSS* or state standards) and *Common Core State Standards* in English language arts.

This video demonstrates a *review* of concepts learned at the end of a unit focusing on the structure and function of plants. The depth of knowledge reached by this class was exciting! This primary class began with an initial focus on the external parts of the plant (roots, stem, leaves, and flower). The students studied the parts of a sunflower in the school garden as well as the parts of the pumpkin and the pumpkin plant.

While learning how the structure and function of the plant were connected, the students conducted an investigation to learn the needs of a plant. They had three plants: one plant received no water, one received no light, and the third received both light and water. They discovered that a plant needs water, sunlight, and air (with carbon dioxide) to make its own food. The children wondered, “How does the water get to the leaves?” Brinley asked, “How does a plant make food in this tiny, thin leaf?”

The students also wondered what is inside a plant that helps it get water and make food. To find out, the class examined celery in water with food coloring so they could see the tubes that carried the water up the stem to the leaves. They also looked at the tubes in the stem of a bird of paradise plant. The students found information in books and watched video clips to learn the names of the tubes (xylem to carry water and phloem to carry food made by the plant) and the holes (stomata) where the air (carbon dioxide) gets in the leaf. Then, they looked at the parts of the plant with a microscope and a projecting microscope.

After this, the teacher asked, “What could we make or build that could help us to understand what happens inside this tiny leaf?” which led to the engineering of a model plant to explore the question. Tomoya noticed that the tubes looked like a “highway.” The tubes also reminded him of his marble tracks. This connection led to the building of the model with foam swim “noodles,” which used marbles to represent the water, food (sugars made by the plant), and carbon dioxide. The model helped make an abstract concept more concrete.

This video emphasizes asking questions and defining problems with the structure and function of plants. The teacher uses questions to engage learners in questions about the structure and function of the plant, to extend thinking, to make connections to prior learning and experiences, and to contemplate further questions.

During the Video

How does this video demonstrate science standards (*NGSS* or state standards)?

How does this video demonstrate standards from the *Common Core State Standards* in English language arts?

How are the plant structure and function represented in the model?

What does the student do with the model during questioning?

What does the teacher say to build on the student’s comments?

After the Video

Select a science standard.

What standard from the *Common Core State Standards* in English language arts might help you to investigate the science content?

What question might you use to begin the discussion?

How will you connect the science content to the students' world?