

Teacher Reflection

Video 2: Types of Questions

Before the Video

The focus of this video is to learn how teachers may ask different types of questions to facilitate a discussion with an individual, small group, or whole-class group.

In the previous *Structure and Function: Plants* video, the class built a giant plant model to explore the structure and function of plants. After some reflection, the teacher decided that the students in next year's class (shown in this video) would benefit from building individual plant models. This time, the students explored the plant concepts in a similar sequence but built *individual* plant models at the end of the unit.

The class featured in this video 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 and 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?”

“How does a plant make food?”

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.

The teacher asked, “What could we make or build that could help us to understand what happens inside this tiny leaf?” With an assortment of building materials the students made individual plant models to demonstrate the structure and function of plants. The teacher asks different types of questions to the students as they construct their plant models—and construct their understanding.

During the Video

When does the teacher use *divergent* questions? Why?

When does the teacher use *convergent* questions? Why?

How are *clarifying* questions used? Why?

How does the teacher use *probing* questions? Why?

How does the teacher cause the student to *justify and extend* his or her answer? Why?

After the Video

Select a core standard(s): _____

Think through the concept like a student:

What are possible misconceptions?

What might the students wonder?

What types of questions might you use to launch a discussion?

How might you ask questions to access prior knowledge?

When might a divergent question help the discussion?

When might you need a convergent question?

How might you ask questions to clarify understanding?

How might you ask questions to probe to have students describe their ideas in more detail?

How might you ask students to justify and extend their thinking to hold them accountable and provide evidence?