

PD Leader Master: Analysis Guide C: Selecting Activities Matched to the Learning Goal (Answer Key)

List the main learning goal: Plants or animals of the same group share similar characteristics or traits that we can recognize. They also have variations in traits that help them survive.

Analysis Part 1: Identify and analyze the science ideas in the activity. Using the table below, first list in the left column each science idea (main and supporting) that is addressed in the activity. Then indicate in the right column how closely each listed science idea matches the main learning goal.

| All Science Ideas in the Activity | The science idea is (<i>closely, partially, weakly, not</i>) matched to the main learning goal. |
|---|---|
| Traits and Variations in Sunflowers | |
| <i>In this activity, students compare and contrast two sunflowers. They identify, describe, and label similarities (traits) and differences (variations) in the sunflowers and add them to a class chart.</i> | |
| Video Clip 6.3 (Before the Activity) | |
| 1. Birds have the same ... traits. (Video segment 0:00:36) | Weak or partial match |
| 2. Plants have some of the same ... traits. (Segment 0:00:36) | Weak or partial match |
| 3. Birds [have] feathers, wings, and beaks [traits]. (Segment 0:00:50) | Weak or partial match |
| 4. Plants [have] different colors and leaves [traits]. (Segment 0:00:50) | Weak or partial match |
| 5. Traits are all of the things about a bird or a plant ... that are the same. (Segment 0:02:02) | Weak or partial match |
| Video Clip 6.4 (During the Activity) | |
| 6. What [trait] did all of the sunflowers have? (Video segment 00:00:25; stems, 0:00:33; petals, 0:00:35; seeds, 0:01:01; leaves, 0:01:26) | Partial match |
| 7. How are the stems [trait] different [variations]? (Segment 0:02:37; big or small size, 0:02:48; fuzzy or spiky surface, 0:03:14) | Partial match |
| 8. How are our petals [trait] different [variations]? (Segment 0:03:38; colors, 0:03:44; yellow, 0:04:00; golden, 0:04:17; pink, 0:04:38) | Partial match |
| 9. What do you notice about where the seeds [trait] are at [variations]? (Segment 0:05:07; big or small (size), 0:05:28; furry or not as furry, 0:05:41; smooth or hard 0:05:54) | Partial match |

| Video Clip 6.5 (After the Activity) | |
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| 10. How tall was [the sunflower]? (Video segment 0:00:22; 29 inches, 0:00:28; 22/27 inches, 0:00:30; 26 inches, 0:00:37) | Weak or partial match |
| 11. How big was the leaf? (Segment 0:00:47; 10 inches, 0:00:48; 7/8 inches, 0:00:52) | Weak or partial match |
| 12. How wide across was the flower? (Segment 0:00:53; 13 inches, 0:00:59; 11 inches, 0:01:00) | Weak or partial match |
| 13. What was the smallest one [stem height]? (Segment 0:01:11; 16 inches, 0:01:13; 18 inches, 0:01:17) | Weak or partial match |
| 14. Did you guys get to measure the leaf [of the smallest one]? (Segment 0:01:24; 5 inches, 0:01:25; 8 inches, 0:01:28) | Weak or partial match |
| 15. How wide was the flower [of the smallest one]? (Segment 0:01:30; 8 inches, 0:01:31) | Weak or partial match |

Part 2: If there are weak or partial matches, suggest ways the activity could be modified to more closely match the main learning goal.

As the teacher is reviewing the words *trait* and *variation*, she could further clarify that a trait is a feature or characteristic that all animals or plants of the same kind share (e.g., beaks, feathers, and feet in birds and leaves, stems, and petals in plants). The teacher could also clarify that variation refers to differences in only one trait or characteristic of a plant or animal of the same kind (e.g., beak size or feather color). This would help match the teacher talk to the main learning goal.

To improve this lesson, have all students look at the same thing. Since the discussion was much more closely matched to the learning goal when students had actual flowers to refer to, perhaps the teacher could go over more examples at the start of the first several lessons. This could be as simple as projecting a picture of two animals of the same species (such as finches) before reviewing their traits (beak shape and/or feather color) and possible variations (wide beaks versus thin beaks; black/gray feathers versus bright-yellow or red feathers).

Using silk sunflowers that can be altered to exaggerate trait variations might also help students identify these variations in their data. For example, some sunflower stems could be precut (10 Unifix Cubes versus 20), and the sunflowers could have either yellow petals or orange petals.