

lesson topic: **Lifecycle of an Onion Bulb**

overview

These lessons gives students an overview of bulbs, which are complex and compact plant systems, and connects learning to the plant lifecycle.

objectives

Students will learn:

- the parts of a bulb, by examining cut-open bulb
- the lifecycle of a plant through a bulb, by growing bulbs

materials

For this lesson, you will need:

- 25-30 bulbs; enough for each child to dissect
- Onions work very well for this activity, especially if they are already sprouting green leaves from the top
- Plastic knives
- Paper towels
- Magnifying glasses

resources

Read the content packet:
"Basics of Botany"

learning activity

- 1. Begin the lesson by reviewing the parts of the plant:** roots, stems, leaves, flowers, fruits, and seeds. Emphasize that plants are made of up of these six parts. It may be useful for the students to draw pictures of a stereotypical plant with all six parts.
- 2. You may provide examples,** such as "pod" or "bean" to indicate other plant terms that are not on the list, but indicate a specific name for a plant part (e.g. pod=fruit; bean=seed or fruit)
- 3. Explain to the students that today's lesson is about bulbs.** Have a discussion to see if the students have heard of, or know about, bulbs.
- 4. Revisit the plants parts list (#1),** and ask the class why we didn't include "bulb" in this list. Some students may volunteer that bulbs are roots, but you may "table" this conversation and revisit later.
- 5. Pass out the bulbs,** one to each child, and allow them to explore all the aspects.
- 6. At this point,** you may ask the children to draw a detailed picture of their bulb.
- 7. Now pass out plastic knives and paper towels to the students,** and have them cut the bulb in half, from the top to the bottom (length-wise)
- 8. Using the magnifying glasses,** have students explore all the internal aspects of the bulb.
- 9. After exploration** you may have the students make another drawing of the cut bulb.

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10. Ask the student whether they see any differences in color or structure inside the bulb.

11. Students with great observation skills will notice that there are stringy, dried “hairs” attached to the bottom of the bulb (=roots). Discuss the shape/form of the roots, and the function of roots.

12. Students should notice that there are many concave, white parts that make-up most of the onion bulb. Some may even indicate this as the part we eat in onions.

- a. Ask students to make an educated guess about these parts of the bulb. If they are struggling, you may need to help them by pulling out one or two of these concave parts.
- b. Have students reflect on the shape and form of these parts (i.e. flattened and curved) but not the color. You may ask, “What plant parts are typically flattened and sometimes curved” (i.e. leaves). Explain that these parts are actually leaves of the bulb.
- c. You may follow-up with a question, “why aren’t they green, like other leaves?” Most students won’t realize that bulbs are made-up of leaves, which are underground and store food for the plant.
- d. “What function do leaves usually serve for plants?” should be added. They may start to wonder why this plant/bulb doesn’t have green leaves.

13. It may require some guidance for students to notice the last part of the bulb: a small section that connects the stringy roots to

the white concave leaves. This portion is tan-colored, small, and round (=stem).

- a. Ask the students, “What plant part normally connect the leaves to the roots?” Some should be able to understand that stems serve this function.
- b. Ask them “What plant part do you think is connecting the white leaves of our bulb to the stringy roots?” They should be able to understand that this small portion of the bulb is the stem, although they may question why it’s so small. Explain that the stems of small plants are frequently short in length.

14. Ask the student to revisit their drawing, and now label each part: roots, stem, leaves. Ask them the introductory question, “Why we didn’t include “bulb” in the list of plant parts?” Help students understand that a bulb is a compact plant that includes roots, a stem, and leaves.

extending the lesson

Continue the fun by:

Having students plant onion bulbs and document the growth and (possible) fruiting of the plant.

materials

- Pots
- Soil
- 10 onion bulbs to grow in the classroom

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learning activity

- 1. Have students explore uncut bulbs** and explain that we are going to grow bulbs in the classroom.
- 2. Using pots and soil,** plants the bulbs half in soil, with the root-side into the soil. Water the bulbs generously.
- 3. Over the next several days/weeks,** green leaves will start to emerge.
- 4. Have students keep a notebook** and document the changes in the onion. Make sure to connect the parts of the bulb (main lesson) to the emerging green leaves and photosynthesis.

5. If proper care is given, the bulb will produce a long flower stalk with star-shaped flowers. Make sure to connect the flowers to the reproductive lifecycle of the plant.

6. Sometimes, the flowers will self-pollinate, and form into small, green fruits. The petals will fall off the flowers.

7. Use some of the fruit to cut open and see the seeds inside. If proper care is given, these fruits can mature (turn brown and harden). They will split open to disperse seeds.

8. Collect these seeds and replant to create new, small onion bulbs.

