



## Teaching in the Gardens and Growing the Future

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### What is in a Bulb? Preschool

#### Lesson Summary

##### When to use this lesson

Use this in the fall when bulbs are planted.

##### Objective

Students observe parts of a bulb and understand how the plant grows.

##### Standards

SKCS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.

Raise questions about the world around you and be willing to seek answers to some of the questions by making careful observations (5 senses) and trying things out.

SKCS5. Students will communicate scientific ideas and activities clearly.

a. Describe and compare things in terms of number, shape, texture, size, weight, color, and motion.

b. Begin to draw pictures that portray features of the thing being described.

SKL2. Students will compare the similarities and differences in groups of organisms.

a. Explain the similarities and differences in animals. (color, size, appearance, etc.)

b. Explain the similarities and differences in plants. (color, size, appearance, etc.)

##### Materials

- At least one bulb for each student to plant
- 1 bulb or onion cut open to show the inside to students
- A trowel
- Clipboards and pencils if using the worksheet
- Laminated pictures of tulips and daffodils from the barn to show students the flower that will grow

##### Estimated Duration

30 minutes

#### Ohio Academic Content Standards Connections

##### Cognition and General Knowledge

###### Explorations of Living Things

- With modeling and support, identify physical characteristics and simple behaviors of living things.

- With modeling and support, identify and explore the relationship between living things and their environments.
- With modeling and support, demonstrate an understanding that living things change over time.

### **Spatial Relationships**

- Demonstrate understanding of the relative position of objects using terms such as in/on/under, up/down, inside/outside, above/below, beside/between, in front of/behind, and next to.

### **Bulb Discussion**

- Hold up a bulb and ask the students if they know what it is. Explain that it is a daffodil bulb that will grow a flower in the spring. Show a picture of the flower. The bulb is not a seed. The bulb started from a seed and has been growing for about 5 years to the right size to grow a flower. Before that time, only leaves will grow. We plant bulbs because we don't want to wait 5 years for a flower.
- Explain that the students will plant a bulb (or more than one if supply levels permit). What will it need to live and grow? Air, food, water. If students have a hard time answering, ask them what they need to live and grow.

### **Bulb parts**

- Bulbs can be as small as a pea or as large as 15 pounds. Show examples if you have some. Our bulb is related to an onion bulb. They look similar and have the same parts.
- Explain the parts of the bulb and relate them to the plant needs. The exact terminology is not important for this age group. Show an open bulb. Explain that bulbs have special parts to help them grow.
- The bulb has a skin on the outside. The skin on the outside protects the bulb from damage or drying out underground. It acts like a coat to protect the bulb.
- The bulb has dried roots at the bottom. The bulb will grow new, healthy roots after we plant it.
- What colors do you see inside? The bulb has layers inside like the layers of an onion. The layers inside the bulb are food to help the bulb grow a plant.
- Do you see anything else inside the bulb? Help the students notice the greenish/yellowish center. This is the new plant that will grow in the spring. The new plant is protected in the layers and gets food from the layers to push through the soil in the spring.

### **Bulb life cycle**

- Is this the season we usually plant? The bulb is a special plant part that can survive cold soil temperatures in winter.
- We plant bulbs in the fall so roots will start to grow.
- In winter, the bulb is at rest, like our trees and many other plants. The soil is too cold for the bulbs to grow a plant. These bulbs need the cold winter soil to get ready to bloom in spring.
- In spring, there is more warmth from the sun's energy. The bulb is at rest until the soil temperature is warm enough and there is enough water to signal the plant inside the bulb to grow. Daffodil flowers will open in March and April.

- After flowering, the plant above the ground dies, but the bulb underground is still living. The bulb underground begins to grow more layers. In the summer, the plant above the ground dies, but the bulb in the ground is alive with more layers and a new plant inside. The new plant will grow in the next spring.
- The bulb will continue to grow a new plant year after year following the same cycle.

### Discuss How to Plant

- Show the trowel that the students will use. Demonstrate safe use of the trowel. Do we wave the trowel? Do we point it at our friends? The trowel is a tool that is safe when used the correct way for digging and is potentially harmful if used as a toy. The point of the trowel is always down. When the trowel isn't being used, it is stuck in the ground with the handle up.
- Explain that we want to plant bulbs six inches deep. You dig the hole in the spot you find the trowel.
- Dig a six-inch hole. The trowel is used to estimate six inches. Show the blade of the trowel. The blade is about six inches deep. The hole is six inches deep when the point of the blade is touching the bottom of the hole and the top of the blade is even with the soil line while the trowel is held straight up and down.
- When you are done with the trowel, it is placed in the storage bucket.
- Tell students to place the soil they dig next to their hole to save it for covering up the bulb.
- Students should raise their hand when they think their hole is deep enough. An adult will check the hole and give a bulb to the student if the hole is deep enough.
- Show students the pointed end of the bulb. The new plant grows out of the pointed end in the spring. The pointed end points up to the sky when the bulb is placed in the hole. When the bulb is in the hole, it should be covered with the soil that was removed, and the trowel returned to a bucket.
- If students are planting more than one bulb, have students plant one foot apart. Fingertips to elbow is a good benchmark to estimate one foot.
- After the instructions are provided, have the students repeat the steps to you, and then head outside to plant.

### Planting Outside

- Locations will be assigned.
- In advance, place a trowel in the ground in the spot you want a student to plant a bulb. If no trowels are available, please use the student-sized shovels. Bulbs are not planted in or around the garden beds. Bulbs are planted in flowerbed areas.
- If you have enough bulbs, have each student plant two. The second bulb should be spaced about one foot from the first bulb.
- Use the worksheet for students who finish early or send it home with students.

### Sometimes called bulbs, but they're not

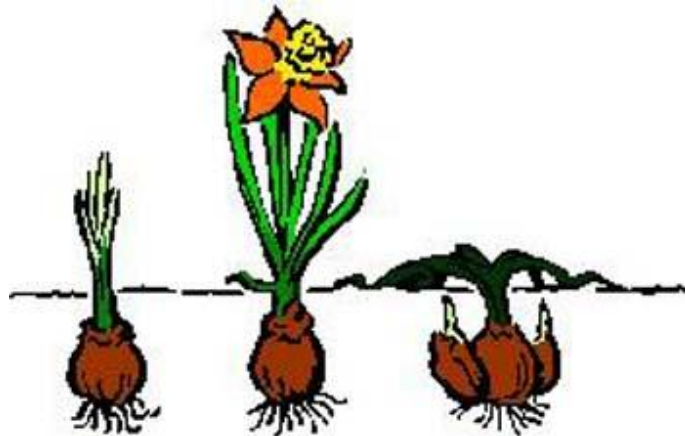
- **Corm** – swollen stem base that is the storage tissue with net-like tunic, basal plate, growing plate, no layers like bulbs (gladiola, crocus, freesia)

- **Tuberous stem** – thickened underground stem that is the storage tissue, no basal plate, no tunic (caladium, potato)
- **Rhizome** – modified stem that is storage tissue, grows horizontally through soil (iris, lily-of-the-valley, calla lily, canna lily)
- **Tuberous root** – enlarged fleshy root tissue that is storage tissue, growth from buds at the top (crown) of root mass (dahlia, anemone, sweet potato)
- **Fleshy roots** – fleshy roots are storage tissue (daylily, peony)

### Sources

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- "Types of Geophytes", Cornell University. <http://images.google.com/imgres?imgurl=http://www.hort.cornell.edu/department/faculty/wmiller/bulb/compbulb.gif&imgrefurl=http://www.hort.cornell.edu/department/faculty/wmiller/bulb/type.html&h=200&w=420&sz=16&hl=en&start=11&um=1&tbnid=66HjWGT7L0dCRM:&tbnh=60&tbnw=125&prev=/images%3Fq%3Ddrawing%2Bof%2Btulip%26svnum%3D10%26um%3D1%26hl%3Den>
- "Lesson 1: Bulb Botany", Kids Garden News. <http://www.kidsgardening.com/2005.kids.garden.news/sept/pg2.html>

# DAFFODILS



# TULIPS





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## What is in a Bulb? Preschool

Draw a picture of something you learned today.

A large, empty rectangular box with a thin black border, intended for a child to draw a picture of something they learned today.