

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

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LESSON 1.9

What's a Bulb?

Unit:
PLANTS AND GARDENING

PRECEPTS

- J. Mental Growth
 - J5. Commit to life-long learning



Lesson Type:
Small Group

NATIONAL STANDARDS

- CS.01.01.01.a. Work productively with a group or independently.
- PS.02.02.01.c. Formulate and prepare growing media for specific plants or crops.
- NL-ENG.K-12.12 – Applying Language Skills
- NS.K-4.3 Life Science

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Explain the function of a bulb.
- List the steps involved in growing bulbs indoors





TIME

Instruction time for this lesson: **30 minutes.**



RESOURCES

Cornwell, R. Bulb Basics. Retrieved April 11, 2010, from University of Illinois Extension. Website: <http://urbanext.illinois.edu/bulbs/bulbbasics.html>

National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ Several bulbs (hyacinth or narcissus bulbs, etc.)
- ✓ Colored gravel
- ✓ A pretty container - around a 16-ounce glass works well
- ✓ A source of water - a watering can or a sink
- ✓ PALS1.9.SG.TM.A
- ✓ PALS1.9.SG.TM.B
- ✓ PALS1.9.SG.TM.C
- ✓ PALS1.9.SG.ASSESS.A



KEY TERMS

The following term is presented in this lesson and appears in ***bold italics***:

Bulb



CONTENT OUTLINE

Objective 1. Explain the function of a *bulb*.

1. Define ***bulb***.
 - A. A ***bulb*** is a plant that has fleshy, underground storage structures
 - B. Examples of ***bulbs*** are tulips and daffodils
2. The main function of a bulb is to store nutrient reserves to ensure plants' survival.

Objective 2. | List the steps involved in growing *bulbs* indoors.

1. Tips for success.
 - A. Materials Needed:
 1. Several ***bulbs*** (hyacinth or narcissus ***bulbs*** grow well)
 2. Colored gravel
 3. A pretty container (around a 16-ounce glass works well)
 4. A source of water (a watering can or a sink)

B. Procedures:

1. Spread the gravel on the bottom of your container
2. Gently push the bottom of the **bulbs** into the gravel until they stand by themselves
3. Add water until the bottom inch of the **bulb** is covered.
4. Place the container next to a sunny window. Add water periodically to keep the bottom of the **bulb** wet
5. Enjoy the flowers

INTEREST APPROACH

*Prior to students arriving, arrange a variety of **bulbs** that are not flowering, such as daffodils, tulips or a narcissus. Also have flowering examples of the same types of plants so that students will be able to see what it looks like after flowering. In addition to the flowering **bulbs**, also have an onion for students to have another example that they may be more familiar with.*

Once all students arrive, welcome them and introduce the group if necessary.



On this table there are a variety of different objects. When you hear the word PONDER, take 20 seconds to think quietly one thing that is the same between all these items.

*Gesture toward the table full of flowering and non-flowering **bulbs**.*

What questions do you have? Answer any questions there might be.

PONDER

At the completion of 20 seconds, refocus the group's attention.



Thank you for thinking quietly. Who will share one thing they thought was similar between all these items?

Allow students to respond. If a student says they all start the same, ask them to explain what makes them say this.



Plants can perform some amazing tasks. These items (*hold up the non-flowering **bulbs***) actually grow into these items (*hold up the flowering **bulbs***). Today let's be investigators and learn how this transformation takes place. Put those thinking caps on and let's get started!

SUMMARY OF CONTENT AND TEACHING STRATEGIES

Make sure to prepare PALS1.9.SG.TM.A - C prior to beginning the lesson. If an overhead or technology is not available, have the content on posters displayed large enough for all students to see.

For the activity during Objective 2, students will complete the procedures individually so that they can take the end product home. If the number of students is known prior to arriving, divide all the materials needed for the activities into enough groups easily distributed when ready. One set of demo materials will help demonstrate the procedures of the activity during the explanation.



Who will share with the group the purpose of a **bulb**?

*Allow students to answer. Most will talk about electrical **bulbs**. Have them not only talk about it being the source of light, but also talk about what is inside the **bulb** to make the light happen.*

Light **bulbs** are everywhere. We see light **bulbs** in our homes, schools, at stores and even outside in places like traffic lights. The inside of the **bulb** has something called a filament, or the source of light.

Reveal PALS1.9.SG.TM.A.



Look at this picture of a light **bulb**. The inside of the **bulb** is really the most important part. What happens to a light **bulb** if we don't take care of it properly, for example, dropping the **bulb** on the ground?

Allow students to answer.



The light **bulb** either will break or the filament inside it will break. Without either of those items, the light **bulb** will not work. Now look at the items we talked about at the beginning of today.

*Hold up one of the examples of the non-flowering **bulbs**.*



This is also called a **bulb**! Who in here can tell us why this **bulb** would be similar to a light **bulb**?

*Allow students to talk about the similar shapes, etc. If they talk about the most important part being in the middle, then ask them what makes the middle of a non-flowering **bulb** important.*



This is a plant **bulb**. This type of **bulb** is a plant that has a fleshy, underground storage structure. Just like a light **bulb** has a filament that is necessary for it to produce light, a plant **bulb** stores something special to help the flower when it is time to grow. Who will tell us what special item this plant **bulb** might be storing?

Allow students to answer.

OBJECTIVE 1. | Explain the function of a **bulb**.



I. Define **bulb**

A. A **bulb** is a plant that has fleshy, underground storage structures



These **bulbs** store food and water, which allow it to have a resource of energy for growing. There are many types of plants considered **bulbs**. Let's see if we can name a few. Look at the following pictures.

Display PALS1.9.SG.TM.B.



Who will name what type of flower Plant A has?

Allow students to guess what type of plant 'Plant A' represents.



Plant A is a tulip. A tulip is a type of **bulb** that can grow outside or inside. They come in a variety of colors. Who will tell us what time of year we might see tulips growing outside?

Allow students to respond spring.



Thank you. Tulips come in many different colors and are just one example of a **bulb**. Look at Plant B on this picture.

Refer to PALS1.9.SG.TM.B.



Who will name what type of flower Plant B represents?

Allow students to guess what type of plant 'Plant B' is.



Plant B is a daffodil. A daffodil is another type of **bulb** that can grow outside and inside. They are usually yellow or white and can even be wild, meaning they will grow on their own without our assistance, in some places around our country.



Finally, look at Plant C. This one probably looks very familiar. Who can name what type of plant Plant C represents?

Allow students to guess what type of plant 'Plant C' is. This should be fairly obvious, but the plant is an onion.



Bulbs are not always flowers. Some plant **bulbs** can also be our food. Plant C is an onion. Onions are also **bulbs**, but these are **bulbs** we eat! If you leave an onion planted, it will actually grow into a plant like both the tulip and daffodil. Here is what an onion looks like if it starts to grow.

Display PALS1.9.SG.TM.C.

b. Examples of **bulbs** are tulips, daffodils, and onions



So who will tell us again what a **bulb** is?

Allow students to respond. Some review and refresher might be needed.



Thank you for sharing! Again, a **bulb** is a plant with an underground storage structure of food and water waiting to be used when the plant grows. Why is it important that the plant has food and water?

Allow the students to answer.



Just like you and me, if we do not have food and water we cannot survive. Food and water is important to make sure the plant survives.

II. *The main function of a **bulb** is to store nutrient reserves for the plants' survival.*



Let's put together activities that will help us see a **bulb** start out like this (*Hold up the non-flowering **bulb***) that turns into something beautiful like this (*Hold up the flowering **bulb** example*).

OBJECTIVE 2. List the steps involved in growing *bulbs* indoors.



I. Activity: Growing *bulbs*

A. Materials Needed:

1. Several **bulbs** (*hyacinth or narcissus bulbs grow well*)
2. Colored gravel
3. A pretty container (*around a 16-ounce glass works well*)
4. A source of water (*a watering can or a sink*)

B. Procedures:

1. Spread the gravel on the bottom of your container.
2. Gently push the bottom of the **bulbs** into the gravel until they stand by themselves
3. Add water until the bottom inch of the **bulb** is covered
4. Place the container next to a sunny window. Add water periodically to keep the bottom of the **bulb** wet
5. Enjoy the flowers

*Each student in the next activity should have his or her own supplies. Distribute them now. These should already be separated and ready to go. If they are not, each student should get a plant **bulb**, a container, a source of water (a watering can for every four students should be adequate or a sink will also work), and enough gravel to cover the bottom of each container. Place the set of demo materials at the front of the room to allow for demonstration while talking through the procedures.*



Before we get started setting up our **bulbs**, let's make sure everyone has all the materials. I know it is exciting, but please leave the items on your desk untouched until you hear directions to do so. Everyone should have a **bulb** (*hold up the demo plant bulb*), a container (*hold up the demo container*), some gravel (*hold up the demo gravel*), and a source of water (*hold up the watering can or direct students to the sink*). Do we all have all the supplies needed?

Resolve any issues at this time to make sure all students have the correct supplies needed to complete the activity.



Listen carefully as we work together to set up our **bulbs**! As we work through the steps, we will demonstrate each one for everyone to see. As questions come to mind, please raise a hand so we can make sure that we are all still together!

During the activity, go through each step with the demo materials so students understand what is expected of them.



The first step to putting our beautiful plants together is to take our containers and fill the bottom of it with gravel.

Demonstrate the action of placing the gravel in the bottom of the container and covering it completely.



When we do this, we need to make sure that the bottom of our container is completely covered. When you have completed this step, please put your container on the table.

Demonstrate putting the container down on the table.



What questions do you have? *Answer any questions.* During this step, if questions arise, raise your hand and someone will be around to help.

Wait for groups to complete this task. Monitor and make sure students completely cover the bottom of the container. Each student should have a premeasured amount of gravel, so make sure each one uses all of their supplies. When everyone completes this step, refocus the group.



Next, gently place the bottom of the **bulb** into the gravel until it stands by itself.

*Demonstrate taking the **bulb** and gently placing it into the gravel until it stands by itself. Make sure to point out to the students which side is down. The way this looks could vary depending on what type of **bulb** is used.*



When you complete this step, place your hand on your head. What questions are there?

Answer any questions.



Again, if there is a question while completing this step, raise your hand and someone will be around to help.

*Monitor students as they place their **bulbs** in their containers. Check to make sure all students have their **bulbs** with the bottom sides down in the container. Once all students have their hands on their heads, move on to the next step.*



Thank you for listening to directions so far. We are halfway there! Next, we are going to give the **bulb** something very important that it needs to start growing: water. Carefully take our water and add enough so that about an inch of the bottom of the **bulb** is covered.

Demonstrate this step either with a watering can or at a sink.



Make sure not to add too much because the **bulb** needs to have air in order to grow as well. Once you have added water to your container, make sure to clean up your desk area so to not leave any water anywhere but in your container. Throw any paper towels away that you might use. When you have completed this step, place your hand on your head again. What questions are there?

Answer any questions.



Don't forget that we're here to answer questions!

*Again, monitor students and make sure that they do not add more than one inch above the bottom of the **bulb**. Once all students complete this step and clean up, move on to the last step.*



Light is a very important part of a plant's life. In order make sure our **bulbs** grow, we need to place our containers somewhere that it can capture light. Let's move our containers to a sunny spot!

*Depending on the classroom space, move the containers to an area that will be able to be left alone while the **bulbs** grow.*



Great job putting together our **bulbs**! We will have to watch them in the upcoming days and weeks to make sure that they have enough water in them and that they are getting enough light. If the water is too low, make sure you add enough to keep exactly how much you put in there today. What questions do you have?

Answer any questions students might have.



In the next few weeks, we will have a lovely windowsill of flowering **bulbs** to look at! What a beautiful sight that will be!



We will discover in a few weeks that **bulbs** really are a source of energy for plants as they begin to grow. We will not need to add any food to our plant and we will still get a beautiful flower in the end. Great job today! Let's review what we just learned.



REVIEW / SUMMARY



We learned about something new today. Who can tell me what a plant **bulb** is?

Allow a student to respond.



That's right – a plant **bulb** is basically an underground storage system that holds important food and water for the plant's growth. How did we say a plant **bulb** was similar to a light **bulb**?

Allow students to respond.



Remember, a light **bulb** has a filament. This is where the light energy is found in the inside of the **bulb**. In the plant **bulb**, that storage system is there to provide the important energy and nutrients to the plant so it can grow.



Who will share an example of a plant **bulb**?

Allow students to respond.



Thank you for remembering those examples! Daffodils, tulips and don't forget those onions, are all considered plant **bulbs**.

In the next few weeks, we will have beautiful flowers that started as just a **bulb**. Next time you see a tulip, daffodil, or even an onion, just remember what an incredible structure the **bulb** really is! When we meet again, we will look at a different part of the plant, the leaves! So keep those thinking caps on and don't take those plants for granted – they're amazing in everyway!

APPLICATION



Large Group Idea

*After researching how to grow **bulbs** outdoors, students can plant a small **bulb** garden at their school.*

*Students could plant **bulbs** and give them to their favorite teacher as a gift; considering planning this activity well in advance of Teacher Appreciation Week or Mother's Day.*

*Explain the important parts of having a **bulb** flower, like water and light, and why they must be present.*



One-on-One Idea

*Dissect a variety of **bulbs** to show the different parts and discuss why each is important.*



PALS1.9.SG.ASSESS.A | EVALUATION ANSWER KEY

1. What is a bulb?
A. A bulb is a plant that has fleshy, underground storage structures.
2. Give one examples of bulbs.
A. Tulips, daffodils, etc.
3. What is the main function of a bulb?
A. To store nutrient reserves to ensure plants' survival.
4. What else do bulbs need to survive?
A. Water and sunlight



PALS1.9.SG.ASSESS.A

Name _____

1. What is a bulb?

2. Give one example of bulbs.

3. What is the main function of a bulb?

4. What else do bulbs need to survive?

PALS1.9.SG.TM.A

That's a Bright Idea!

Parts of a light *bulb*



PALS1.9.SG.TM.B

Name that Plant

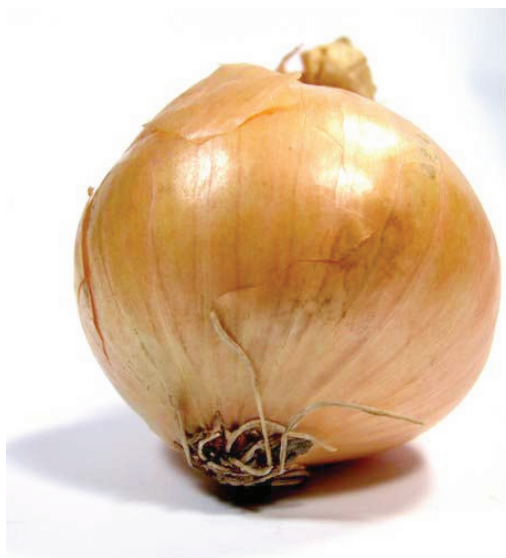
Plant A



Plant B



Plant C



PALS1.9.SG.TM.C

Onion Growing

