



2nd Grade Lesson Plan: Plant Life Cycle

Objective: Teach students about the different steps of the plant life cycle: seed, germination (sprout), seedling, and growth into an adult plant.

Materials: Sandwich bags that zip closed, cotton balls, seeds, water, labels, and the plant life cycle “What You Discovered” worksheet revised for 2nd grade classroom use.

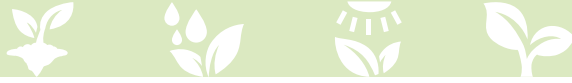
Procedure:

1. Start with a basic class discussion about plants and what they need to grow. You will want to list each thing they need on the board and include a simple drawing to provide a visual.
 - a. Ask students an opening question such as: **What is your favorite plant? Where do plants come from? What does a seed do?**
 - b. While there are different types of plants and different ways they reproduce, most plants follow the same basic life cycle. And, for most, it starts with a seed.
 - c. Seeds come in different shapes and sizes and each is meant to grow into an adult plant. In order to grow seeds need three things.
 - i. Ask students if they know **what the three things plants need to grow** are and list them on the board: **nutrients** (typically in soil), **light**, and **water**.
 - ii. Tell students that inside the seed is a baby plant (embryo) and some food (endosperm) to help it start growing, but it needs more nutrients if it's going to become a full grown plant.
 - d. Once a seed gets these three things it begins the next step: germination or sprouting. Germination happens when a small root comes out of the seed looking for nutrients.
 - e. The plant continues to grow becoming a seedling as it breaks through the ground, searching for sunlight which it uses to make food.
 - i. Mention that plants use sunlight to make food through a process called photosynthesis. Write the word on the board and explain that **“photo”** means “light” while **“synthesis”** means “to make.” Thus photosynthesis means to make food using light.
 - f. As the plant gets bigger it becomes an adult plant. As the plant grows it becomes taller and develops a better root system.
 - i. Ask students **why they think a root system is important?** (It absorbs nutrients, protects the plant, and helps the plant stay in place.)
 - g. Eventually the plant becomes big enough to make its own seeds and the cycle starts over.
 - h. Adult plants are used for many different things.
 - i. Ask students if they can think of **how plants are used in daily life**. Answers include: **food**, **cotton** for clothing, **lumber** for buildings, **essential oils**, etc.
2. Have students sprout plants using radish seeds or another seed that is easy to see. Follow the steps outlined in the dōTERRA® Science for Kids Plant Life Cycle Experiment.

Evaluation: Teachers will evaluate students' understanding by reviewing their responses to the questions on the “What You Discovered” worksheet, as well as the notes they recorded in their notebook.



The Plant Life Cycle



What You'll Need:

- Cotton balls (5 per bag)
- Water
- Tape
- Labels (optional)
- 1 Marker
- Plastic sandwich bags that zip closed
- Seeds (3-4 per bag)
- Spray bottle

Hints:

Have students help pass out supplies.

Have teacher spray the cotton balls and put the seeds in the bag.

What You'll Do:

- 1.** For this activity you will be sprouting seeds. Sprouting is the first step in a seed growing into a plant. Take a moment to answer questions 1-4 on the "What You Discovered" worksheet before beginning the experiment.
- 2.** To set up your experiment, label your bag with your name. **Note:** *You can use either tape or labels to write your name on.*
- 3.** Next, place cotton balls at the bottom of the plastic bag you just labeled and spray them with water. **Note:** *You want the cotton balls to be moist, but not dripping wet.*
- 4.** Place a few seeds between the cotton balls and the plastic bag so you can see the seeds.
- 5.** Let the air out of the bag and zip it closed.
- 6.** Tape the bag to a window that gets at least partial sunlight throughout the day.
- 7.** For question 5 on your worksheet, draw a picture in your notebook of your seeds inside the bag before they start sprouting.
- 8.** Check the seeds each day for a week and draw a picture of what they look like every day in your notebook. Make sure to check off the days for question 6 on your worksheet.
- 9.** Take time to fill out the "What You Discovered" worksheet as you work on your experiment.

What Does It Mean?

Plants go through different steps as they grow from a seed into an adult plant. Taking the time to sprout a seed makes it easy to see the first steps of a plant's growth. If a seed sprouts, that means it got enough water and sunlight to begin growing. You probably noticed that some of your seeds did not sprout. This could be caused by a lot of things, such as not enough sunlight, water, or time. Sometimes it is simply because the seed was bad.

Once a seed has sprouted, it can be planted in soil and allowed to grow into a full plant. A seed doesn't need soil until after it has sprouted. After a seed has sprouted, planting it in soil helps it grow into a healthy plant. The soil helps the seed get the nutrients it needs to grow. The soil also allows it to grow a good root system. These are both things a plant needs in order to grow strong so that it can be used for various things, such as food, as cotton for clothing, or to make essential oils.



What to Do Next:

- Repeat the experiment at home using different types of seed.
- Plant your sprouts in a pot or garden to try and grow the full plant.
- With the help and permission of your parents, post pictures of your sprouts on Facebook or Instagram and make sure to tag **@doterrascience** or to use the hashtag **#doterrascienceforkids**



The Plant Life Cycle

Name Teacher's Copy

What You Discovered:

Fill out the questions below as you work on your plant life cycle experiment.

1. What are the four steps of the plant life cycle?

Seed, germination (sprout), seedling, adult plant

2. How many days do you think it will take for your first seed to sprout? Student's guess
(This guess is called a hypothesis.)

3. Draw a picture of your seeds inside the bag in your notebook.

4. Draw a picture of your seeds each day for a week in your notebook.



5. How many of your seeds sprouted? Will vary

6. How many days did it take for your first seed to sprout? Will vary

7. Did you guess correctly the number of days it would take for the seed to sprout? Yes or No

8. Which step(s) in the plant life cycle did you get to watch with this experiment?

Seed and germination, (sprout)



The Plant Life Cycle

Name _____

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(This guess is called a hypothesis.)

3. Draw a picture of your seeds inside the bag in your notebook.

4. Draw a picture of your seeds each day for a week in your notebook.



5. How many of your seeds sprouted? _____

6. How many days did it take for your first seed to sprout? _____

7. Did you guess correctly the number of days it would take for the seed to sprout? _____

8. Which step(s) in the plant life cycle did you get to watch with this experiment?
