

Second Grade Lesson Plan - Green Thumb Gurus

Suggested time: 45 minutes

Lesson Snapshot:

In this lesson, students will demonstrate proficiency in planning investigations to determine if plants need sunlight and water to grow. The first investigation will focus on one variable (sunlight or lack of sunlight). The second investigation will demonstrate the disciplinary core idea, highlighting plants need water in order to grow. It is recommended that future lessons focus on conducting observations and discussing cause and effect relationships, specifically the absence of sunlight on a plant.

Background Information:

Plants need sunshine, water, and air to grow. Plants can either be vascular or non-vascular. Vascular plants have special tissues called xylem and phloem that carry water and food throughout the plant. They also have other parts such as roots, stems and leaves to help bring nutrients to all parts of the plant to help it grow. Non-vascular plants such as mosses and liverworts do not have xylem or phloem nor do they have true roots, stems and leaves. Most vascular plants grow and reproduce by seeds while non-vascular grow and reproduce by spores. Seeds can come from flowers, fruit and cones (i.e. pinecones). Seeds need air, water, the right temperature and light, and good soil conditions to germinate (sprout roots) and grow. Seeds can germinate without soil but once seeds grow roots, they need to be transferred to soil to obtain essential nutrients to grow.

Fun Fact: Did you know plants make their own food? Green plants use the Sun's energy, water and carbon dioxide to make food— photosynthesis!

Science, Technology & Engineering, and Environment Literacy & Sustainability (STEELS) Standard(s):

3.1.2.A: Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Connections to Other Standard(s):

CC.1.5.K-2.A: Participate in collaborative conversations with peers and adults in small and larger groups.

Objective(s):

Students will plan and conduct an investigation to determine if plants need sunlight and water to grow.

Materials:

- *Curious George Plants a Seed* by Ericka Zappy
- "Greenhouse" cut-out (1 per student)
- Observation Journal (1 per student, at the end of this file)
- Pencils/Crayons
- Plant seed
- Snack bags
- Paper towels
- Tape
- Celery
- Large cup (1 per student)
- Food coloring



Advanced Preparation:

Print observation journal and “Greenhouse” worksheet for each student.

Cut one stalk of celery per student.

Suggested Implementation:

Part 1: Shared Read Aloud

Read *Curious George Plants a Seed* by Ericka Zappy.

Class Discussion Questions:

“What are the basic needs of plants?” (light, water, Sun, nutrients)

“How does sunlight affect the growth of a seed?” (The Sun provides nutrients for the plants to grow)

“Can a seed grow if it is away from the sunlight?” (A seed might grow without sunlight, but not very much)

Discuss student responses, guiding students to understand what can affect the growth of a plant.

Part 2: Investigation(s)

Investigation: Do Plants Need Sunlight?

Distribute “greenhouse” cut-out and scissors.

Students will cut out the middle part of their “greenhouse.”

Distribute damp paper towels to each student.

Students will wrap a seed (of choice) in a damp paper towel.

Students will place the paper towel inside the snack bag.

Students will tape the bag to the “greenhouse”.

Divide students, encouraging half of the students to place “greenhouse” in a sunny area while the other half place “greenhouse” in a shaded area.

Students will make predictions and write their findings in the observation journal in the section labeled “seeds”.

Encourage students to draw what the seed looks like now, and what it may look like in a couple of days.

Discuss findings/predictions.

Investigation: Do Plants Need Water?

Class Discussion Questions:

Discuss that as scientists, we use evidence to answer questions.

Pose the question, “What evidence answers the question, “Do plants need water?””

Introduce the second investigation.

Provide each student with a large cup and a stalk of celery.

Students will fill the cup halfway with water.

Students will take drops of food coloring and add it to the water.

Students will observe and make predictions on what will happen to the celery after one day.

Students will record their predictions in the observation journal in the section labeled “celery”.

Extension:

After a couple of days, students can observe their celery to see how the celery had absorbed the food coloring. Discuss that the celery changing color is evidence to support that celery (or plants) need water.

Students can add these observations to their observation journals.




Part 3: Summation

Review/discuss predictions and findings of the seeds and possible germination.

Review/discuss the basic needs of plants/seeds.

Review/discuss the predictions for the celery investigation.

Review/discuss how the celery stalk absorbs water.



Extension Activities:

- If possible, provide a small amount of time each day for students to write down their observations of the plants/seeds for that day. Students can check on their “greenhouses” and celery to observe if anything has changed.
- If using pumpkin seeds, teachers can research and/or discuss the life cycle of a pumpkin, and the growth patterns of pumpkins.
- Once the “greenhouse” seeds get large enough, plant them as a class. Take the seeds and plant them into small pots.

PBS Resources and Links:

[Plants](#) | [Plants](#) | [PBS LearningMedia](#) (collection includes videos, lesson plans, interactives in English and Spanish)

[What Do Plants Need?](#) | [Hero Elementary™](#) | [PBS LearningMedia](#) (video: full episode 11:02)

[Veggiezilla! Game](#) | [MOLLY OF DENALI™](#) | [PBS LearningMedia](#) (interactive game)

Connections to Other Standard(s):

CC.2.4.2.A.4: Represent and interpret data using line plots, picture graphs, and bar graphs.

CC.1.4.2.V: Participate in individual or shared research and writing projects

CC.1.4.1-2.U: With guidance and support, use a variety of digital tools to produce and publish writing including in collaboration with peers.

CC.1.4.2.W: Recall information from experiences or gather information from provided sources to answer a question.

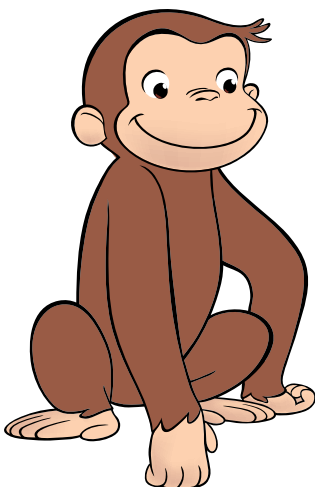
Resources/Acknowledgments:

[STEELS Hub - SAS](#)

[Science & Plants for Schools](#)

[National Agriculture in the Classroom](#)

[Britannica Kids](#)



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OBSERVATION NOTEBOOK



EXPLORE
in the classroom

witf

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KIDS

**THIS NOTEBOOK
BELONGS TO**

NAME:

TEACHER:

Be just like a scientist and write down your observations in this observation journal! Write what the plant looks like, if it's tall, small, green, or leafy, etc.

Write a prediction on what the plant will look like the next time you observe it.

Then draw a picture of what the plant looks like!

PUMPKIN OBSERVATION!

Write down what your seed looks like,
what color is it? Is it big or small?

Make a prediction on what you think
will happen to the seed next week?

Then draw me a picture of what
your seed looks like!









COLORFUL CELERY INVESTIGATION!

Write down your predictions on what you think will happen with the colored water and celery.

Then next week draw a picture of what the celery looks like and describe it!

