

LIFE SCIENCE & EARTH AND SPACE SCIENCE

2nd GRADE

EXPLORE, POLLINATE, GROW

RATIONALE FOR ADVENTURE

Students will explore the grasses on-site and the functions of their structures and changes in the environment caused by them. They will also get to learn about and perform a skit acting as various animals collecting and transferring pollen. Building a terrarium and planting grass and beans will help them experience growing plants from roots and seeds and observe the life cycle of a bean plant.

GEORGIA STATE STANDARDS

GSE 2nd Grade curriculum map, Stability and Change in Plants and Animals, Plants and the functions of their structures

S2E3. Obtain, evaluate, and communicate information about how weather, plants, animals, and humans cause changes to the environment. (Clarification statement: Changes should be easily observable and could be seen on school grounds or at home.) a. Ask questions to obtain information about major changes to the environment in your community.

S2L1. Obtain, evaluate, and communicate information about the life cycles of different living organisms.

b. Plan and carry out an investigation of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time. c. Construct an explanation of an animal's role in dispersing seeds or in the pollination of plants.

SOUTH CAROLINA STATE STANDARDS

2.S.1A. Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

2.S.1A.1 Ask and answer questions about the natural world using explorations, observations, or structured investigations.

2.L.5B.1 Obtain and communicate information to describe and compare how animals interact with other animals and plants in the environment.

TAKEAWAYS FOR STUDENTS

- Learning the functions and structures of grasses and how they can change their environment
- Learn how animals can pollinate their environment
- Make a terrarium and plant grass and beans.

- Plan and investigate the life cycle of a bean plant by growing it from a seed and by recording changes over time.

ADVENTURE REQUIREMENTS

1. While hiking on the Nature and Adventure Center Trail, students will use the “Drawings of Grasses” sheet to sketch the different grasses they encounter.
2. Students will use a magnifying glass to examine the different grass types more closely. Describe anything you saw with the magnifying glass that you couldn’t see without it.
3. Teach them the sound foleys use to make the sound of wind blowing through grass (rub hands together, top to bottom)
4. Explain what pollination is, identify some animals who pollinate, and tell which plants they pollinate after watching a 10 minute YouTube video in the classroom.
5. Participate in a pollination race outside, where the students are pollinators and have to collect pollen from a plant and pollinate another while thinking about which animal they are and choosing a plausible plant.
6. Build a terrarium adding layers of rocks, charcoal and potting soil in an empty plastic soda bottle.
7. Discuss the life cycle of a pinto bean
8. Plant rooted grass and bean seeds to measure and record growth at home. Turn in “Growth Recording Sheet” to your teacher after 3 weeks.

PREPARATION AND MATERIALS NEEDED

- Laminated pictures of pollinators with Velcro pieces attached
- Pollen with Velcro attached (tiny yellow pom poms)
- Magnifying glass for each pair of students Scout Shop #14105274 \$1.20/each
- “Drawings of Grasses” Sheet and pencil for each student
- Laminated pictures of plants to be pollinated with Velcro attached
- Ball regular-mouth glass canning jars 12 (1 qt) \$18.99
or Smart Solutions Clear Plastic Mason Jars 32 oz. 6 pk \$19.99
- Bin of small rocks
- Bin of charcoal
- Bin of potting soil
- Grass pulled out with roots attached
- Bowl of pinto beans
- Thin popsicle sticks for the beans to climb on
- Tape to close the terrariums
- Computer to show video of pollination
- Water pitcher
- “Recording Sheet” for each student

PRIOR TO EDUCATIONAL EXCURSION

Teacher introduces terms pollination, pollinator and terrarium to students so they have familiarity

OPENING

- Recite the outdoor code. Note that students will focus on being considerate in the outdoors.
- Recite the principles of Leave No Trace. Tell students that they will look for ways to demonstrate leaving what they find and being kind to others.

TALK TIME

Introduce the Explore, Pollinate, Grow adventure. Build interest by describing the goals of the adventure and some of the activities that are planned.

Explain that stretching prepares students physically for hikes and other physical activities. Remind everyone the rules of safe hiking.

Explain that the adventure requires everyone to stay alert to the different grasses observed and how to share the magnifying glasses to see them up close.

Discuss what students will do on the hike to demonstrate the specified principles of the Outdoor Code and Leave No Trace

EDUCATIONAL EXCURSION INSTRUCTIONAL MATERIALS WORKSHOP

Practice looking through the magnifying glass to look closely at the back of their hands to see the difference with and without using it.

ACTIVITIES

Activity 1: Hike to find the different grass varieties and talk about their use in the environment and to animals and other plants, Use magnifying glasses to look carefully at the different parts of the plant as it is being presented with the diagram.

Reflection: Ask students to reflect on the Outdoor Code. How were they considerate in the outdoors? Did they leave what they found? Did they help other visitors enjoy the outdoors? Why are those principles important?

Activity 2: Go inside to watch the 11 minute video on pollinators reminding them to listen carefully to who pollinates what. Then, go back outside for the Pollinator race where the students pick a pollinator out of the bag and have to race to find a plant to pollinate.

Reflection: Did the students go to the correct plants that that animal would have instinctively gone to?

Activity 3: Teach movements for the stages of the seed life cycle, then students act them out

Reflection: Have a pair demonstrate the life cycle as you call out the stages: 1. Seed, 2. Germination, 3. Leaf growth, 4. Flowering, 5. Bean pod

Activity 4: Hand out the terrarium parts to each student and have them go to each bin and put some of each into their jar. Have them water it, then put the top on and tape it around and write their name on the top. Pass out the recording sheet and tell them they will observe, record and return to their teacher in 3 weeks.

Reflection: Ask them how long they think it will take their beans to grow. Ask them what their seeds will need to grow.

SONG TIME

The Needs of a Plant (sung in cadence style)

For a plant to stay alive,

It needs 5 things, I would not lie.

It needs water so it can grow,

And it needs soil, just like so.

Plants need space, they can't be tight,

The sun helps plants by giving light.

Don't forget to give plants air,

Repeat the needs, if you dare!

Need 1 – wa ter

Need 2 – so il

Need 3 – spa ace

Need 4 – li ight

Need 5 – ai ir

A plant.

Name: _____

Drawings of Grasses

Name: _____

Record of growth of my bean plant:

Week 1:

Week 2:

Week 3:
