

A Day in the Life of a Seed!

Grade(s): K-4

Subject: Science

GPS: S2L1 c

Time Required: 30 Minutes

Setting: Indoors

Materials:

- Small straight sided glass – one for each student
- Potting soil for each glass
- Seeds – two for each student
- Water
- Pipettes – one for each student
- Popsicle sticks – one for each student
- Permanent markers

Objectives:

Students will experience first hand the life cycle of a seed by growing a native plant from a seed and recording the changes in growth.

Vocabulary:

- Seed – the part of a plant that produces new plants
- Root – the plant part that is below ground
- Stem – the plant part that provides support for the plant
- Leaf – the plant part that makes food for the plant
- Flower – the plant part that makes the seed
- Germination – to start to grow
- Native Plant – a plant that grows naturally in a specific area
- Non-Native Invasive Plant – a fast-growing plant that is brought into an area where it does not live naturally and results in an adverse effect on the environment
- Weed – an unwanted plant that can be harmful to other plants
- Plant Steward – a person that helps care for and protect native plants

Background:

For years, teachers have been teaching their students about the life cycle by planting a seed and watching it grow. This is a wonderful hands-on approach to learning. Unfortunately, the seeds used by most schools have been non-native invasive plant seeds. Most likely these seeds were chosen because of their fast germination and growth which enabled the students to watch the life cycle in a short time frame.

One of these non-native invasive plant seeds is Mimosa. In the past, the students have proudly watched their seeds grow in the classroom and then innocently taken them home to plant in backyards across Georgia. This plant creates a major ecological problem in many habitats by spreading quickly and taking the sunlight and nutrients from native plants which are essential for the food chain in the habitat.

Many wonderful native plants that have the same fast growth can be easily substituted for a non-native invasive plant. Native wildflowers work well, as does the Eastern Redbud. By making this change from non-native invasives to native plants, teachers and students alike become stewards of the environment and help preserve the native plants in Georgia habitats. For resources on the purchase of native plants, go to <http://www.gnps.org/resources/nativenurseries.html>

Seeds can also be collected from the wild if done so with the permission of the landowner. Seeds collected from nature or not prepared for germination by the commercial grower must be prepared for planting. A Redbud seed, like the Mimosa, has a hard outer covering called a seed coat. This covering must be damaged to enable water to enter. This process, called scarification, can be accomplished by immersing the seed in boiling water for one minute. Next the seeds must go through a process called stratification by placing them in a dry open container in the refrigerator at 35 - 41 degrees for 5 - 8 weeks. This process imitates winter. The seeds are then ready to plant at a depth of $\frac{1}{4}$ inch below the soil surface.

Activity:

Explain the life cycle of the plant using the visual provided.

It is time for the students to plant their seeds and observe the life cycle of their plant.

- Have the students fill their glass $\frac{3}{4}$ full of moist potting soil.
- The students will then place their seeds against the side of the glass just below the soil surface. This placement of the seed will enable the students to watch the germination as well as the plant's later growth.
- Using the permanent marker, have them write their names toward one end of the popsicle stick and place the other end of the stick into the soil in the middle of their glass.
- Place the glass near a window with the seeds facing toward the light but not in direct sunlight.
- Add water as needed to keep the soil moist but not soggy. The use of a pipette helps keep the students from over watering.
- The students will observe the seed's germination and the plant's growth and record their findings on the life cycle chart.

Evaluation:

On the students' life cycle charts, have them circle the words that demonstrate their plant completed all stages of its life cycle (they may not be able to include the flower if time does not allow).

Extensions:

The students can become native plant stewards by planting their native plant in the backyards of Georgia.

- When the plant has formed at least two sets of leaves, it can be transplanted into a small pot in order for the students to take their plants home.
- In late April the students can plant their plant outside in a slightly shady area.
- They will need to water it several times for the first two weeks until it becomes established.
- The stewards can report back to the class on the progress of their plants.

References:

<http://dictionary.reference.com/>

http://en.wikipedia.org/wiki/Main_Page

<http://www.kidsgardening.com/growingideas/PROJECTS/FEB02/feb02-pg3.htm>

<http://www.wildwnc.org/education/trees/eastern-redbud-cercis-canadensis-leguminosae-legume-family>

<http://www.gnps.org/resources/nativenurseries.html>