

Indoor Seed Germination in Soil

Grade(s): 2-5	Topic: Spring, Germination, Seeds, Plant Life Cycle	Season: Late Spring (April and May) a few weeks before the last frost
Timing: 50 minutes, including 5 minute RPK, 5 minute intro, 15 minute Plant Life Cycle Observation Follow-Up from previous lesson, 20 minute outdoor planting activity, 5 minute conclusion Follow-Up: Students will continue observing their plastic bag greenhouses and their indoor seed germination experiment over the coming weeks		
Objectives: <ul style="list-style-type: none">• Students can compare and contrast seed germination in soil with that in their plastic bag greenhouse, identifying differences that change seed/plant viability• Students can explain that germination occurs as a seed breaks dormancy and sends up a shoot, which is the beginning stage of a plant• Students are able to identify necessary conditions for seeds to sprout and are able to recognize initial plant structures		
Materials: <ul style="list-style-type: none">• Potting soil• Seed trays• Seed packets (should be edible or those that attract beneficial insects to orchard)• Watering can or pitcher• Tape and pen (permanent) to label students' plants• Magnifying boxes and / or glasses• <i>My Very Own Seedling</i> worksheets• Garden gloves (optional)• Completed <i>Plastic Bag Greenhouse</i> worksheets from last week (optional)		
Degree of need for extra teacher or parent helper? High		
Journal Prompt: What does a seed need in order to sprout? Once it has sprouted, what does it need to keep growing?		
Lesson Sequence: Reactivate Prior Knowledge (5 minutes) Take one plastic bag greenhouse down for students to observe or, if they didn't do that activity, show them some sprouts you have germinated yourself. What is happening to the seeds? Can we plant seeds outside already? Why or why not? Introduction (5 minutes) Explain that this week we will set up some seeds <i>inside</i> that we will transfer out to the garden once it is warm enough. Show students a seed packet of the type of seed they'll be planting and tell them a bit about the plant. Plastic Bag Greenhouse Observation (Optional -- 15 minutes) If you did the plastic bag greenhouse activity last week, have students take down their own plastic bag from the window and take a close look at what has happened with each seed as they sit in a circle. What do they see? Was there a difference between the seeds above the staples and below? What will happen to their seed in the next week or two? Do they think it		

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will grow to be an adult plant? Who in class has the germinated seed with the longest roots? Have any of their seeds germinated to form their first leaves?

Have them compare their observation TODAY with the guess they made on their plastic bag greenhouse worksheets. How close were they? Can they explain what they are seeing? What does a seed need in order to sprout? *Is this different from what a sprout needs to become a full-grown plant?* (Yes: seeds need only moisture, warmth, and (usually) sunlight, to sprout, but they need a medium to grow in (soil), space, and nutrients if they are to become a mature plant.)

Planting Outside and Taking Seeds Back Inside (20 minutes)

In this activity students will start a seedling to grow in the classroom. Students will set up their seedling outside to avoid making a mess, but will bring them inside so that the seedling will be protected from the cold temperatures outside. Have students answer the worksheet questions before they plant their seeds.

Students will be responsible for tracking the growth of their plant. Plants will either go home with students or be put into the schoolyard garden. All seeds should be either edible plants or beneficial insect attracting plants.

Conclusion (5 minutes)

Review what students have observed about their plastic bag greenhouse seeds, and their hypotheses for what will happen with their indoor planted seeds. Make sure everyone understands that for a seed to sprout, it usually needs only water, warmth, but not soil and sometimes not even sunlight. The energy it takes to sprout is ALREADY inside the seed, stored for exactly this purpose!

Vocabulary

Hypothesis
Life Cycle
Soak
Soil
Sprout

Vocabulario

Brote
Ciclo de Vida
Empapar
Hipótesis
Tierra

Extensions / Homework Ideas:

- Try the indoor seed experiment with another type of seed. Use the same worksheet and have students hypothesize about whether things will be the same or different.
- Plant seeds in different types of soils, or vary the temperature or light for different seeds, putting some next to the heater, some in a dark cabinet, etc.