

# Desktop Greenhouses



## GRADE 4 SCIENCE

### Topic E: Plant Growth and Changes

4–10 Demonstrate knowledge and skills for the study, interpretation, propagation and enhancement of plant growth.

## GRADE 7 SCIENCE

### Interactions and Ecosystems (Social and Environmental Emphasis)

1. Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions

- Illustrate how life-supporting environments meet the needs of living things for nutrients, energy sources, moisture, suitable habitat, and exchange of gases

2. Investigate life processes and structures of plants, and interpret related characteristics and needs of plants in a local environment

- Describe life cycles of seed plants, and identify example methods used to ensure their germination, growth and reproduction (e.g., describe propagation of plants from seeds and vegetative techniques, such as cuttings; conduct a germination study; describe the use of beehives to support pollination)

Watch our interview with  
Sunterra Greenhouse



Growing  
Strawberries  
in Alberta



# Desktop Greenhouses



## Growing Strawberries

The best time to start your strawberries is indoors in the winter; we are going to start our strawberries in small desktop greenhouses that each student can take home to plant in the spring.

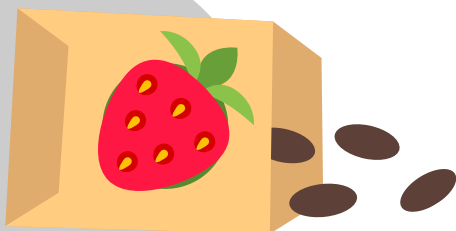


### ACTIVITY:

Important NOTE to teacher (if you choose to start the strawberry plant, you need to do the following first in preparation):

Tuck strawberry seed packet inside a sealed plastic bag or airtight container and place in the refrigerator freezer (not deep freeze) for 3–4 weeks. After removing the bag or container, do not break the seal until it (and its living contents) have reached room temperature. This may take several hours. Err on the side of caution. Opening the package too quickly may result in water condensing on the cold seeds, and this will reduce your chances of success.

Once the sealed package has “thawed” to room temperature, the seeds are ready to plant. Sow the seeds on the surface of pre-moistened, sterilized seed starting mix in trays or small containers. Place these on a piece of felt or other thick cloth that has its end sitting in water. The idea is to wick up water from below so that the seedling medium stays constantly and evenly damp until germination.” Retrieved from West Coast Seeds.



# Desktop Greenhouses

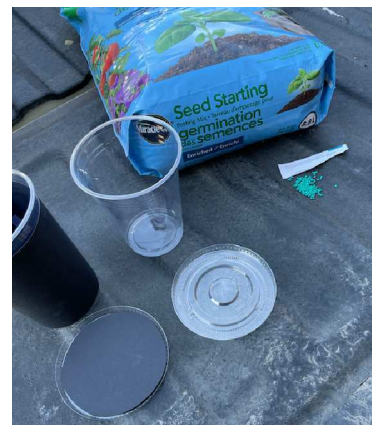


## Investigative Question:

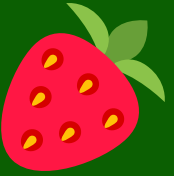
How are plants in the Sunterra greenhouse growing inside the building?



1. Students are going to be creating desktop greenhouses.
2. Provide each group/student with 2 clear plastic cups, 2 prepared lids, 2 labeling stickers, 2 peat pellets, a bag of seeds, access to water, a mL measuring cup, a 1/8 teaspoon and a permanent marker.
3. Instruct the students to label both clear plastic cups with their name, the date and the type of seed they are planting. Label one greenhouse with the number 1 and the other greenhouse with the number 2.
4. Fill each of the cups with 50 mL of water or mark a line on each cup 3/4 inch from the bottom and fill the cups up to the line with water.
5. Place a peat pellet, with the small hole facing up, into each of the cups of water.
6. It takes about 15 minutes for the peat pellets to hydrate and expand. When the peat pots are completely hydrated, use a pencil to loosen the top 1/4 inch of peat moss.
7. Evenly spread 1/8 teaspoon of seeds on top of each of the peat pots. Press the seeds down gently with your finger so that they contact the damp peat.
8. Have each group write their names, the date and the type of seed they are planting on two stickers and place one on each of the black plastic cups. Label one greenhouse with the number 1 and the other greenhouse with the number 2.
9. Have the students complete the observations for Day 1 on their observation sheet.
10. Put the clear cups inside the black cups (be sure to match the numbers correctly 1 or 2) and place a lid onto each of the greenhouses.
11. Place the greenhouses onto a countertop or table out of the way of direct sunlight.
12. Ask the students if they think seeds need light to germinate. After listening to the students' responses, explain that they will allow time for the seeds to germinate in the dark greenhouses and check the progress on Day 4. Have students write down their predictions on their observation sheet. Do not open the greenhouses until Day 4.

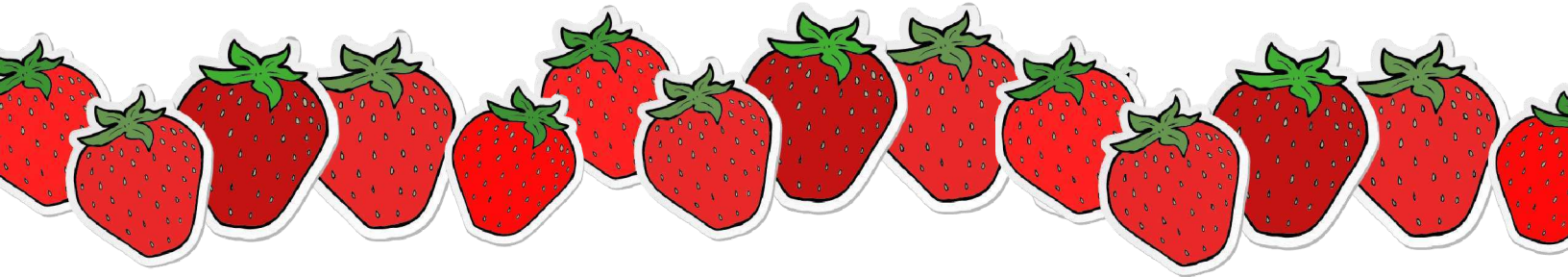


# Desktop Greenhouses



## DAY 4:

1. Have the students check their greenhouses and complete the observations for Day 4 on their observation sheet.
2. Lead a discussion about the question from Day 1: "Do seeds need light to germinate?" Integrate the following points into the discussion:
  - The seeds in the desktop greenhouses were not exposed to light and germinated.
  - Most seeds germinate best in dark conditions.
  - Seeds are dormant until they are exposed to specific conditions.
  - Seeds require the proper amount of warmth, moisture and air to germinate.
3. Ask the students, "Do plants need light to grow and be healthy?"
4. Remove the black construction paper from greenhouse 1, while leaving the black paper on the lid of greenhouse 2.
5. Explain to the students that they will observe any changes in the plants for the next four days.
6. Ask the students, "Do you think you will see any differences between the plant growing in the greenhouse that allows the light in and the plant in the dark greenhouse?" Have students record their predictions.



## DAY 5-6:

1. Allow time each day for students to observe their plants.
2. Have the students record their observations on their observation sheets.
3. On Day 8, discuss the differences the students observed between their plant growing in the greenhouse with the light and their plant in the dark greenhouse. Which plant is the healthiest? Was their prediction correct?
4. Have the students record their conclusions on their observation sheet.
5. Lead a discussion about the question from Day 4: "Do plants need light to grow and be healthy?" Integrate the following points into the discussion:
  - The plants in the desktop greenhouses with light were healthier than the plants in the dark greenhouses.
  - Plants require nutrients, water, air and light to survive and grow.
  - Light requirements—intensity, quality and duration—vary by plant species.
  - Plants also need a rest from light.
  - Different plant species require different amounts of light each day.

# Desktop Greenhouses



## REVIEW KEY CONCEPTS:

*After conducting these activities, review and summarize the following key concepts:*

- Plants require nutrients, water, air and light to survive and grow.
- Photosynthesis is the process by which green plants and certain other organisms transform light energy into chemical energy.
- Plants use the energy of light to convert carbon dioxide and water into sugar (glucose) and oxygen.
- Indoor farming is a method of growing crops or plants, usually on a large scale, entirely indoors. This method of growing crops utilizes grow lights or a combination of artificial light and sunlight in a greenhouse setting.



Students can keep their greenhouses at school or take them home to keep. Students can continue to grow their plant indoors like in a greenhouse or transplant their strawberries outside in the spring.

For another fun activity to help their strawberry plant after it has been planted, click [HERE](#) and check out our 'Strawberry Rock Decoy' activity.

To learn more about strawberry plants, click [HERE](#) and check out our 'Parts of a Plant' activity.

