

Creating Plant Environments

Objectives: To teach students the growth requirements for plant species and how to plant their very own portable garden.

Materials:

- Pencils
- Wire clothes hangers or Large Popsicle Sticks (2)
- Fishing wire or yarn
- Scissors
- Glue
- Markers/Crayons
- Hole punch
- Growth Requirement symbols on cardstock (one set for each student)
- Construction paper
- Pots or dish containers for dish gardens (one for each student)
- Potting soil
- Small potted plants
- Small rocks
- Moss
- Permanent marker

15 to 20 minutes; Growth Requirements Mobile

Using wire clothes hangers or Popsicle stick glued at 90-degree angles, students will make a growth requirement mobile. Students may cut out their symbols from the ones below or draw their own on construction paper to represent the growth requirements listed below. Have students color their symbols with crayons or markers.

1. Room to grow
2. Temperature
3. Light
4. Water
5. Air
6. Nutrients
7. Time

Hole punch each symbol and tie with wire or yarn to the clothes hanger/Popsicle sticks to create his or her own “Growth Requirements Mobile!”

20 minutes; Plant Terminology/Crossword Puzzle Activity

Review plant terms with appropriate definitions. Have participants complete crossword puzzle to reinforce information.

20 to 25 minutes; Make a Dish Garden

Each student will create his or her own dish garden. Write the student's name on the bottom of the container before placing plants. Remove various potted plants from their containers gently and place in the dish garden containers. Use three plants per container to make them symmetrical and eye appealing. Add potting soil around the plants and gently press to set. Fill to the top of the container. In one spot around the plants, add a small amount of rocks to facilitate water absorption. This is where the kids will water their garden. Around the remainder of the dish, place moss around the plants to add focus and make the garden visually pleasing. Place in a lighted area on a windowsill or table. Students now have their very own garden to take care of!

30 minutes; Create a Terrarium

Help students cut their plastic 2-liter bottle in half. Use a crayon or a marker to draw a line around the middle of each bottle. Use the utility knife to make the first cut for your students, and then ask them to use scissors to cut the bottle in half. Ask the students to choose one "bottom" to be the top of the terrarium, and to cut three 3-cm vertical slits into the cut edge so that it will slide into the other bottom.

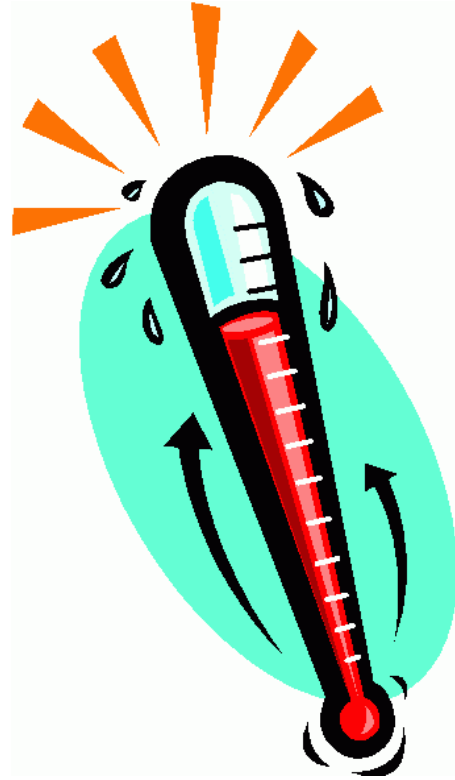
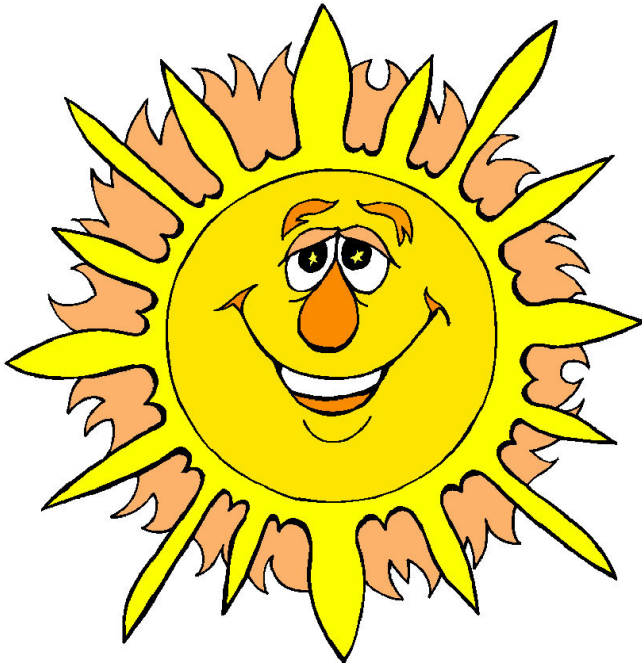
Ask the students to fill the terrarium base with 2 to 3 tablespoons of gardener's activated charcoal to keep the soil in good condition. Then add potting soil.

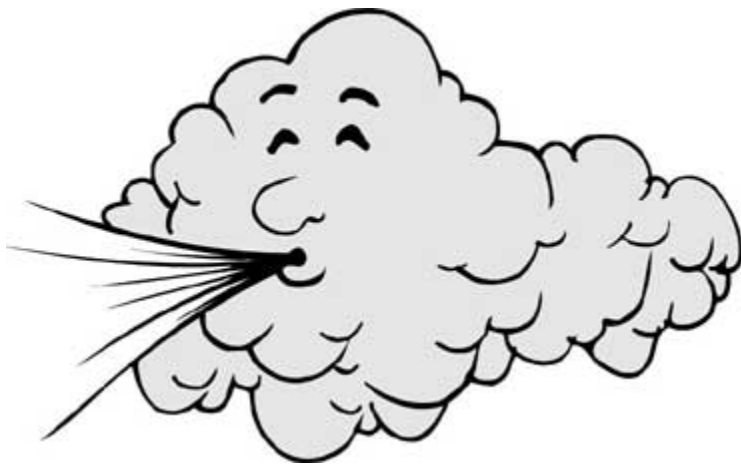
Plant the producers. Have a variety of plants available, as mentioned above, to use in the terrarium.

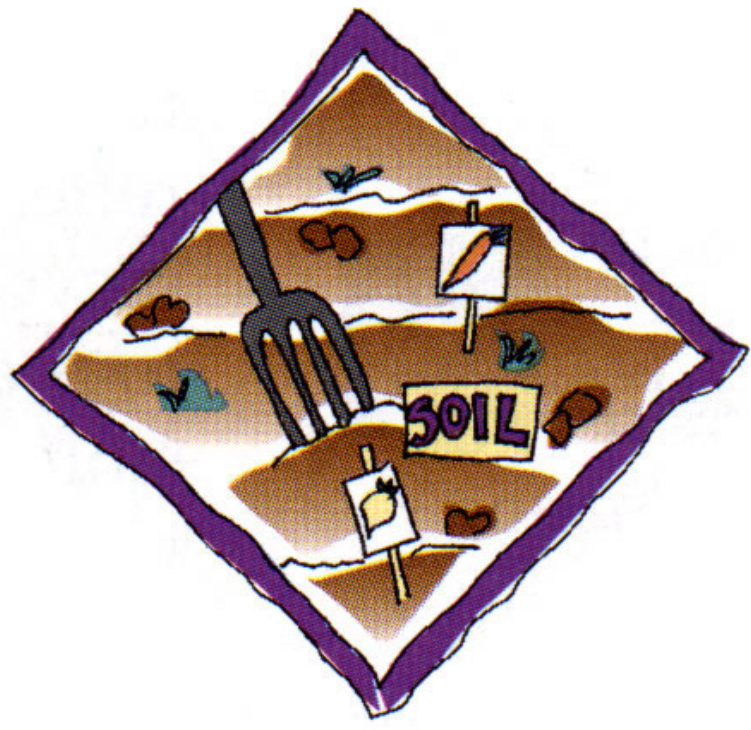
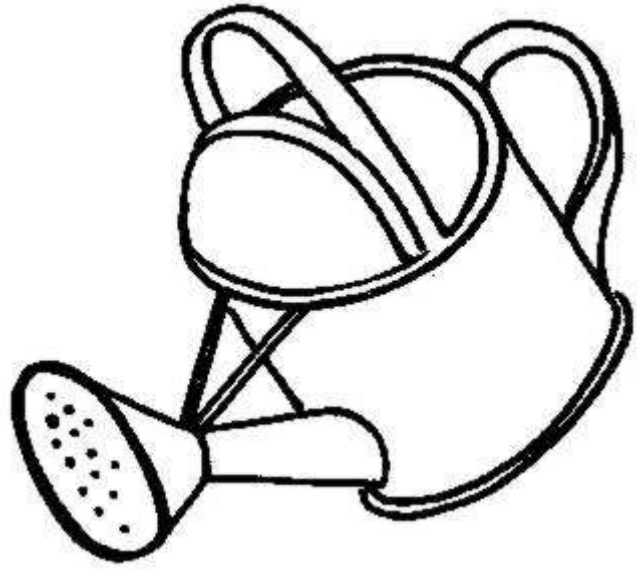
Add some consumers. Have students add land snails to their mini-biospheres to represent consumers.

Seal the mini-biosphere by adding a small amount of water-2 to 3 tablespoons to the terrarium. Then use clear tape to seal the top of the bottle to the bottle half of the bottle.

Monitor the levels. Ask students to monitor the moisture levels by noting the amount of condensation on the inside surface. If there appears to be a high level of condensation within the biosphere, they can open the bottle and let some moisture evaporate.

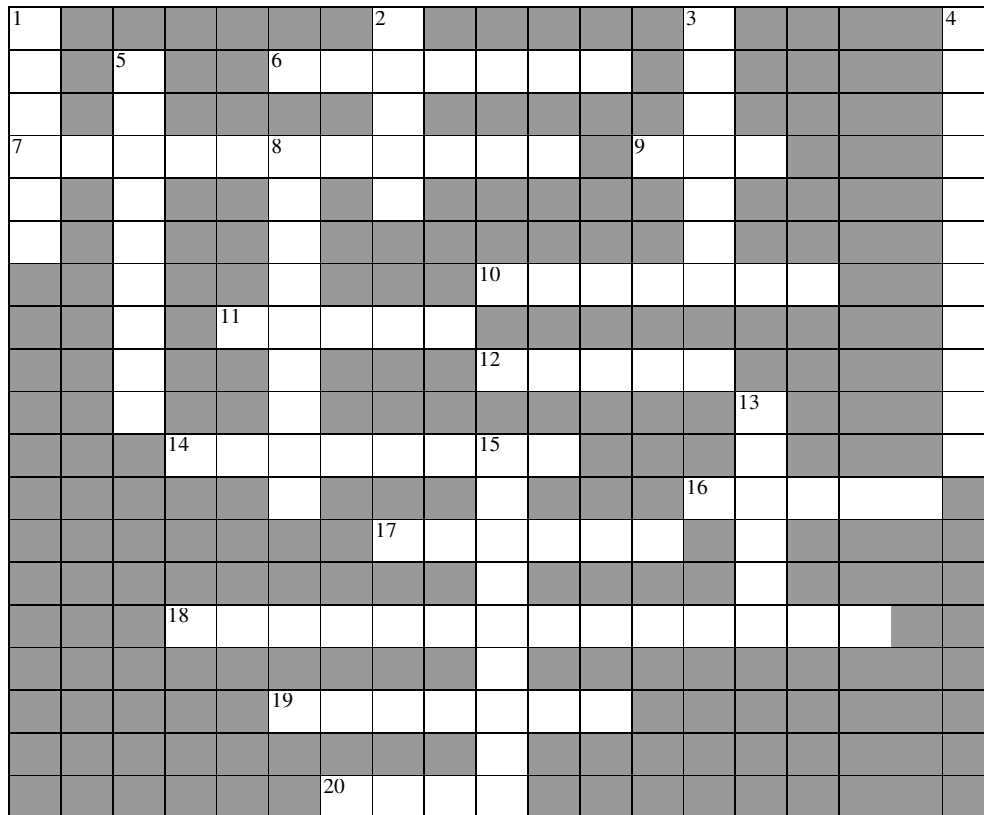








What do Plants Need to Survive?



WORD BANK

- Drought
- Water
- Stem
- Leaves
- Chlorophyll
- Stomata
- Oxygen
- Light
- Roots
- Germination
- Fertilize
- Biotic
- Ecosystem
- Abiotic
- Photosynthesis
- Nitrogen
- Habitat
- Nutrients

ACROSS

- 6. Tiny pores on the underside of leaves. Gases enter and exit the plant through these holes.
- 7. A seed begins to grow.
- 9. Early stage in the development of a flower.
- 10. Natural setting where a plant grows.
- 11. Energy source from the sun used by plants to form carbohydrates.
- 12. Holds the seeds of a plant.
- 14. An essential element for plant growth.
- 16. H₂O, needed by all living things to survive.
- 17. The living factors of an ecosystem.
- 18. The process by which plants make food.
- 19. The non-living factors of an ecosystem.
- 20. The part of a plant that supports and carries water and food to all parts of the plant.

DOWN

- 1. A gas that has no color or smell. Green plants make this gas when they make food.
- 2. The part of a plant that branches out into the dirt to absorb water and nutrients.
- 3. A period of dry weather that may place stress on a plant.
- 4. A green pigment found in plant cells that is essential to photosynthesis and is formed only in the presence of light.
- 5. To put manure or certain chemicals in the soil as food for plants.
- 8. Substances a plant takes in that are essential for growth and development.
- 13. The site of photosynthesis on a plant.
- 15. A community of living organisms that interact with each other and their environment.