

Making and Observing a Mini-Woodland Terrarium

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Each student will set up his or her own woodland terrarium (habitat), predict what will happen to the objects (living and nonliving) inside, observe and record any changes in the living and nonliving specimens over a period of time, and draw some conclusions of what living things need to survive.

Primary Learning Outcomes:

What is a terrarium? How can I make a woodland terrarium? How can I tell what living things need to survive by observing these things inside my terrarium?

Additional Learning Outcomes:

How is a terrarium, like mine, similar to our earth?

Materials and Equipment:

1. Permanent marking pen
2. plastic food storage container with clear lid – 1 per child
3. sand
4. potting soil
5. water misters
6. assorted small woodland plants (mosses, ferns, lichens, violets, wild strawberries, etc.)
7. nonliving items such as stones, twigs, bark, etc.
8. copies of “Terrarium Observations” and “Terrarium Conclusions” sheets.

Total Duration: approximately 45 minutes to create terrarium, but observations may take place over a period of days.

Procedure/Activities:

Step: 1 Duration: 15 minutes

Show the students a terrarium with the top removed. To generate curiosity and enthusiasm, discuss the first two questions in the KWL sequence. (A KWL sequence involves three questions, “What do I **K**now?”, “What do I **W**onder?”, What did I **L**earn?”) Ask students to tell you what they know by making observations. Name some of the living and nonliving things inside. Ask students what will happen to the living and nonliving things inside this terrarium when a clear cover or lid is placed on it? What else do they wonder about?

Step: 2 Duration: 30 minutes

Each student will receive his or her own plastic container with lid. The 6.2” x 4.6” x 2.7” disposable food storage containers with clear lids are ideal. (The Kroger brand Soup and Salad, 24fl.oz. storage containers found on the aisle with plastic food storage bags are great!) With permanent ink, pre-mark lines on these containers to show children where to measure the proper amount of sand and soil. The first mark goes about ¼ “ up from the bottom. The second mark goes about 1 ¼ “ from bottom. Allow each child to measure sand to the first black line on his container followed by potting soil to the second black line. You should be able to see two separate layers of sand and soil. Now mist the soil with water until it is damp to the touch. Be careful not to soak the soil too much.

Now comes the treat! Have several varieties of mosses, lichens, small ferns, violets, small wild strawberries, etc. as well as nonliving things for the children to add to their own terrariums. Or,

if specimens can be collected from campus in a careful and conservative manner, allow the children to select their own materials outdoors. Be sure children have an assortment of living plants and also a rock, piece of bark, or twig to add (see Terrarium Set Up diagram.) No live animals will be added to this terrarium because of its size. Perhaps the larger demonstration terrarium may include some, if the teacher chooses. After adding the living and nonliving things to the terrarium, the child will now place the lid securely on the container and write his or her name on it. Terrariums may be kept in the classroom or taken home. These containers should be kept in a place that receives filtered light – not direct sunlight. The “big” question is: What do you think will happen to the things inside this terrarium over a long period of time? Observations can be made once a week or just once a month for 3 months or even 6 months, and the children will record their observations. If these terrariums are brought home for observation be sure the children return them to class after the experimental time period to see what similarities and differences may have occurred.

Step: 3 Duration: 15 minutes

Each student will record their findings on the “Terrarium Observations” included at the end of this lesson plan. Lids may be removed for the observations but only for a short period of time. Be sure to notice the water droplets on the top and sides of the container; this is a good sign, but too much water may cause mold to grow quickly. Please do not be concerned if all containers do not show the same results. If mold does grow, make this a learning experience and ask the children why they think it happened in this case but not the others. Drawings on the observation sheet do not have to be perfect but should reflect changes in size, shape, colors of the various specimens. Observation skills are important.

Step: 4 Duration: 30 minutes

At the conclusion of the project, have each student complete the “Terrarium Conclusions” sheet or simply discuss the questions listed. Allow each child to share his terrarium observations with the class and answer the original questions: What will happen to the living and nonliving things inside the terrarium when the lid is put on it? How is this like our earth? What did students learn by doing this project?

Assessment:

Student drawings of their observations and their verbal conclusions will help assess their discovery.

Extensions:

Try putting the terrariums in different places (a) in darkness, (b) in direct sunlight, or perhaps, (c) not water a terrarium and record your findings.

Have students look at moss, lichen, fern, and violets with their magnifying lenses and describe what they see. How are these the same or different from the stones, twigs, and bark? Do they all need water, sunlight, air, and soil to exist? Is this woodland terrarium a habitat?

Why do water drops form on the top and sides of my terrarium? Conduct another experiment to discover what causes this? Put green plants in one terrarium and only rocks and soil in another and only bark and a twig in another. Record findings and conclude.

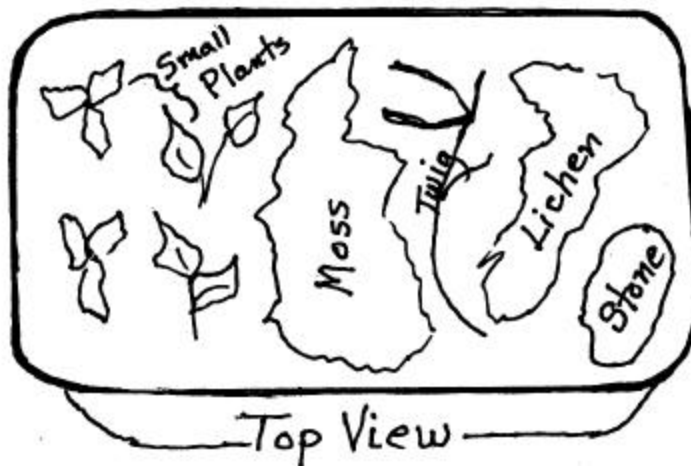
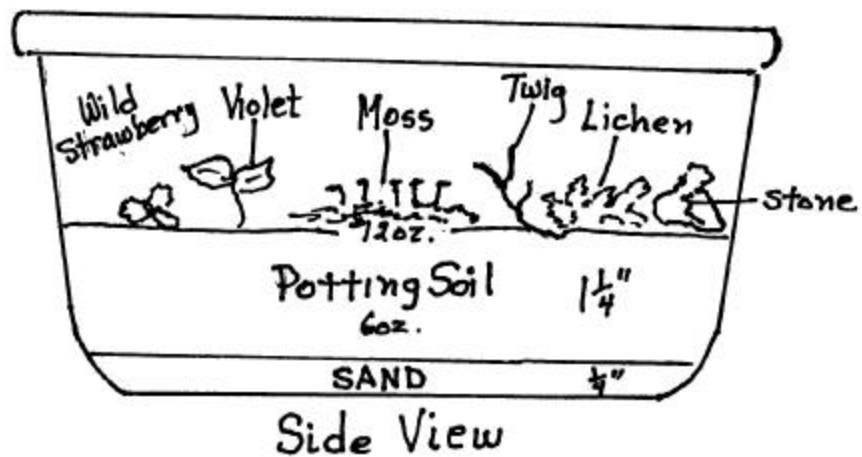
How is the earth similar to my woodland terrarium? You may want to investigate how our earth, like the terrarium, is a closed system. The soil is our earth’s surface, the water on earth is in a constant cycle, and we are surrounded by air and held in place by our gravity so nothing escapes. The sun’s energy helps green plants, moss, fern, lichen to keep this balance. Animals also have a major part in this equilibrium. We are all interconnected.

Remediation:

Students can draw their observations and answer questions orally instead of writing. Children with special needs can enjoy this activity with some modeling by the teacher, but their observations can be their own. Seeing, smelling, feeling the materials in the terrarium stimulate and excite individual discovery.

Terrarium Set Up

Drawings by Joy Fuchs 7/01



Terrarium Observations

Name: _____ Day #: _____

Date: _____

Today's Observation:



Are there any changes today? _____

What are they? (write or draw below)

Terrarium Conclusions

Name: _____ Date: _____

1. How did the living and nonliving things do in your terrarium?
2. What things in your terrarium lasted the longest?
3. Did the plants in your terrarium live?
Moss:
Fern:
Lichen:
Other green plants:
4. What kept the plants alive?
5. Were you surprised by how long plants lived in the terrarium?
6. What was most interesting to you?