

Looking at the Community Tree

Summary

A neighborhood tree is observed for evidence of interactions between living and nonliving things.

Time Frame

2 class periods of 30 minutes each

Group Size

Small Groups

Life Skills

Communication

Materials

For the Teacher:

Find a tree close to your classroom, one that can be reached by a short walk from your school campus.

For each group:

Hand lens

Thermometer

Binoculars (if they have them at home)

Journals

Pencils

Background for Teachers

When we think of environments, we often think of some strange and exotic location like tropical rain forests or Arctic tundra. There are many very dynamic and interesting environments under our very noses, but we have to look for them. Part of being a scientist is knowing what to look for and taking the time to look. Trees are the largest plants on earth. Because of their size and their position as producers, they provide both food and shelter for many other plants, animals, and fungi. It may help students to think of trees as apartment buildings, with many organisms living, growing, and interacting within their shelter. Many of the citizens of this community (remember a community includes all the different populations within an area) are not very noticeable until you look.

Student Prior Knowledge

Students should know the characteristics of living and non-living things and be able to state differences between the two.

Intended Learning Outcomes

1. Observe object and make observations.
2. Make simple predictions and inferences.
3. Pose questions about objects and processes.
4. Explain science concepts and principles using own words and explanations.

Instructional Procedures

Step 1. Review experiences students have had identifying living and nonliving things in a small

environment. List some of the observations that students have previously made.

Step 2: Tell students that they will be visiting a tree today. Their task is to describe interactions between living and nonliving things in the small environment surrounding the tree. They will observe and record three interactions that they find.

Some of the data they collect could may include:

A description of the tree, such as how many leaves and any birds that might be nearby

Any insects they might see, such as ants, carrying objects

Dead patches on the tree and insect larvae nearby

Step 3: Return to the classroom and review their observations. When they have done this, they will then need to ask a question about an interaction they observed that could be investigated by further observation. For example, they have observed that the grass was thicker in the open than it was under the tree. They could ask the question, "How much thicker is the grass in the open?" and could count the number of grass plants in a square 5 cm x 5 cm in the open and compare it to the number of grass plants in a similar square under the tree.

Step 4: The following session students will return to the tree and observe and record data that will help them answer their questions. Be sure they take any equipment they might need to assist in their experimenting.

Step 5: Upon returning to the classroom after 20-30 minutes of observation, students will record their observations and answer their questions in their journals. Encourage them to use illustrations to explain their information.

Step 6: Have the small groups share their questions and the conclusions they drew from their observations. Be sure to let them know that often questions can be asked that take a long time to answer and not just 20-30 minutes. For example, observing the tree throughout four seasons might give them a different conclusion than the one they came up with.

Extensions

Have a discussion concerning the answers to the following questions:

Is there a relationship between nonliving factors and the size of the community around the tree?

Is temperature related to the number of organisms that you find in your community?

Is the amount of water in the ground related to the number of organisms that you find in your community?

What would happen to this community if the air quality around the tree became very poor?

What group of organisms would be the first to suffer?

Trees are ideal places for communities to grow because of all the shelter and food they provide. Can you identify any other nearby communities?

Create a food web that shows the interactions between living things in the tree.

Assessment Plan

Collect student journals and look for questions and observations made.

Students could create a product to share their information with the classroom. They could select their own format or choose from the following options:

advertisement

brochure

dramatization

movement game

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