FRESH ROOTS

Activity Guide

Transect Mapping

We are all part of our ecosystem, and ecosystems are all around us! Zoom in to map an ecosystem near you.

Things You'll Need

- Paper
- Pencils or markers
- Clipboards or another flat writing surface
- Yarn or twine - about 3m for each student/group (enough for a 1m diameter circle)
- Optional: magnifying glasses for each student/group
- Space needed: Outdoor space with vegetation - grass, flowers, weeds, bushes, leaves, etc. Pick an area that is safe for students to work, and where they won't damage the environment.

Suggested Grades

Grades 3-6

Time

30 minutes

Location

Outside

Subjects

Science, English Language Arts

Activity Description

Individually or in groups of 2 or 3, students will create their own maps of the ecosystem they see in front of them.

Introduction

Students will be exploring a small section of an ecosystem, called a "transect" to see in detail what makes up that ecosystem. This technique is used by field biologists when they are surveying an area to see what species live there and to help count them!

Help students recall their definition of an ecosystem. Remember that ecosystems include both living (biotic) and non-living (abiotic) things! The term biodiversity describes the variety of living things. Learn hands-on about interactions in an ecosystem by making an ecosystem web.

Discuss what maps are and have students share what makes a map a map. Important points to include are that maps are representations of what is in a place, but can use labels and symbols including shapes and colours to mark different things. They don't need to be exact drawings! Maps using symbols need a legend so people seeing the map can tell what is what.

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Building Your Transect Map

Have students spread out so they have their own space. Spaces with higher biodiversity will likely be more interesting! Once students find their spot, they should create a circle with their string. They may choose to circle larger things (like trees) or have their circle go "through" them.

Observing and Mapping

1) Have students spend a few minutes exploring the environment within the shape they've made. They can carefully look under things like leaves to get closer to ground level, and don't forget to look up! What's above your transect?

2) After a few minutes of exploration, give students the paper and pencils/markers. Have them draw the shape of their transect on the paper - is it a circle? An oval? Is anything interrupting it?

3) Then, have them map what is in the circle! Remember that maps often use symbols to represent things, so you can create symbols for each type of thing in your circle. Include labels to add detail. Maps don't need to be perfect but should reflect roughly what you see and how many of them you see. Remember to include a legend! It's OK if you don't know what something is called - you can identify it by description (small yellow flower, for example).

Guiding Questions

- How many different types of living/biotic and non-living/abiotic things can you find?
- How do the living organisms interact with both the living and non-living things in your transect?
- What if you see an animal moving… How will you draw the movement?
- How can you represent sounds and textures in your map?
- If you can't find any critters, who do you think would live here?

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Extensions

- Leaving the transects in place, gather all the maps, shuffle them, and pass them out at random. Can students find the transect that goes with the map they have?
    - What made it easier or harder to do this, either in terms of map design or features in the landscape?
- Instead of a transect, have students lay their string out in a "path" with start and end point, and then have them create a trail map for a beetle to follow their path.
- Have students imagine that they are one of the creatures that they have spotted. If they haven't spotted a critter, they can imagine what kind of critter would live in that environment. Have students imagine what it would be like to live in that ecosystem as that critter. How far do they move each day? How are they impacted by living and nonliving things in their environment? They can draw and/or inspect with a magnifying glass.
- Have students draw an ecosystem web based on what they've observed. How would you connect the different things in the trascript?