

Building an Ecosystem

Chicago River Classroom Activity

Summary

Students will research a variety of local and world ecosystems. Students will create a collage to represent the biotic and abiotic factors and interactions important to their given ecosystem.

Background

An ecosystem is defined as "A community of different species interacting with one another and with the chemical and physical factors making up the non-living environment" (Miller, 1997). Ecosystems are therefore comprised of all of the organisms in a given area, and their interactions with biotic and abiotic components.

Abiotic factors dictate what sorts of organisms can live in an area, so similar conditions yield similar species composition. For example, deserts across the world have cacti because they are dry and sandy. Therefore, a desert is a global type of ecosystem known as a biome: defined as "Terrestrial regions inhabited by certain types of life, especially vegetation. Examples are various types of grasslands, deserts and forests." (Miller, 1997)

Ecosystems themselves are specific types of biomes that are located in certain areas and therefore have distinctive species associated with them. For example, a North American Tallgrass Prairie is a grassland, and though it has similar structure to an African grassland, its species and conditions are unique.

Miller, Tyler G. *Environmental Science, Working With The Earth: Sixth Edition*. 1997. Wadsworth Publishing Company, USA

Grade Level: 6th – 8th

Duration: One class period

Objectives:

1. Students will understand that an ecosystem is composed of both biotic and abiotic components as well as the interactions between these components.
2. Students will become familiar with several local and exotic ecosystems

Materials:

- ◆ Four large pieces of butcher paper or posterboard
- ◆ Magazines
- ◆ Markers/crayons
- ◆ Glue
- ◆ Scissors

Standards:

12.B.3a, 12.C.3a

NGSS:

MS-LS2-3, MS-PS1-5

Procedure

- ◆ Split students up into four groups.
- ◆ Pass out a piece of paper or posterboard, magazines, markers/crayons, scissors and glue to each group.
- ◆ Tell the students that each group will be creating a collage of a particular ecosystem, a term that they should be familiar with.
- ◆ Assign one group to each of the following ecosystems:
 - Group 1: Illinois Woodland
 - Group 2: Illinois Wetland
 - Group 3: Western United States Desert
 - Group 4: South American Rainforest
- ◆ Tell the students that each group is in charge of "building" their ecosystem by using magazine pictures, drawings and words to describe it. They are to include EVERYTHING that they think make up an ecosystem.
- ◆ Though these ecosystems should be familiar to the students, if they have any questions, have them look up information on the internet or in books in the classroom.
- ◆ When each group is finished, have them present their collages to the entire class, explaining all of the components.
- ◆ After student groups present, discuss their ecosystem collages using the following as guidelines.
 - ◆ Students should have included both biotic and abiotic components in their collages. For example, the desert group should have noted that the climate is dry and warm, there is little rain, the soil is sandy etc. Most students will have a tendency to only include the living things.
 - ◆ Students should also make note of interactions in their collages-such as "in the Illinois wetland, the Great Blue Heron eats a bluegill, a dragonfly nymph develops in the water, etc." How organisms interact with the environment and the other organisms is part of the description of the ecosystem.
- ◆ Have groups add items to their collages they may have missed.