

ENERGY WEB GAME

OBJECTIVE:

1. Teaches the interactive relationships between all living things and sources of energy within the habitat.
2. Teaches the concept of niche and how each component is important to the overall well-being of the habitat.

MATERIALS:

Habitat card headings (see list below)
Poster board or card stock
Glue or spray adhesive
Scissors
Ball of twine or string

SET-UP

Glue habitat card headings onto the card stock. Cut to make individual cards. Do not cut pieces of string.

ACTIVITIES

1. NICHE EXPLORATION:

Holding the cards upside down, have each student select a card at random. As each student takes a card, have them sit down in a loose circle. After each student has taken a card, have them show their cards to the group.

Begin a discussion about each animal, plant or thing (pond water, sun, rain, air), asking questions such as: Who eats this? What does this eat? Why is this important to the habitat?

After discussing the different possible relationships (such as: herons eat baby alligator, baby lizards, grown lizards, snails; snails eat pond weed, leaves; baby lizards hide under leaves, eat worms, crickets, flies, other baby lizards, drinks pond water; etc.), begin making physical connections.

2. CONNECTIONS:

Hand the ball of string to SUN. Ask SUN to hold the end of the string, then gently toss the ball of string to something that the sun acts upon (e.g.: plant = photosynthesis, animal = warmed up; water = warmed up water wakes up fish). Have the second person make a connection by holding the string connecting him/her to SUN, and tossing the ball of string to a third person.

Continue making connections, taking a few moments to discuss interesting ones, until all the inhabitants and things in the habitat are connected by the string. The string will be criss-crossed across the open circle making it difficult to see what exactly is connected to what. Have each student tug gently on their string; they will feel the taught resistance of everyone else on the string.

3. EFFECTS OF POLLUTION OR DEVELOPMENT ON THE HABITAT:

Set up a scenario (for example: farmer sprays his fields with pesticides, which gets in the worms and wild grass seed OR chemicals used to treat the cotton growing in the fields 100's of miles away are blown up by the wind and land in the pond, killing the fish and amphibians OR farmers kill the hawks and foxes because they believe they are stealing their chickens).

Ask the students what they think the impact will be as a result of the change in the habitat caused by the scenario. Then ask the students who represent the affected niches to let go of their strings. Ask the remaining students to raise their string-free hand if they felt the release in tension.

Discuss impact. Then have the students who felt the impact let go of their string; repeat discussion of impacts and subsequent string releases until the habitat is a wasteland.

4. CLOSER TO HOME:

Have students think of ways their own local habitat is affected by change. Identify the niche holders (worms, robins, mockingbirds, crows, snails, bushes, grass, trees, children, dogs, etc.) and discuss the links in the energy web. How are these links affected by change (such as building an apartment building on a vacant weed-and-shrub covered lot? Tearing down a small store to build a mini-mall? Cutting down a tree in front of a house? Tearing down a lot of houses and stores to build a huge office building?

Try this in reverse: making a park out of an empty lot; planting a tree in front of a house; planting flower and plant seeds in a dirt-and-trash covered vacant lot.

5. WHAT CAN WE DO?

Depending upon the age of the students, a big book or individual short essays can be written to enable each student to suggest an idea(s) on how some or all of the impacts can be lessened or stopped. Older students can choose a real-life situation impacting the school or community, or an issue at the state or federal level, and write letters to the corporation or government officials who are causing the problem or who can effect change.

QUICK VOCABULARY

Community: A group of organisms that interact together.

Environment: The entire interactive system of habitats and communities.

Habitat: The microenvironment in which the community lives.

Niche: the role each organism plays in the habitat; its "job". Worms are decomposers, eating the bits of broken down leaves previously eaten by beetles and snails and converting them to the chemicals that can be directly taken up and used by plants.

SUN

PINECONE

SCORPION

TARANTULA

HAWK

FROG

MOUSE

GRASS SEED

ALLIGATOR

BABY SNAKE

RAT

BUSH

HERON

BABY ALLIGATOR

TREE

POND

SNAKE

BABY BIRD

RAIN

AIR

FOX

BIRD EGG

PONDWEED

GRASS

FISH EGG

SPARROW

MILLIPEDE

GOPHER

FISH

FLY

CROW

TURTLE

CRICKET

BUTTERFLY

BEE

TADPOLE

WORM

CAVE

COYOTE

SALAMANDER

FLOWER

BABY LIZARD

LEAF

WOODPECKER

SQUIRREL

SNAIL

BEETLE

APPLE TREE

WILD CELERY

SOIL

ANT

FROG EGG