E. T. -A LOCAL WAY OF LEARNING

Title: NATURE'S RECYCLING SYSTEM

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Environmental Education Team

Grade Level: 3-6

Concepts:
2. Ecosystem
3. Carrying Capacity
12. Stewardship

Disciplines:
1.Science
2.Language Arts
3.Social Studies

Objective:

Through the scheduled activities, students will understand and be able to define the terms "decomposers" "community" as it applies to the natural world, and ecosystem and be able to explain two or three implications these have to the man-made world.

Rationale:

Every living thing dies and leaves its remains. Living things produce waste products. Dead bodies and waste products piled up would mean a large pile of garbaae in nature. Nature has both plant and animal garbagemen. We call the garbagemen of nature decomposers because they break down and recycle the garbage.

Nature's garbage contains many good things which must be returned to the soil or other plants and animals cannot grow. The decomposers help minerals from the garbage go back to the soil. The slowly decaying parts of wood are taken in to the soil to hold water and minerals for plant growth. Hole making animals of the soil help air to go into the roots, and water to sink into the soil when it rains.

Many different animals work together to do the job of cleaning up nature's garbage pile. If there is a lot of garbage and enough water and good temperature, you can find many of these animals. We call a group of different animals and plants living and working together a community. Investigate a community of decomposer animals and watch how they work together to recycle the waste. See how they get needed minerals back to where nature can use them again. Find out how decomposer animals are part of a number of communities and the environment around them. See what conditions help communities live. We call the combination of communities and environment an ecosystem.

Materials Needed:

Each team needs:
a. one set of directions
b. a trowel or digging tool
C. a pencil and cardboard or tagboard pad
d. one small plastic bag
e. a ruler
f .a thermometer (optional)
g. writing paper

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Be sure that you are prepared to PUT BACK most animals that you see. Collect only one of any kind of animal.

Wear clothes which are best for going out in the field.

Directions:

In class learn about how energy helps living things grow and live. Follow the "food chain" from the sun and its energy to a plant which "produces" sugar, a storage form of energy. Learn how animals eat plants to get the energ@7 of plant sugar. Sugar is made into many kinds of food, both plant and animal. But the energy stored in the food always starts as plant sugar. Some animals eat other animals to get energy.

At the end of the line of energy and food chains are plant and animal wastes including wood and leaves. There is still energy left for animals that can eat up the wastes. List some of the food chains in a nearby field. Figure out what wastes you will find being eaten up by the decomposer animals.

Activities:

Field Trip (Write your observations, measurements, etc., on separate paper)

A. Place to go A field with old trees, leaves, stones, and other places where animals are at work recycling nature's waste.

B. Each team of four students finds an area and investigates the decomposers of that area. Stay within your chosen area. You might mark off the borders with light string.

C. The investigation

1. Find an old log or branch. Feel it. Look at it. Describe how it looks, smells, feels.

2. Guess how much this log or branch is decomposed: (not at all, all decomposed).

3. What Darts of the log or stump go back to the soil?

4. Place a small sample of decomposed wood in your bag. Put the rest back in place.

D. Look at the loc. or branch for animals living in it. Watch them, describe what they do when you watch them.

1. Capture some animals. Look at them in your hand or in the bag.

2. Describe something about different animals you catch. Each team should keep only one animal of each kind. If you catch a wood slave, handle it carefully. You can hurt it by holding it in your hands. Describe color, legs, etc.

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3. Measure the size of your animals.

E. Look at old stumps or logs to see the holes going to the animal homes. Take off some bark and see if any hide under it.

Look around for as much evidence of animal homes, tracks, and paths in the branch or log. Describe.

Measure the temperature of the inside of an animal home, of the branch or log, of the air outside.

bark temperature _____

air temperature _____

inside temperature _____

F. Dig in the old leaves of the field's floor. Smell them. Feel them. Discover how much they are decomposed. Describe their condition.

Find a leaf skeleton. See how the veins remain longer than the rest of the leaf. Take the best leaf skeleton back to the classroom to show others.

G. Find the animals which decompose the leaves.

Watch them try to hide when you lift their hiding places. How do they react? Describe.

Capture some of each kind to observe what they are like. Then let them go. Describe color, legs, protection, eyes, etc.

Measure the size of your animals.

Dig into the soil to find any animals under the leaves. Describe them.

If you catch a worm, look closely to see how it is made and how it moves.
Write two sentences about what a worm is like.

1. Soil temperature

2. Air temperature

Back in the classroom - options

A. Determine the number of different kinds of animals found by each group, and add up the total.

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B. Use resource center study aids to find out about the life and ways of the various animals.

C. Make drawings of the various animals you have found.

D. As a class, construct a mural of life on the forest floor. Show the different animals and the places they live.

E. Construct a terrarium of old leaves, mosses, decayed wood, and associated animals. Observe it for one week. Do not put too many animals in the terrarium.

F. Discuss the need for man to learn how to recycle our many waste products. At a future date, you may wish to have a unit study on how we handle solid wastes". Are there decomposers for our solid waste?

G. Write a fiction story, poem, news report or scientific report about the role of decomposers and how they clean up the forest.