SCOPE, SEQUENCE, and COORDINATION

A National Curriculum Project for High School Science Education

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Student Materials

Learning Sequence Item:

954

Trophic Pyramids and Levels

March 1996
Adapted by: Diane Schranck

Contents

This micro-unit was created by **Diane Schrank** (Jack Yates H.S., Houston, Texas)

Student Sheet

Science as Inquiry

To Build a Pond

You can build a mini-ecosystem in a bottle. Listen to your teacher's instructions concerning the bottle preparation. Be careful with the scissors. Make sure that you keep the top for later use.

1. List the organisms that you put into your bottle and indicate whether these organisms are producers or consumers.

2. Do you think that there might be organisms in your bottle that ***you*** did not add? Justify your answer.

3. Draw a simple food pyramid. List your organisms next to the correct pyramid letter.

4. List several observations of your bottle during the time span designated by your teacher. Make sure your observations are as complete as you can make them.

Student Sheet

Science as Inquiry

Of Dibbles, Dinks, Woks, and Dorgs

Create a balanced energy pyramid. It takes five of anything to feed the next higher organism for one day. Dibbles eat dorgs; woks eat dinks. Dibbles don't eat woks or dinks directly.

Draw a numbers pyramid to indicate the producer, consumer (herbivore), secondary consumer (primary carnivore), and tertiary consumer (predator) as well as how many of them will be necessary to feed one dibble for one day.

Use the materials at your work station to create the numbers pyramid.

1. Why is this called a pyramid of numbers?

2. What would happen if there was a sudden increase in the number of dibbles?

3. What would happen if there weren't enough dorgs?

4. Who would be affected if dinks disappeared? Justify your answer.

5. Draw a pyramid of numbers that shows a system out of balance with too many predators. Explain what might happen to the rest of the organisms.

Student Sheet

Science as Inquiry

I Call a Leaf My Home

Critters live nearly everywhere. Ordinary leaf piles can have some really interesting things in them. As you investigate your leaf pile, you will find some small creatures. Try to identify and count them. Try not to handle these creatures, since some of them might sting or bite. Use your stick to move them out of the pile. After you are finished, gently rearrange the pile of leaves so that they can find their homes.

1. Nonliving things influence the quality of the environment. List the nonliving things and the measurements that you recorded.

2. Is there a relationship between temperature and the depth of the pile? Justify your answer.

3. Is there a relationship between the temperature and the amount of moisture that you noted? Justify your answer.

4. What did you observe about the amount of moisture present in the levels of the leaf pile?

5. List the names and numbers of the insects and arachnids (spiders, millipedes, etc.) that you found.

6. Record the numbers of snails, slugs, and worms that were present.

7. List the names and numbers of any vertebrate animals that you found.

8. Estimate the numbers and kinds of leaves in your pile.

9. What evidence of decomposition did you see?

10. Each of the things that make up the leaf pile have a place on the energy pyramid. Draw a trophic pyramid and place the names of your organisms at the proper level.

11. Why are the dead leaves still considered to be producers within the habitat?

Student Sheet

Science as Inquiry

My Own Little World

You will be given directions for setting up a bottle terrarium. Follow them carefully. You will periodically be asked to make observations of your project. Record the date and your observations, being as complete as possible