

UNIT 1: Living Things in Their Environment

Overview

Unit 1 defines living things and life science, and introduces the ways in which scientists discover new information and solve problems. The relationships of living things to their environment are explored in terms of ecosystems, cycles of materials, food relationships, successions, biomes, habitats and niches, and balance in nature.

LESSON 1 What Are Living Things? =====

Objectives

When students have completed this lesson, they will be able to:

- define living things in terms of life functions;
- distinguish between living and nonliving things;
- identify the life functions of movement, growth, response, reproduction, getting energy from food and oxygen, and getting rid of wastes.

Exploring Science

The focus on robotics entices students to consider what is meant by the term “alive.”

Many students find robotics to be an exciting field. Robots have certainly become important in many parts of our lives. For example, robotic devices are used in assembly plants (such as those that produce automobiles) to carry out many tasks that were formerly done by people. In space, the work that they can do is complex. You might also point out that robots are an important part of the labs that produce and test medicines.

The answer to the question is, of course, a robotics lab.

What Living Things Do

To introduce this lesson, you may have students make two lists on the whiteboard, headed “living things” and “nonliving things.” Have students list under one heading or the other, everything that they can see, both inside and outside of the room. If time and weather permit, you might take your students for a quick tour of the school, the grounds, or a nearby park before preparing this list. Items listed might include people, classroom animals and plants, water, trees, grass, desks, books, clouds, insects, soil, rocks, and so on. Ask students *why* each object is classified as it is. They will find that it is far easier to state whether a thing is alive than to explain why. Reading the lesson will help with the “why.”

To Do Yourself

A dechlorinating solution can be purchased wherever aquarium supplies are sold. Brine shrimp eggs can be kept for years in a dry, resting

state. They are sold at pet shops or supply houses. After they hatch, the larvae are often used as food for hydra and planarians.

Questions

1. 24-48 hours (the time depends on the temperature, oxygen level in the water, and the salt content of the water).
2. The shrimp move toward the light (a process that is sometimes called positive phototaxis).

Review

- I. organism; move; grow; respond; reproduce; oxygen; wastes; functions; environment. (terms in list not used in answers: energy; temperature; robot).
- II. A. respond
B. reproduce
C. grow
- III. Answers will vary, but should include essentially the following: Find out whether the object can grow, respond, reproduce, use food and oxygen to get energy, and get rid of wastes - in short, test it to see if it carries out the life functions.