

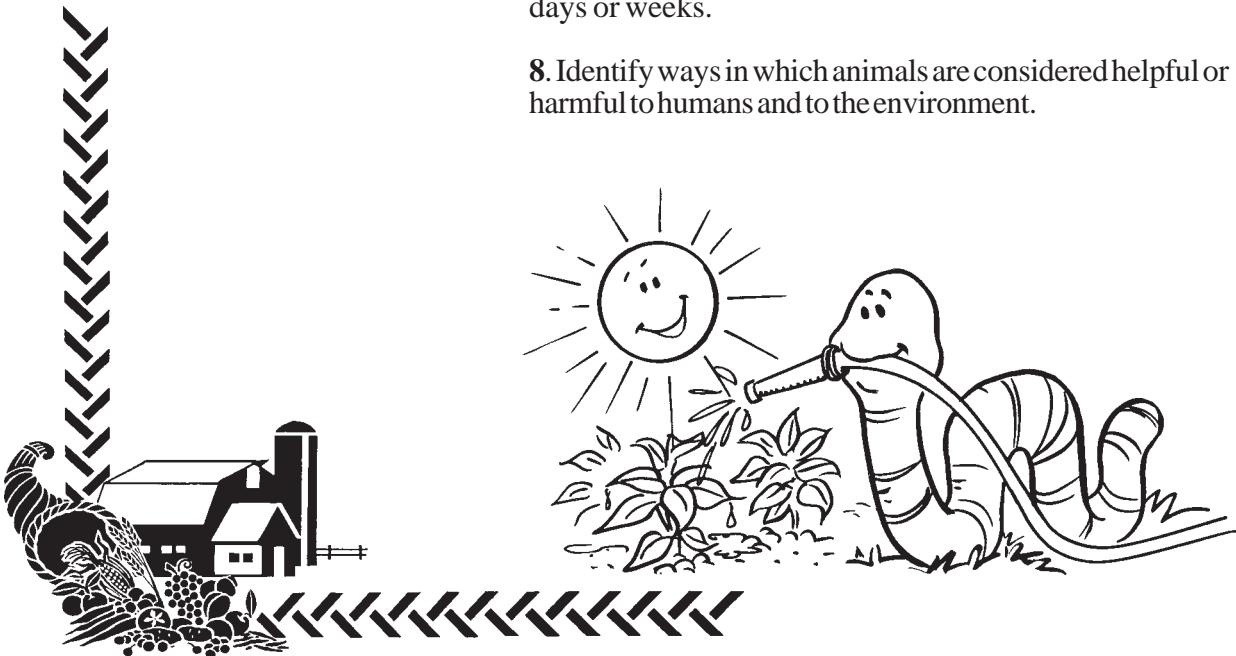
Undercover Friends

Activity: Students will be introduced to earthworms and their importance to the soil.

Curriculum Fit: **Science – Grade 2 2–10 - General Outcome** – Describe the general structure and life habits of small crawling and flying animals; e.g., insects, spiders, worms, slugs; and apply this knowledge to interpret local species that have been observed.

Specific Learner Expectations

1. Recognize that there are many different kinds of small crawling and flying animals, and identify a range of examples that are found locally.
3. Recognize that small animals, like humans, have homes where they meet their basic needs of air, food, water, shelter and space; and describe any special characteristics that help the animal survive in its home.
6. Identify and give examples of ways that small animals avoid predators, including camouflage, taking cover in burrows, use of keen senses and flight.
7. Describe conditions for the care of a small animal, and demonstrate responsible care in maintaining the animal for a few days or weeks.
8. Identify ways in which animals are considered helpful or harmful to humans and to the environment.



LA – Grade 2 1.1 (Discover and Explore – Express ideas and develop understanding.)

- Contribute relevant ideas and information from personal experiences to group language activities.

- Talk about how new ideas and information have changed previous understanding.

- Express or represent ideas and feelings resulting from activities or experiences with oral, print and other media texts.

(Experiment with language and forms)

- Use a variety of forms of oral, print and other media texts to organize and give meaning to experiences, ideas and information

1.2 – (Clarify and Extend – Consider the ideas of others.)

- Connect own ideas and experiences with those shared by others.

(Combine ideas)

- Record ideas and information in ways that make sense.

(Extend understanding)

- Find more information about new ideas and topics.

Agriculture Concepts: Importance of soil and water

Cognitive Level: Application, Analysis, Synthesis

Materials Required: **Part A:** trowels or old dinner forks for digging, aluminum pie plates, magnifiers (hand held), toothpicks, journals for recording information and drawings
Part C: 3 earthworms in moist soil per group of 3-4 students, small aquarium or one-gallon pickle jar for each group, sand, loam, peat moss, grass clippings or decaying leaves, measuring cups, nylon netting, tape, dark construction paper to wrap around aquarium or jar

Time Required: One class period for each of Parts A and B; 2 class periods for each of Parts C and D

Background— For the Teacher

This is a four-part activity in which each part builds upon learning from the previous parts. Part A allows the students to quickly see that soil is not made up of just one thing, and also introduces them to earthworms. Part B explores the students' level of knowledge about earthworms and offers an opportunity to separate myth from fact. In Part C students build what they believe will be the optimum home for their earthworms. In Part D the reaction of earthworms to light is observed and students examine the effect of the earthworms' activities on the soil.

Procedure

Introduction

1. Tell the class they are going to observe earthworms and then build homes for them. Have the students list things they have in their own homes and ask them to think about what an earthworm would like to have in its home.

Activity -Part A

2. Excavate a small area in a flowerbed or under shrubs to find one or more earthworms.
3. Place earthworms and any other objects or animals found in the soil on a pie plate to take back to the classroom for further study.
4. Using the toothpicks, students separate the soil parts and look at their findings through hand-held magnifiers. They then record their findings in a "worm journal."

Activity -Part B

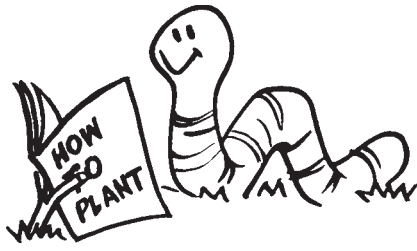
5. Divide the class into pairs and ask the pairs to share with each other what they already know about earthworms. One student in each pair is to record what they know in point form.
6. Have each pair read their list and make a master list on the board. Discuss and answer any questions.
7. Ask the students to make drawings of the earthworms in their worm journals.



Activity -Part C

8. Divide the class into groups of 3-4. Show and identify the loam, sand, peat moss, and grass or leaves. Tell the students each group is to decide how much of each of the four to use in creating the perfect home for their earthworms. All four must be used, layered in any order the group decides, and limited to no more than 12 cups in total.
9. Groups fill their aquariums or jars with the four mediums, recording the amounts of each and the order of the layers in their journals. Encourage them to draw diagrams.
10. Have each group pour two cups of water into their container. When the water has soaked away, students place their earthworms on the top of the soil.
11. The groups wrap dark paper around their containers and cover with nylon netting. Place the worm habitats in a cool dark place for two weeks.
12. Using the calendar, students record the date in their journals and the date two weeks later when they will uncover the containers.





Activity - Part D

13. Each group chooses one of its members to remove the nylon net and dark paper from their container. At the count of three, groups uncover their worm habitats.
14. Give the students 5-10 minutes to observe their worm habitat and discuss it within their groups.
15. Have the groups rotate at 5-10 minute intervals so that students have the opportunity to observe all the habitats.
16. Each group pours two cups of water into their container and observes what happens.
17. Students record their observations, questions, and ideas about the earthworms' behaviour in their journals.

Note: Tell the students that earthworms are sensitive to vibrations. They must therefore walk softly and handle their containers carefully so as not to disturb the earthworms.

Conclusion

18. In pairs, have the students again list what they know about earthworms. As a class, update the master list from Part B. Discuss what has been learned since beginning this activity.



Discussion Questions

1. What do earthworms do when it rains? Why? Why did we add only two cups of water at a time to the habitats? What might happen if we added too much water?
2. Where were your earthworms when the containers were uncovered? What did they do when exposed to light? Why?
3. What happened when you added water to the container after uncovering it? Was it different from what happened when you added water two weeks ago? Why?
4. What happened to the grass or leaves? Are the four mediums still separate after two weeks? How do you think these changes occurred?
5. Why are earthworms called "Nature's Ploughs?" Do you think earthworms improve the soil? Why?
6. How might earthworms help gardeners and farmers?

Related Activities

1. Make sock worm puppets and have the students create a puppet show.
2. Ask the students to pretend they are earthworms and write about how they felt when they were being picked up, looked at through magnifiers, and placed in their new homes.
3. Invite another class to observe the worm habitats. Have each group share with the visiting students what they observed.
4. Have the students draw cartoons using earthworms as characters.

by Maryann Samchuk

