W 1066-A

FRIEND OR FOE

An Integrated Pest Management Lesson

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Skill Level
Beginner

Educational Standards Met
4.LS2.2; 4.LS2.3, 6.LS2.3

Learner Outcomes
The learner will be able to:

- *Explain why some insects are considered pests and some are beneficial*

Tag(s)
4-H Science

Success Indicator
Students are successful if they can:

- *Discuss what makes something a pest*
- *Prove that being a pest depends on the situation and/or location*

Time Needed – *30 minutes*

Materials Needed

- *Student Worksheet (one per student)*
- *Teacher Guide*
- *Green and red paper*
- *Markers or crayons*
- *Pencils*
- *Plain paper*
- *Optional: Scissors, glue or tape*

Author(s)

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Introduction to Content

All living things have roles in the environment. Students will learn how the location of a living thing affects whether it is considered a pest. Some pests have purpose and are good for the environment they live in.

Terms and Concepts

A pest is any living thing (plant or animal) that bothers or annoys us (pets or animals included), damages things we value, occurs where we do not want it, or causes or spreads disease. This is a broad definition and in fact people don't always agree that something is a pest.

Introduction to Methodology

Through discussion, activities and hands-on games, students learn how pests can be beneficial.

Setting the Stage

Ask, "*What is a pest? What are things that pests do that make them pests to us? Key points include bothering or annoying, damaging things, occurring where we don't want them, making us sick. What are some examples of pests?"*

Write the examples of pests on the board as the students suggest them. The first suggestions are usually brothers or sisters and insects. Encourage students to give examples of plants or mammals in addition to insects.

Say, *"A dandelion may be a pest to one person and a wildflower to another. Everything associated with the word pest is based on perception from a person. We spend a lot of time and money battling pests. It is important to remember that pests aren't trying to hurt or bother us.*

All living things have roles in the environment. Depending on their roles in food chains and food webs, living things can be producers, consumers, predators, prey or decomposers. Each of these roles is important for food webs to function. But what happens when decomposers like termites infest your house? Decomposing old trees in the forest by termites is important. Decomposing your house is a problem and makes them pests."

Experience

Prior to teaching the lessons, cut red and green pieces of construction paper into fourths. Give students one green piece and one red piece of construction paper. Have the students write "pest" on the red piece of paper and "NOT a pest" on the green sheet. Read examples from the "When is a pest not a pest" teacher sheet. Instruct the students to hold up the red sheet when they think it is a pest and the green sheet when they think it is not. You may wish to start with examples like an elephant in your living room or a tree growing through the window.

With smaller groups, you may choose to make one wall in the room "pest" and the other wall "NOT a pest." Instruct the students to run or walk to the correct wall.

Give each student a copy of the Student Worksheet. Guide students to complete the examples and non-examples of the Frayer model on the top half of the Student Worksheet. See Teacher Guide for examples and non-examples. The definition and characteristics sections will be completed during the Process step in this lesson. Ask students to complete the second half of the worksheet on their own by giving examples of when each organism is a pest and when it is NOT.

Strategies to Increase Student Engagement

- Be sure that all students have an opportunity to answer questions about their thoughts on pests.
- Be sure to prepare your materials in advance to maximize instructional time.

Teacher Notes

Share
Ask the students to share the answers from the bottom half of the Student Worksheet with a partner. Debrief as a class to give multiple examples of each animal or plant being a pest or not.

Process
Then ask students*, "What makes something a pest?"* Direct students to record these characteristics in the appropriate box on the Frayer model.

Generalize
Whether an animal is considered a pest or not often depends on where it is found. Build a definition of "what is a pest" on the board for students to copy into the definition box on the Frayer model.

Apply
Give students examples of pests and ask for suggestions on what to do. For example:

- If I find a ladybug in my living room, what should I do? Answer: Take it outside.
- If I see poison ivy in the woods, what should I do? Answer: Stay away from it.
- If I see termites in my home, what should I do? Answer: Contact a pest control company.

Optional: Work with language arts teachers to have students write either a personal narrative about a pest or a creative story in which an animal (real or pretend) becomes a pest when it goes to the wrong place.

Supplemental Information

Educational Standards Met

Ecosystems: Interactions, Energy, and Dynamics

4.LS2.2 Develop models of terrestrial and aquatic food chains to describe the movement of energy among producers, herbivores, carnivores, omnivores, and decomposers.

4.LS2.3 Using information about the roles of organisms (producers, consumers, decomposers), evaluate how those roles in food chains are interconnected in a food web, and communicate how the organisms are continuously able to meet their needs in a stable food web.

6.LS2.3 Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem.

TIPPS
Life Skills

4th Grade

- Follow instructions. (Heart)

5th Grade

- As part of a group, identify and agree on a common task (set a goal). (Hands)

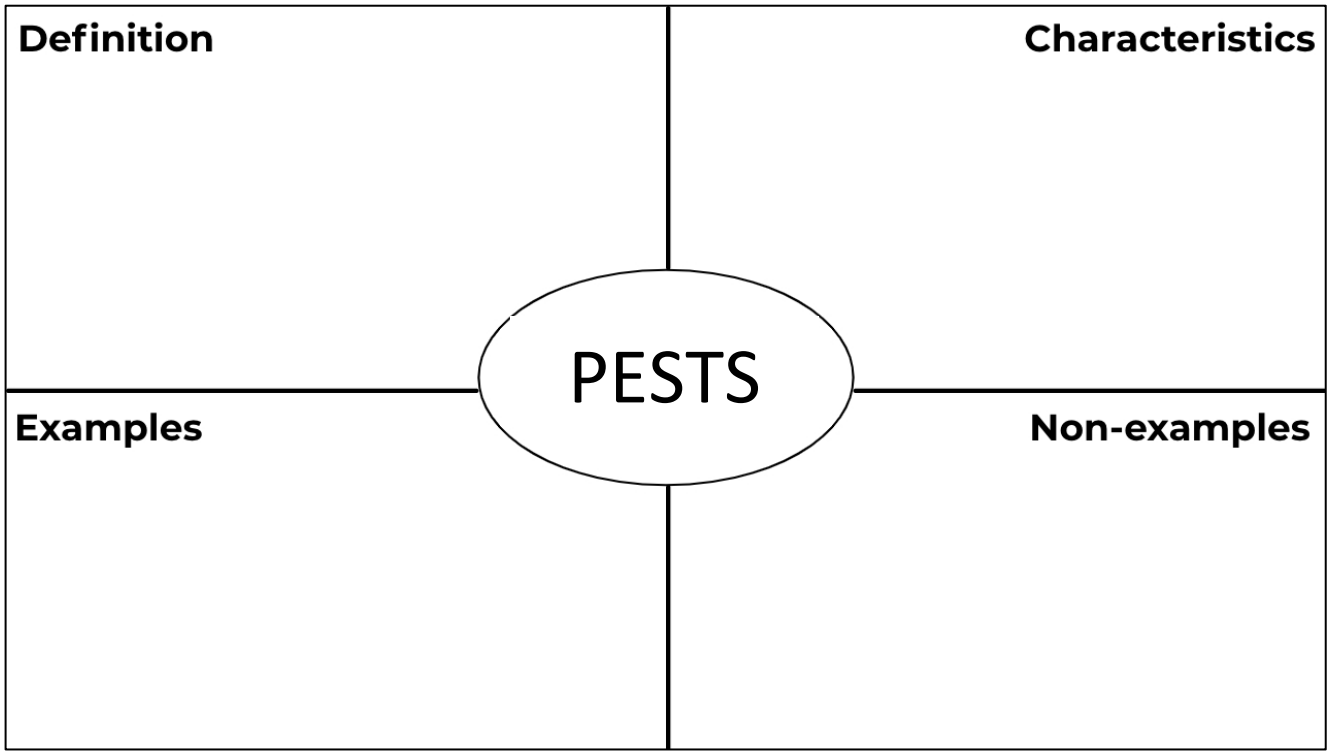
References

Jenkins, Erica B. "Exploring Urban Integrated Pest Management: Activities and Resources for Teaching K-6." October 2001, Michigan State University.

"When is a Pest Not a Pest" *in* Jeffords, M.R. & Hodgins, A.S., 1995. *Pests Have Enemies Too: Teaching Young Scientists About Biological Control,* Illinois Natural History Survey, Champaign, IL, special publication 18.

Student Worksheet

Directions: We will work as a class to complete the Frayer Model below.



Directions: For each organism listed below, write a descritpion of when the animal is being a pest and when it is NOT being a pest.

Organism	When is it a pest?	When is it NOT a pest?
Algae		
Mouse		
Fruit flies		
Bees		
Lady beetle		
House fly		

Teacher Guide: When is a pest not a pest?

The following are some examples for the Pest or NOT a Pest game. As part of the activity, read the first six names listed below aloud and the description of when it is being a pest and when it is not. Ask students to raise their red construction paper when it is being a pest and raise their green construction paper when it is NOT a pest. Students will address the last six on their own on the Student Worksheet.

Ex: Rabbit is eating the lettuce in my garden. Is that a pest or not a pest?

Name	**Pest**	**Not a Pest**
raccoon	In house, garage, garbage cans	forest
mosquito	biting us, spreading diseases	food for bats and fish
maggots	making meat or vegetables rotten	decomposing dead animals
termites	eating houses or buildings	decomposing wood in forests
rabbits	garden	field or woods
deer	in a cornfield, in your garden	forest
algae	covering a pond	food for fish
mouse	house, spreading diseases	food for snakes, other animals
fruit flies	inside flying around fruit	eating rotting fruit on the floor of an orchard
bees	sting us	pollinating flowers and making honey
lady beetle	inside your house	outside, eating aphids and other small insects
house fly	annoy us, spread disease	food for birds, decompose animal waste

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