

WHAT IS IPM?

An Integrated Pest Management Lesson

Karen Vail, Professor and Extension Urban Entomologist, Department of Entomology and Plant Pathology



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An Integrated Pest Management Lesson

Skill Level

- Beginner, Intermediate

Educational Standards Met

- 4.LS2.2; 4.LS2.3, 6.LS2.3

Learner Outcomes

The learner will be able to:

- *Define integrated pest management*

Tag(s)

4-H Science

Success Indicator

Students are successful if they can:

- *learn the steps in IPM.*
- *learn how the steps go together.*
- *learn how their behavior can impact pests.*

Time Needed – 60-90 minutes

Materials Needed

- plastic cockroach, mouse or picture of a pest
- Student handout, “*What is IPM?*” (one per student)
- IPM example—photocopy and cut into strips
- Tag board or construction paper
- pencils, markers or crayons
- glue sticks or tape
- scissors

Author(s)

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Introduction to Content

In Integrated Pest Management (IPM), we use knowledge about pest biology, habits, and habitats to choose the best combination of common sense practices that will keep pests under control.

Terms and Concepts

Integrated Pest Management (IPM) uses knowledge about pest biology and habitats to choose the best combination of common-sense methods that will keep pests under control. Whether the pest situation is in a greenhouse, field, yard or inside a home or school, IPM uses a series of steps that result in pest management decisions to control pests with the least harmful effect to people, pets and the environment. Review the IPM Teacher Fact Sheet and the student handout on the IPM steps. This lesson introduces the concept of IPM to the students and lays the foundation for further exploration and activities.

Introduction to Methodology

Through reading, discussion and crafts, students learn the steps in Integrated Pest Management (IPM) and how they go together.



Setting the Stage

Place a plastic cockroach, mouse or picture of a pest in front of the classroom.

Ask: *“What is this? Is this something we want in our house or school? No. Inside a home or school this would be a pest. What is a pest?”*

Encourage students to brainstorm what makes something a pest. Write their suggestions on the board. Answers may include: a pest is any living thing (plant or animal) that bothers or annoys us or our pets or animals, damages things we value, occurs where we do not want it, or causes or spreads disease.

What are some examples of pests? Students often name insects first; encourage them to suggest mammals (mice, rats, racoons, bats), and plants (dandelions, poison ivy).

Then ask, *“How do we get rid of pests?”* Often, the majority answers will be pesticides. Encourage the students to think of other methods. For example: What might I do to get rid of mice? Trap them. What might I do to get rid of a mosquito on my arm? Swat it, smash it.

Say, *“I heard suggestions to use pesticides to kill pests. What are some problems with pesticides? Like pests, pesticides can make people sick. When you use an insect bomb or fog, the chemical (pesticide) covers all surfaces. This is a problem because people may contact the pesticide more than the pest does. German cockroaches spend more than 85 percent of their time in dark, enclosed areas. This often means inside walls and under refrigerators and sinks, not on countertops and floors. Spraying pesticides on these areas doesn’t get to most of the cockroaches.”*

You may wish to ask: *“What happens when your baby brother or sister’s toy was in the room? What happens when they pick that up and put it into their mouth? Another problem is that using pesticides alone does not solve the problem of why the pest is living and thriving there.”* Ask the students if the pesticides always solve the pest problem.

Tips for Engagement

Write **Integrated Pest Management** on the board. Ask: Has anyone ever heard of this? What do you think it could mean? Have the students make suggestions. Define with the class what each word means and what they mean altogether. Integrated means putting things together (think integration). Management means doing things to keep something under control. Integrated Pest Management (IPM) is a way of controlling pests by using several control methods together. We want to keep the pests from coming back.

Strategies to Increase Student Engagement

- Be sure that all students have an opportunity to answer questions.
- Do not throw the plastic pest at or toward any student.

Teacher Notes

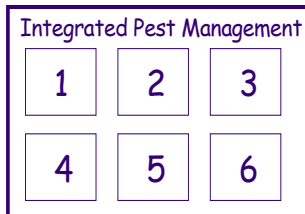
Experience

Distribute the “What is IPM” handout. Read the steps together. Ask the students to give examples of things to do at each step. Ask, “*Why do we do each step?*”

Emphasize that as scientists, we want to manage pests scientifically. This means learning what they are, why they are there (how are they getting their food, water and shelter), and using a combination of ways to control them. Investigation, monitoring and prevention are very important in IPM.

Make a bulletin board. Split students up into six groups. Assign one IPM step to each group. Ask the students to write the name of the IPM step in big letters on the tag board. Ask the students to draw pictures and write words around it that are associated with that step. Hang up the student creations on a bulletin board to keep up during the year or duration of this project.

Make flap books. Give each student an 11-inch by 17-inch piece of tag board or construction paper. With the wide side of the paper at the top, draw a line 3 inches from the top. Above the line, write Integrated Pest Management. (See drawing.) Below the line, glue or tape six flaps. Write numbers 1-6 on the flaps. Under the flap write the name of the step and draw a picture and/or write sentences about this step in action.



Share

For the bulletin board, ask students why they chose a particular picture for each step.

Process

Photocopy the teacher sheet on the examples of each IPM step.

Cut each sentence apart and place in a hat or box. Pull a sentence out and read it. Ask the students which step this is an example of. Continue similarly with the rest of the sentences.

Generalize

Pests are managed using more than pesticides. It takes an integration of several steps to target and remove the needs of pests which requires that we find and identify the pests and their basic needs. It might include physically removing the pests (vacuuming, swatting, etc.), and using natural enemies, and/or pesticides.

Apply

Ask, “Think of other examples of managing pests and indicate which step(s) they have described.”

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.

Student Worksheet

Name: _____ Date: _____

What is IPM?

IPM stands for Integrated Pest Management. It is a way of managing pests with the least effect on people, pets and the environment. You can use this method at school, at home, and on lawns or farms.

IPM has six steps:

1. **Inspect and Investigate.** Look for pests, signs of pests, and conditions good for pests. You are just like a detective. You also want to ask people who spend more time in some parts of the building about what they have seen. Before you investigate, you learn about the pests that could be there to know what to look for.
2. **Identify and Learn.** Identify what pest or pests you have. Some insects you find may have just wandered in and are not serious pests. Knowing what kind it is helps you know whether it is a real pest or just lost. Learning the pest's biology tells you how fast it reproduces, where it likes to live, what it likes to eat and special things it can do. In IPM you use this information to find ways to control the pest.
3. **Monitor.** Now you know what pests you have and where they are living. In this step you check problem areas on a regular basis. Depending on the pest, you may use sticky traps for this. Monitoring shows you where the pest activity is. By keeping record of the numbers of pests captured, you can learn which methods are working the best.
4. **Choose Control Methods.** In IPM, you want to do things that will control the pests without affecting the people. You use a combination of methods to do this. Some methods include:

Habitat Modification

Careful cleaning to eliminate food and hiding places, fixing leaks and sealing holes and cracks help take away food, water and shelter for the pests.

Physical Methods

These methods include trapping, vacuuming, putting in pest-proof barriers, using fly swatters or removing the pests by hand.

Biological Control

This means using natural enemies of the pest. Examples are cats (who eat mice), or tiny wasps that lay their eggs inside the eggs of cockroaches.

Pesticides

Choose the least poisonous pesticides aimed at specific pests. We place them where the pests are living and people will not contact them.

5. **Evaluate.** Keep checking to see if the pests are still there and which control methods are working. Change your methods if necessary.
6. **Educate.** Teach others what they can do to keep pests away.

Teacher Guide: Examples of IPM

Margaret checked under the sink and around the refrigerator and stove for signs of cockroaches and mice. **#1 inspect and investigate**

Terrance showed his mom, brothers and sisters things they can do to keep pests out of the house. **#6 educate**

Tyesha and her family used caulk to seal the holes and cracks in the walls to keep pests out. **#4 choose control method—habitat modification**

Derrick and his brothers washed the dishes after dinner, sponged off the counters and swept the floor. **#4 choose control method—habitat modification**

Jasmine and her grandmother placed sticky traps on the floor and counters where they had seen cockroaches and cockroach droppings. Every week they counted and wrote down the number of cockroaches they caught. **#3 monitor**

Students from the school interviewed teachers, custodians and food service workers to learn what pests they had seen. **#1 inspect and investigate**

Kim and her brother caught some roaches on a trap. They looked through books to identify the type of roaches they have. They learned the type of roach they have, where it likes to live and what it can do. **#2 identify and learn**

To help control mosquitoes in the city, the City Mosquito Control Department sprayed a bacteria that is a natural enemy of mosquitoes. **#4 choose control method—biological control**

The students looked over records of what pests they found in each part of the building over the last six months. They decided that they need to do more in the kitchen and the kindergarten room. **#5 evaluate**

The IPM team taught the students in the rest of the school ways they can keep pests away by never leaving garbage or food in the lockers overnight or littering. **#6 educate**

All food waste or other garbage is placed in sealed bags before they are put in the dumpster. The dumpster lid is kept closed and garbage is never placed outside of the dumpster. **#4 choose control method—habitat modification**

Michael and Brittany collected insects that were eating the plants in their garden. They put the insects in a container and took them to a university for experts to identify them. **#2 identify and learn**

Mrs. Patterson saw ants under her desk. She watched them and saw that they were crawling out of her desk. When she opened the drawer, she saw that the ants were crawling all over the candy that she had given out as rewards. **#1 inspect and investigate**



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