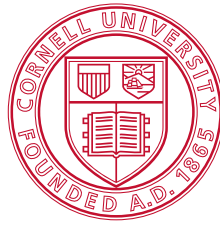


Student Workbook



Cornell University
Cooperative Extension



IPM

Fun with Insects, Weeds and the Environment

Lesson #1

What is IPM?

The New York State Integrated Pest Management Program

*Learn how you can use the 6 steps of
integrated pest management to help
protect the environment.*

www.nysipm.cornell.edu



1. What is a pest?_____

2. Are all insects pests? ____ yes ____ no

3. Is it necessary to correctly identify a pest before you decide what to do with it?

____ yes ____ no

4. Name two ways to get rid of an insect pest: 1_____

_____ 2_____

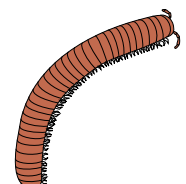
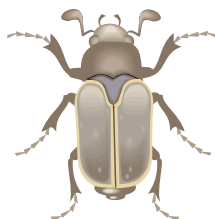
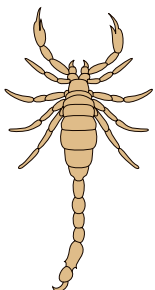
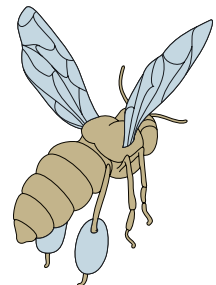
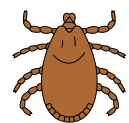
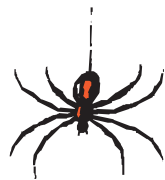
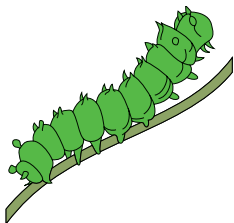
5. Name two characteristics that make something an insect: 1_____

_____ 2_____

6. First, circle the antennae on this ant illustration. Next, draw in the correct number of legs it has.



7. Circle the insects:



8. Are all weeds pests? ____ yes ____ no

9. Name two ways to get rid of a weed pest: 1_____

_____2_____

10. Name one way that weeds spread: _____

11. I enjoy being outdoors: ____yes ____no

12. Besides recycling, what is one way to care for the environment?

13. I would like to learn more about plant and insect science

 ____ yes ____ no

14. Name a job or career that involves learning about plant or insect science:

The IPM team thanks you for completing our survey!

Workshop materials were created for you by:

Debra Marvin and Jennifer Grant
NYS Integrated Pest Management Program

Carolyn Klass
Entomology Department, Cornell University

Joann Gruttadaurio
Sports Turf Managers of New York (STMONY)

Thanks for taking our survey. These four workshops will help you learn more about insects and weeds and how they can be pests. Later, we'll ask you to take it again to find out what you've learned. Your involvement helps us create and improve future programs for students.

What is a pest? A pest is considered something that is unwanted or that causes damage.

Name two pests: _____

What makes them pests? Explain:

During this first workshop, we will learn about IPM. Later, we'll talk about insect pests and weed pests. IPM stands for Integrated Pest Management.

Integrated means using more than one way to get something done.

A pest is something that causes damage or problems.

Management means the way we take care of a situation

In other words, IPM means using a variety of methods to handle a pest situation. And the goal of IPM is to do this with as little cost and harm to the environment as possible.

The best way to learn about and use IPM is to follow the 6 IPM steps. They help us make good decisions that protect people and the environment.

One of the best ways to reduce pest problems is to learn about them. Pests can be weeds, diseases, insects, or larger animals. With knowledge, we have a better chance of safely reducing their numbers.

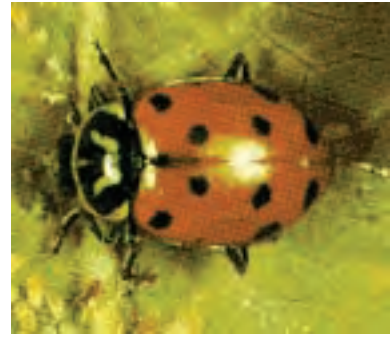
Are all insects pests? Are some 'helpers'?
Can an insect be both?

Insect helpers--can that be?

Yes. We call helper insects 'beneficial insects'. Most insects are not harmful, but some really are pests because they spread diseases, injure people or animals or seriously harm crops.

The most well known beneficial insect is probably the ladybeetle. Yet when they gather inside our homes in the fall we consider them pests.

Yellow Jackets and Paper wasps cause alarm because they are stinging insects, but did you know they actually capture and feed on many crop pests? Many wasps, hornets and bees go about their business without causing harm unless they choose to build their homes too close to yours! Unexpected meetings may mean trouble.



What is a weed? We think weeds are simply plants that happen to be in the wrong place at the wrong time. Weeds, like all plants, have important roles in our environment.

Can you identify the weed growing along this fence? Most will agree this weed is a pest!



Poison ivy is certainly unwanted and can cause damage. How should we treat it? What other weeds can you think of? When do weeds become pests?

The 6 Steps of IPM



IPM Step #1
Proper Identification



IPM Step #2
Learn the pest biology



IPM Step #3
Sample for pests



IPM Step #4
Determine action threshold



IPM Step #5
Choose management
tactics



IPM Step #6
Evaluate results



In the next two workshops, you will learn more about weed and insect pests. We hope you can get out of your classroom and examine the property around your building. When you look closely at plants and insects, you will probably find them interesting and want to know more about them. During the last workshop, you will use and practice your new IPM skills!

We all learn by sharing information, using resources, and learning from people who have spent a lot of time studying a subject. As you go through school, try to find out about many different things. When something is really interesting, you can continue to learn more about the subject.

Science is interesting and can be fun. Science is in almost every aspect of our lives from the food we eat, to the technologies of our modern world.

Science includes the study of all parts of the environment and offers many careers.

Do you like insects? Entomology is the study of insects. Insects are the largest group of living creatures on this planet. Scientists who study insects are called Entomologists. They become experts on insect biology, behavior and their impact on the environment.



What are your interests? Do you like the outdoors?

There are many careers available for people who like to be outside or learn about the environment and the creatures we share the planet with.

Landscapers

Farmers

Park Rangers

Golf Course Superintendents

Groundskeepers

Conservationists

Scientists

Science Teachers

Researchers

Growers

Wildlife Managers

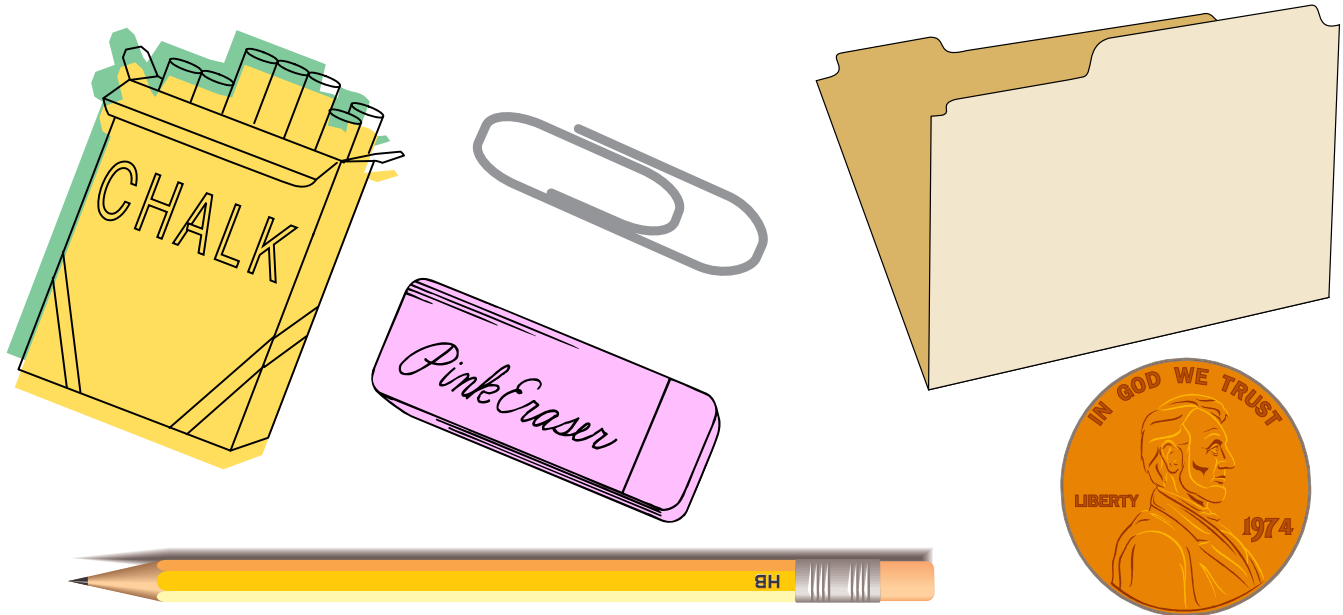
(add one here) _____

People become specialists in areas they are interested in by learning as much as they can in school, and by experience. A botanist is a person who knows a lot about plants. With all their knowledge, even a botanist can't identify every plant. They use a chart called a taxonomic key.

Taxonomy is classifying (sorting) things into an organized system based on how they are similar or how they differ. You can use a key to identify by name, a plant or insect you are not familiar with. To practice using a key, try the simple one on the next page.

Do you know how to use an Identification Key?

You probably can easily identify the six items on this page. But if you did not know their names, you could use the key below to find out. This is how scientists identify things in nature.



Imagine you did not know what these items were, but you could examine them carefully. You could look at them with your eyes and the help of a magnifying glass if it was needed. You would use your hands to determine the characteristics or qualities of each item. To learn the name of each item, use the following key. This is good practice for using any taxonomy key.

- 1a. Contains metal..... go to 2
- 1b. Does not contain metal..... go to 4
 - 2a. All metal.....go to 3
 - 2b. Part metal.....pencil
- 3a. Circle-shaped.....penny
- 3b. Not circle-shaped.....paper clip
 - 4a. Made of rubber.....eraser
 - 4b. Not made of rubber..... go to 5
- 5a. Flat and flexible.....folder
- 5b. Not flat or flexible.....chalk