



Unit 1: Identification

Lesson Four: Pest and Beneficial Insect Identification

Created: 01/2018 by the National FFA Organization

STUDENT LEARNING OBJECTIVES:

After completing these activities students will...

1. Identify common insects and pests found in nursery/landscape plants.
2. Evaluate the causes and effects of insects and pests in nursery/landscape plants.
3. Discuss pest management strategies for nursery/landscape plants.

TIME REQUIRED: 60 Minutes

RESOURCES:

1. University of California
 - Aphid, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7404.html>
 - Borer, <http://ipm.ucanr.edu/PMG/GARDEN/PLANTS/INVERT/flatheaded.html>
 - Borer, <http://ipm.ucanr.edu/PMG/GARDEN/PLANTS/INVERT/roundheadbore.html>
 - Leafhopper, <http://ipm.ucanr.edu/PMG/GARDEN/VEGES/PESTS/leafhopper.html>
 - Scales, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7408.html>
 - Spider Mites, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7405.html>
 - Snail/Slugs, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7427.html>
 - Whiteflies, <http://ipm.ucanr.edu/PMG/PESTNOTES/pn7401.html>
 - White Grub, <http://ipm.ucanr.edu/TOOLS/TURF/PESTS/inchaf.html>
 - Praying Mantis, <http://ipm.ucanr.edu/PMG/NE/mantids.html>
 - Lady Beetle, http://ipm.ucanr.edu/PMG/NE/convergent_lady_beetle.html
 - Green Lacewing, http://ipm.ucanr.edu/PMG/NE/green_lacewing.html
 - Spider, <http://ipm.ucanr.edu/PMG/NE/spiders.html>
2. Penn State
 - Bag Worm, <http://ento.psu.edu/extension/factsheets/bagworm>
 - Paper Wasp, <http://ento.psu.edu/extension/factsheets/dominulus-or-european-paper-wasp>

EQUIPMENT AND SUPPLIES NEEDED:

1. "Pests and Beneficial Insects" PowerPoint
2. One copy of "Pest Identification Notes Sheet" per student
3. One copy of "Beneficial Insects Worksheet" per student
4. Blank sheet of paper for each student
5. Internet access for each student group

THESE ACTIVITIES ARE ALIGNED TO THE FOLLOWING STANDARDS:

FFA Precept

- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA-CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA-CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.

NASDCTEC

- AGPB01.01 Produce and manage plants in both domesticated and natural environments using application of principles of anatomy and physiology to enhance plant production.
- AGPB01.03 Examine and apply fundamentals of production and harvesting when producing plants to demonstrate plant management and production techniques.

Common Core- Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

Common Core- Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Common Core- Literacy in Science & Technical Subjects: Writing

- CCSS.ELA-Literacy.WHST.9-10.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
- CCSS.ELA-Literacy.WHST.9-10.2.a Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- CCSS.ELA-Literacy.WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-Literacy.WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- CCSS.ELA-Literacy.WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- CCSS.ELA-Literacy.WHST.9-10.9 Draw evidence from informational texts to support analysis, reflection, and research

Common Core- Math Practices

- CCSS.MP3: Construct viable arguments and critique the reasoning of others.

AFNR Career Ready Practices

- CRP.02. Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.05. Consider the environmental, social and economic impact of decisions. Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organizations and the environment.
- CRP.06. Demonstrate creativity and innovation. Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization.
- CRP.07. Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.11 Use technology to enhance productivity. Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems.

Partnership for 21st Century Skills

- Collaboration
- Communication
- Environmental Literacy
- Information Literacy
- Initiative and Self-direction
- Productivity and Accountability
- Think Creatively

LESSON PLAN:

1. *Introduction*

What is a pest? Does it have to have an antenna or six legs or wings? What constitutes something as a pest? Maybe your family has dealt with pest issues before. How would you define a pest? Let's share our thoughts and come up with a classroom definition for the term pest.

Pest is a very broad term. Merriam-Webster defines a pest as "an animal or insect that causes problems for people especially by damaging crops; a person who bothers or annoys other people." By that definition, it can be anything from a younger sibling to a caterpillar. As a class, define pest and see how broad the definition is. Write the class definition on a white board or flip chart and list some student-generated examples of pests. Generalization is okay.

Pests are obviously an issue whether they are in the home or in the garden. Today, we are going to look at a specific group of pests that are commonly found in the nursery/landscape industry.

2. *Activity*

Refer to slides 1 to 44 in the “Pests and Beneficial Insects” PowerPoint to discuss the ten different pests found in the nursery/landscape CDE. Make sure each student has five copies of the “Pest Identification Notes Sheet.”

Present each pest by discussing the overview, symptoms, prevention, control and physical description of each pest. Students should follow along while recording all information on the “Pest Identification Notes Sheet.”

For the second half of the content refer to slides 45 to 55 in the “Pests and Beneficial Insects” PowerPoint to discuss the five beneficial insects found in the nursery/landscape CDE. Make sure each student has five copies of the “Beneficial Insects Notes Sheet.”

3. *Reflection*

Once all slides are presented, a snowball review activity will be used to reinforce the content just covered. Every student will need a blank sheet of notebook paper. Number students off one through fifteen, with each number corresponding to a pest or beneficial insect. Have the student write the name of their pest/beneficial insect in big letters at the top of the page. Everyone will then crumple up their paper into a ‘snowball’ and gently toss it across the room. Have each student pick up a new piece of paper, un-crumple it, write a fact just learned, re-crumple the paper and toss it across the room. Repeat this step three to five times. Once completed, have students partner-up and go over the content on their papers.

4. *Leveling Up*

Students can practice identifying the pests and beneficial insects with the National FFA Quizlet.
<https://quizlet.com/213151320/pests-and-beneficial-insects-flash-cards/>

NAME: _____

Pest Identification Notes Sheet

Name:

Overview

How does it affect a plant?

How can you prevent it?

How can you control it (culturally & chemically)?

What does it look like?

Name:

Overview

How does it affect a plant?

How can you prevent it?

How can you control it (culturally & chemically)?

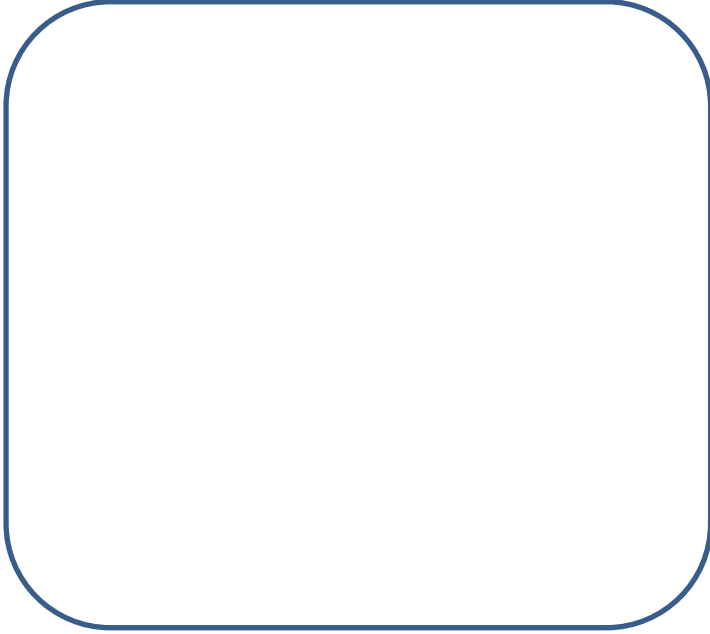
What does it look like?

NAME: _____

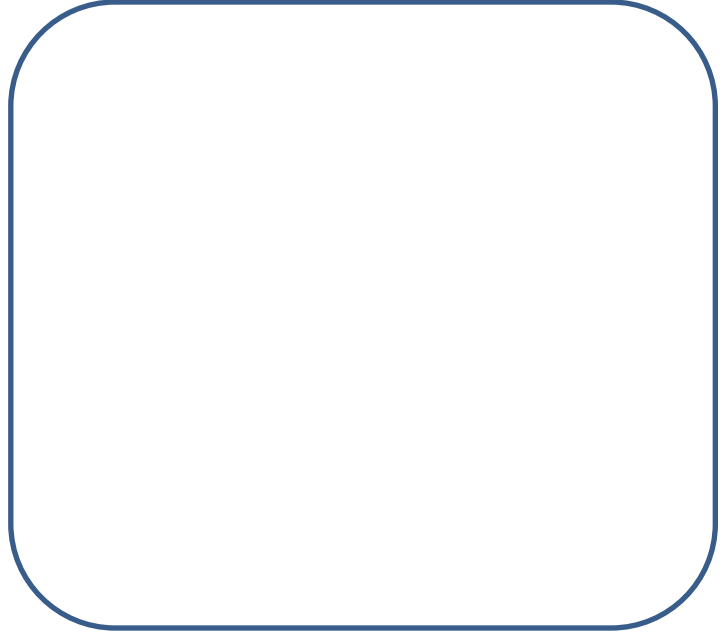
Beneficial Insects Notes Sheet

Insect Name:

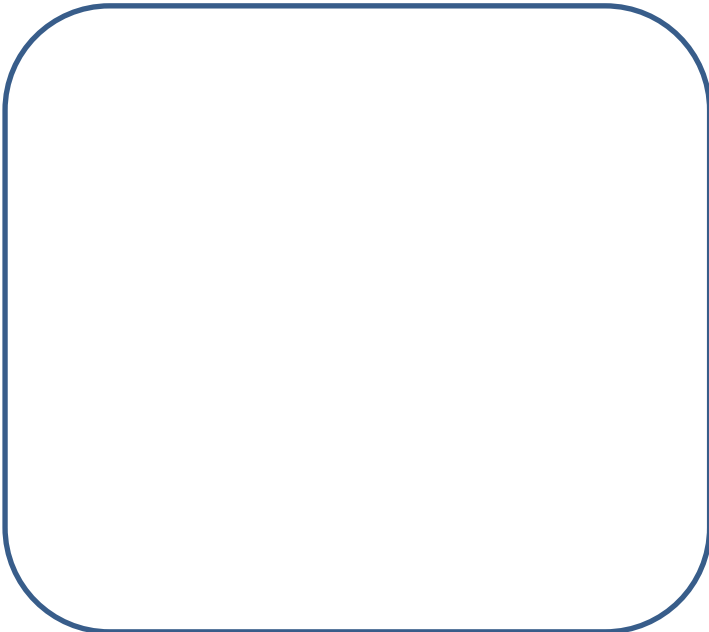
*What pests does it **prey** on?*



*What other **characteristics** are important?*



*What does it **look** like?*



*How are you going to **sell** this beneficial insect?*

