Maintaining a Healthy Garden

Lesson nine: What do insects and other animals do with the food growing in the garden?

“Life in the Garden” from GROWING IN THE GARDEN, Iowa State University Extension and Outreach

Students become plant and animal actors as they perform a clever garden melodrama including good guys and bad guys and audience participation. If you can find Cucumber Soup by Vickie Leigh Krudwig, students will get in touch with the melodrama characters as they figure out how many and what kind of insects it will take to push a cucumber off an ant hill. You may want to do the melodrama again at your Salad Party or for another class.

Content objectives: Identify creatures found in the garden; Describe how creatures and plants interact in the garden; Learn about and prepare and eat a garden crop

Life skill objectives: Learning to learn, Critical thinking, Communication, Citizenship, Leadership, Healthy living

Core and STEM concepts and skills:
Science Life science
Math Operations and algebraic thinking, Measurement and data
Language Arts Reading, Vocabulary, Main Ideas, Factual understanding, Sequencing, Summarizing, Character development, Interpreting, Inferring, Speaking, Listening, Writing

Healthy snack: Veggie Critters

Additional and supporting resources: Cucumber Soup by Vickie Leigh Krudwig, Oddhopper’s Opera: A Bugs Garden of Verses by Kurt Cyrus, Over in the Garden by Jennifer Ward
BEFORE THE LESSON

1. **Grade 2, Lesson 9:**
   This document contains all the curriculum items and resources you need for this lesson. All lesson downloads are located on the [www.peoplesgarden.wsu.edu](http://www.peoplesgarden.wsu.edu) Educational Toolkit.

2. Check with your library for a copy of *Cucumber Soup* by Vickie Leigh Krudwig or purchase online.

3. Check materials list for complete description of items needed.

4. Assemble necessary ingredients and materials for the selected recipe(s).

THE LESSON

1. **Life in the Garden** is meant to be taught over several days.

AFTER THE LESSON

Garden Journal: Have student list insects and other creatures that they might expect to find in their garden pests.

RECIPES

Although the lesson plan does not have a time for tasting, this fun, optional activity is a nice addition.

*Ants on a Log:* Celery sticks; low-fat cream cheese, nut butter or sunflower butter; raisins, dried cranberries, or sunflower seed. OR

*Make an Insect:* Provide students with raisins or dried cranberries or sunflower seeds and vegetables such as celery stick, baby carrot, small spinach leaves, slices of radishes or cucumbers, peas, yellow cherry or grape tomato, pepper slices, etc. Put a teaspoon of peanut butter, whipped cream cheese, or cheese spread on the edge of their plates. Ask the children to use the fruits, vegetables, seeds, "edible glue", and their imaginations to create edible insects or a story about insects and plants. See suggestions on next page.
Recipes

**Ants on A Log**

Celery sticks  
Low-fat cream cheese, nut or seed butter (such as almond, peanut, sunflower)  
Raisins

1. Wash the celery and cut it into pieces (about 5 inches long).
2. Spread cream cheese or nut/seed butter in u-shaped part of celery, from one end to the other.
3. Press raisins into cream cheese or nut/seed butter.
4. Enjoy your ants on a log!

**Butterflies**

Celery stick  
Nut/seed butter (such as almond, peanut, sunflower)  
4 mini pretzels  
2 small pretzel pieces for antennae  
1 raisin

1. Spread nut/seed butter on celery.
2. Place pretzels in center of celery stick to make wings.
3. Place raisin at top of celery.
4. Use small broken pieces of pretzel for antennae.
Banana Caterpillar

Makes 1 serving
1 banana
Chow Mein noodles or pretzel sticks
2 raisins
Apple or pineapple rings, cut in half

1. Cut through the banana, spacing cuts 1 inch apart.
2. Place ½ an apple ring (peel side up) or pineapple ring in each of the cuts.
3. For the eyes, gently press raisins into one end of the banana for eyes.
4. Place Chow Mein noodles or pretzel sticks on both sides of the banana for legs.

Recipe and photo from University of Nebraska Lincoln 4H.
http://food.unl.edu/documents/Banana%20Caterpillar.pdf
Life in the Garden

Lesson 2

CONTENT OBJECTIVES
Identify creatures found in the garden, Describe how creatures and plants interact in the garden

LIFE SKILL OBJECTIVES
Learning to learn by observing and listening; Communicating by reading, writing, acting, and discussing; Critical thinking; Cooperation

INDICATORS & EVALUATIONS
Write a short story about plants and animals in the garden; Identify garden creatures and act out their activity in the garden; Match pictures of garden creatures to their names and what they do in the garden; Match written descriptions of garden creatures to lyrics in a book; Develop a list of ways animals, including people, interact with plants; Read aloud with fluency and expression

SUBJECT STANDARDS
Science: Life (characteristics of organisms, organisms and environments)
Language Arts: Reading, Main idea, Factual understanding, Interpreting, Inferring, Sequencing, Summarizing, Character development, Writing, Listening, Acting
Math: Number and operations, Data analysis and probability

LEARNER TYPES
Linguistic-words, Logical-mathematical, Spatial-visual, Bodily-kinesthetic, Interpersonal, Intrapersonal, Music, Natural

MATERIALS
Cucumber Soup by Vickie Leigh Krudwig
Lined paper and pencil (one each per student)
Melodrama name tags (copy, cut, possibly laminate; found at the end of the lesson)
MATERIALS LIST continued on next page
**MATERIALS continued**

Props for "Grady's Garden" melodrama players (see Possible Props list below)
Melodrama “Applause” and “Boo” signs
"Grady's Garden" script (found at the end of the lesson)
Oddhopper's Opera: A Bug's Garden of Verses, by Kurt Cyrus
Creature Culture activity sheet (one per student, found at the end of the lesson)
Creature Expert Cards (copy and cut one card per student, found at the end of the lesson)
Transparent tape
Plain white paper
Crayons, markers or colored pencils

**Grady's Garden Players and Possible Props**

Players can also make their own props with construction paper, scissors and tape. The script has parts for sixteen players. In smaller classes, students may have to play more than one part. In larger classes, you may want to add more creatures such as aphids, honeybees, earthworms, deer, or rabbits.

- Zo and Zeta Zinnia — Flower headbands, backpacks or T-shirts with flowers on them, a bouquet of bright flowers
- Fruitilda — A small green ball or a yellow or orange-yellow ball to look like pumpkins or squash
- Grady — A handheld trowel or garden tool
- Honeybee — Bee antennae headband, yellow and black striped gloves or T-shirt, bee backpack, undersized wings
- Aphid — Straw to suck juices out of the plants
- Lady beetle — Black antennae headband, red and black spotted hat or cape
- Earthworm — Brown hat or cap, brown T-shirt or jacket
- Bean leaf beetle — Yellow antennae headband, hat, gloves, T-shirt
- Squash bug — Straw to suck juice out of squash
- Praying mantis — Green hat, cape, gloves, boots
- Toad — Party blow-out as a tongue to capture insects
- Cutworm — Scissors
- Rabbit — Rabbit ears headband, cotton ball tail

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**INTRODUCTION**

**ENGAGE**

SET THE STAGE
30 MINUTES

**Language Arts:**
Reading, Main idea, Factual understanding, Inferring, Sequencing, Character development, Writing

**Life Science:**
Characteristics of organisms, Organisms and environments

**Math:**
Number and operations, Data analysis and probability

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**CUCUMBER SOUP**

*Have the students help read and show the pictures in Cucumber Soup by Vickie Leigh Krudwig. Start a list of garden creatures on the board. Every time a new garden creature is identified in the book, have someone write the name of the creature on the board. Continue with the following questions.*

**What was the main idea of the story?**
It was about insects and other creatures in the garden that tried to move a cucumber off an anthill.

Let's go back to the story and see how the author set the stage or created the first scene in the beginning or introduction of the story.

**What time of day was it?**
Early in the morning

**Where did the main event take place?**
In the vegetable garden

**Who were the main characters?**
The ten ants
What were they doing?
Looking for food

How did the author get your attention?
She said, “Something terrible happened.”

What terrible thing happened?
A cucumber had fallen and covered the entrance to the anthill. The ants couldn’t push it out of the way so they cried for help.

How many pages did the introduction take?
Two

What happened in the middle or body of the story?
Several groups of garden creatures, mainly insects, came to help push the cucumber off the hill.

What happened at the end or conclusion of the story?
One flea wanted to help; others made fun of him, but the cucumber moved. Everyone pitched in to move the cucumber. They celebrated with cucumber soup.

What part of the story do you think is missing?
Are you wondering how the cucumber fell on the anthill?

Have the students take out a piece of paper and a pencil to write a short story, a few sentences long, about how the cucumber fell on the anthill. Talk about setting the stage in the introductory sentences. It would be early in the morning and the cucumber would still be on the vine. The rest of the beginning or introductory scene is up to the writers. The body of the story should tell how the cucumber fell off the vine. The end of the story, in this case, would lead up to the ants finding the entrance to their anthill blocked by the cucumber.

Have the students read their stories out loud. Write all the reasons why the cucumber fell on the anthill and note the most popular reason. Then continue with the following questions.

What did you learn about the characters in the book?
There are many kinds of flying and crawling creatures in the garden. Regardless of their size and abilities, they all offered to try to help move the cucumber. You shouldn’t make fun or doubt how someone (the flea) can help accomplish a task. Everyone was happy at the end because they all helped. The characters had fun celebrating by eating cucumber soup.

Why did the ants think that they could push the cucumber off the hill by themselves?
The description of ants said that they are used to carrying things that weigh much more than they do.

Clap your hands if you think there were insects in the story that did good things in the garden.
Stomp your feet if you think there were insects in the story that harmed garden plants.

You may want to read some of the insect descriptions and vote again.
Together, let's add up the number of insects it took to move the cucumber.

10 ants
+ 9 mosquitoes
+ 8 ladybugs
+ 7 spiders
+ 6 bumblebees
+ 5 butterflies
+ 4 fireflies
+ 3 grasshoppers
+ 2 praying mantises
+ 1 flea

55 insects

There were fifty-five insects that pushed the cucumber in the garden. But one of them was not a true insect.

**Which garden creature was not an insect?**

A spider has two body sections and four sets of legs compared to three body sections and three sets of legs on insects. Spiders are arachnids.

**How many spiders were there?**

Seven

**How many true insects were there?**

55 \( - 7 = 48 \) insects

A real garden has many, many more insects! Let's add some zeroes to this number to make it bigger.

**What number is it now?**

*Write 480, 4,800, 48,000, 480,000, and 4,800,000 on the board and say the numbers out loud.*

Scientists have described and given names to about 920,000 species of insects in the world, which represents almost 85 percent of all known animal species. (*Write 920,000 on the board. Draw a pie chart showing 85 percent.*) It is estimated that there are really 20-30 million species of insects on the earth at present – many of which need to be identified and named. *Write 20,000,000 on the board.*

**Which number is bigger?**

20,000,000

You are going to become some of these garden creatures and garden creature experts while we study life in the garden.

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**Do**

**EXPLORE**

**INVESTIGATE CONCEPTS**

30 MINUTES, POSSIBLY ANOTHER DAY

**Life Science:** Characteristics of organisms, Organisms and environments

**STANDARDS continued on next page**

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"GRADY'S GARDEN" MELODRAMA

*Before starting this session, assign parts for the melodrama so that each student has a role. There can be several aphids, rabbits and even flowers. Place the name tags with the corresponding props so that you can easily distribute them when it is time.*

You are going to perform a melodrama and become garden plants and some of the creatures found in the garden. The performers in a melodrama are called players. They exaggerate their emotions and actions without speaking. Show me how you can look like a "bad guy" or a villain without making a sound. Now, show me how you can look really strong, confident and heroic without making a sound.
In many stories, there are usually villains or “bad guys,” heroes or “good guys,” and other characters that have good and bad things happen to them. This melodrama is acted while a narrator reads the script. Audience participation is very important. Every time the heroes do something good, a producer holds up an “Applause” sign and everybody claps and yells, “YEAH!” Every time the villains do something bad, a producer holds up a “Boo” sign and everyone hisses and yells, “BOO!” Let’s try it. (Hold up the “Applause” sign, then the “Boo” sign.) In real life, it isn’t nice or respectful to yell “Boo” at people. In the melodrama, a boo indicates that something bad is about to happen. Fortunately, though, most melodramas have happy endings!

We are going to perform a melodrama called Grady’s Garden. In Grady’s Garden, bad insects and animals that destroy garden plants are the villains. We have five villains. (Distribute the aphid, bean leaf beetle, squash bug, cutworm and rabbit name tags and props.) Show us how you can look like villains. We have five heroes. (Distribute the honeybee, ladybug, earthworm, praying mantis and toad name tags and props.) Show us how you can look like strong heroes who help the plants. We have bright, colorful, happy plants named Zo (zoe) Zinnia, Zeta Zinnia and Fruitiilda (fruit-ill-da). These players will have to listen closely to the story and do what the narrator says. Practice acting like a plant. Think of your feet as roots, your bodies as stems, your arms and hands as leaves and fruit, and your heads as flowers.

Who wants to be Grady the gardener?

Who wants to be the producer that holds up the signs?

The audience is very important in creating the melodrama’s mood. Because there are so many players in our melodrama, those who aren’t onstage will have to follow the directions on the signs. Let’s have the producer and audience practice.

Distribute the name tags to the appropriate players and have them read the cues on the back before they tape the tag to their shirts.

The beginning or introduction to the melodrama sets the stage or scene. Zo and Zeta Zinnia and Fruitiilda are enjoying a beautiful, sunny day in the garden. Zo, Zeta and Fruitiilda will stand in the middle of the stage and look happy as their leaves and flowers flutter in the breeze. Grady the Gardener should be with the plants working away in the soil around the plants. The producer should be near the stage so that everyone can watch the melodrama and see the “Applause” and “Boo” signs at the same time. The narrator should stand to the side or back of the room and read the script loudly, dramatically and slowly to allow the players to hear their cues and act out their parts.

Players, carefully listen to the narrator as he/she reads the story. When your character’s name is read, do as the narrator says. Do not leave the stage until the narrator says you have been eaten or you crawl, hop or fly away. Producer, when you hear the word “hero,” hold up the “Applause” sign. When you hear the word “villain,” hold up the “Boo” sign. Audience, do your part when the signs are held up. Everyone try to remember the characters that are heroes and villains. Listen and watch carefully for what the insects and animals do in the garden.

Perform Grady’s Garden melodrama. You may want to perform it more than once. It is also a good skit to share with another class.

Make two columns on a large sheet of paper, poster board or black board. Title one column “Garden Good Guys” and the other “Garden Bad Guys.” After the melodrama, have the students tape their name tags in the appropriate column and discuss the characters with the entire class.
"CREATURE CULTURE" ACTIVITY SHEETS

Use the list of garden creatures on the board as a resource for the following discussion.

What creatures were “bad guys” or villains in the melodrama and book?
Mosquito, flea, grasshopper, aphid, bean leaf beetle, squash bug, cutworm, rabbit, deer, raccoon, fungi, bacterium, virus, squash vine borer

What made them “bad guys”?
They ate and destroyed plants or they can bite animals and people.

What creatures were “good guys” or heroes?
Why?
Ladybug, praying mantis, garden spider and toad were predators that feed on other “bad” insects. Butterfly and honeybee are pollinators that help flowers form seeds. The earthworm digs tunnels in the soil to help plant roots absorb water and air.

What creatures can be good or bad in the garden?
Why?
Ants can be household nuisances, but they are good scavengers and decomposers. Butterfly caterpillars can eat crops, but butterflies are pollinators so plants can produce seeds and fruits.

Distribute the Creature Culture activity sheet found at the end of the lesson.

Look at the pictures of the garden creatures on the Creature Culture activity sheet. Some creatures seem to be eating plants, as the villains in the melodrama did. Others appear to be helping the plants, as the heroes in the melodrama did. Color the picture as close to real life as possible. While you are coloring the picture, look at the list of creatures and place the corresponding letter from the pictures on the blank line next to the correct creature’s name. Then put a smiley face next to the heroes and a sad face next to the villains.

Go over the correct responses together.

CREATURE CULTURE KEY

<table>
<thead>
<tr>
<th>Creature</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green lacewing</td>
<td>H</td>
</tr>
<tr>
<td>Tomato hornworm</td>
<td>G</td>
</tr>
<tr>
<td>Lady beetle</td>
<td>C</td>
</tr>
<tr>
<td>Squash vine borer</td>
<td>J</td>
</tr>
<tr>
<td>Praying mantis</td>
<td>E</td>
</tr>
<tr>
<td>Spider</td>
<td>B</td>
</tr>
<tr>
<td>Squash bug</td>
<td>I</td>
</tr>
<tr>
<td>Aphid</td>
<td>D</td>
</tr>
<tr>
<td>Earthworm</td>
<td>F</td>
</tr>
<tr>
<td>Honeybee</td>
<td>A</td>
</tr>
<tr>
<td>Cutworm</td>
<td>K</td>
</tr>
</tbody>
</table>
How do the creatures look or act that relates to their names?
Lacewings are light green and have lacy wings. Tomato hornworms like to eat tomato plants and have a horn on their tail end. Squash vine borers bore holes in squash vines. Praying mantises hold their forelegs like they are praying. Squash bugs like to suck the juice out of squash plants. Earthworms like to tunnel through and eat the earth. Cutworms cut roots.

What creatures on the picture are not really insects?
Garden spiders are arachnids with two body sections and four sets of legs compared to three body sections and three sets of legs on an insect. An earthworm has no legs.

ODDHOPPER’S OPERA

We have learned how animals and plants live together by reading a book, becoming players in a melodrama, writing stories, looking at illustrations, and talking with each other. These are all forms of communication. We are going to explore interactions between animals and plants through one more book titled “Oddhopper’s Opera” by Kurt Cyrus.

What is an opera?
An opera is a play that usually has music, lots of action, and tells a story. In this book, the pages are written as rhythmical lyrics and the actors, the unusual or odd creatures in the garden, are very active. They tell the story of what creatures do in the garden.

You are going to perform in this opera by reading the book and becoming garden creature experts.

Copy, cut out and distribute one creature to each student from the Creature Expert Cards at the end of this lesson. Read Oddhopper’s Opera by taking turns reading the verses/pages. Reread the book and have the students stand up if they think their garden creature is being described in the verse. Use the illustrations and the opera to confirm the guesses. Then have the expert read his/her question, have fun guessing the answers, and then have the expert read the rest of the paragraph. Add to your list of garden good guys and bad guys. After the story, have the students try to draw a picture of their insect and label it to display in a garden scene on a bulletin board.

What garden creatures have you seen where we live?
Where did you see them?
What were they doing?
Why are some insects harder to find than others?
Talk about ways that they blend into their environment.

Do you need both good guys and bad guys in the garden?
Yes.
Why?
Even the bad guys are part of the food chain. For example, aphids eat plants but lady beetles eat aphids.

The creatures we’ve been talking about are part of the animal kingdom. We’ve been discovering how they interact with the plant kingdom.

Apply

Expand

Elaborate in a new way

15 minutes,
possibly another day

Language Arts:
Factual understanding, Interpreting, Inferring

Life Science:
Characteristics of living organisms, Organisms and environments
Are we, people, part of the animal or plant kingdom?

Animal

**How do we interact with the plant kingdom?**
*Have the students write a list of ways they interact with plants. Have them share their list with one other person, then a group. See which group has the longest list.*

We use plants for food, clothing, shelter, beauty, and many other things. We grow and harvest plants. We enjoy plants that naturally grow in prairies, wetlands, ditches, forests, and so on. People and most animals cannot survive without plants.

*You may want the students to pretend they are ants while everyone prepares the Cucumber Soup recipe at the end of the story. The suggestion for making a vegetable dip may be fun to do and serve to the class. Tasting something new may encourage the students to prepare and eat healthier snacks.*

When do you need to step in and start managing the bad guys?
*When there are too many of them destroying the crops (To learn more, go to Growing in the Garden, Garden Investigators.)*

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### Bee Facts

**Favorite Colors**

Bees are attracted to blue, purple and yellow flowers that smell sweet. They rarely visit red flowers because they can't recognize that color.

**Busy as a Bee**

A honeybee can visit ten flowers per minute and stop at more than six hundred flowers before returning to the hive. It can make about ten trips a day. Each flight lasts about an hour and the trip is within 3 miles of the bee's hive.

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### Resources


Grady’s garden is a beautiful, peaceful place where the bright pink flowers of Zo and Zeta Zinnia sway back and forth on their long, straight, slender stems in the golden sunshine. The Zinnias’ leaves occasionally flutter in the breeze. Fruitilda’s long, twisted vines hold a small green fruit growing near some fading blossoms. The plants enjoy each day out in the sun or in the gentle rain. They smile while Grady, the gardener, works in the garden. Grady stands back and admires the beautiful garden. Then Grady takes the tools and walks toward the house. Grady is a hero for caring for the plants in the garden. (Hold up the “Applause” sign.)

Here comes a honeybee, buzzing and flying toward the flowers. The honeybee flaps its little wings hard and fast. It’s on a journey to visit more than six hundred flowers before returning to its hive. The honeybee flies close to Zo Zinnia’s flower to collect nectar from deep inside. The honeybee gets a dusting of pollen on its body while it is searching for nectar. The honeybee leaves Zo Zinnia and flies over to Zeta Zinnia to collect more nectar and pollen. It sheds some pollen on Zeta’s flower. Then it flies back to Zo. The honeybee has just pollinated Zo and Zeta Zinnia. Now they can produce seeds. The honeybee is a hero for helping the plants. (Hold up the “Applause” sign.) The honeybee flies off to find more nectar and pollen.

Just as the plants are enjoying the sunny day, along comes an aphid. An aphid is a tiny, hungry insect. Aphids move around on stems and leaves and suck out their juices. Because they suck food instead of chewing, aphids don’t make holes in the leaves. They cause the leaves to turn yellow and brown. This makes aphids villains. (Hold up the “Boo” sign.) Wait, here comes a cute, little, red lady beetle, or ladybug, with black spots. As she flies and crawls around, she spots the aphid and eats it! Lady beetle saved the plants! What a hero! (Hold up the “Applause” sign.) Lady beetles can eat fifty or more aphids a day. The Zinnias and Fruitilda nod thank you while the lady beetle flies off to look for more aphids or other small, tasty insects.

Even smaller than aphids are teeny-tiny organisms called viruses, bacteria and fungi. We can’t see them, but they are working away in the garden and in the plants. Viruses, bacteria and fungi can be heroes when they help plants grow healthy and beautiful. (Hold up the “Applause” sign.) They also can be villains when they make plants sick. (Hold up the “Boo” sign.)
What’s that tunneling through the soil around the plants? It’s a long, slippery earthworm. The earthworm crawls around and creates tunnels near the plants’ roots. Now Zo, Zeta, and Fruitilda’s roots can easily absorb more air and water. The plants look at the earthworm to thank it while it squirms away. The earthworm is a hero for making the soil better for plants to grow strong and healthy. (Hold up the “Applause” sign.)

As the earthworm squirms away, a small, spotted bean leaf beetle lands on Zeta Zinnia’s flower. It looks around and sneers like a villain. (Hold up the “Boo” sign.) Then it flies around the garden looking for bean plants to eat. Bean leaf beetles, cucumber beetles, tomato hornworms, and slimy slugs chew holes in leaves and fruits. A squash bug flies to Fruitilda and begins feeding on the leaves by sucking out their juices. A squash bug’s favorite foods are pumpkins and squash. You can’t see it, but there’s also a squash vine borer eating away inside Fruitilda’s stem. These insects are villains because they destroy plants. The plants look as if they are in pain. (Hold up the “Boo” sign.)

Here comes a long, slender praying mantis stepping smoothly and slowly into the garden. It looks like a dinosaur standing on its back two legs with its front legs held together like it’s praying. When the bean leaf beetle gets too close, the praying mantis quickly reaches out, grabs it, and eats it! The praying mantis is a hero for saving the plants. (Hold up the “Applause” sign.) Garden creatures such as the praying mantis, lady beetle, lacewing, and spider are called predators. They are good predators because they eat insects that damage plants. They are heroes. (Hold up the “Applause” sign.) The praying mantis walks away slowly, looking for its next meal.

Fruitilda is starting to look sick because the squash bug is sucking a lot of juice from her leaves. Out hops a toad, right next to the squash bug. The toad sticks out its tongue, grabs the squash bug, eats it, and hops away. The toad is a hero for helping Fruitilda. (Hold up the “Applause” sign.) Turtles and birds such as wrens and robins also eat insects that eat garden plants.

The sun has set and the Zinnias and Fruitilda are looking tired. During the dark and dreary night, a cutworm crawls to the top of the soil. It chews off Zo Zinnia’s stem right next to the soil. The villain cutworm looks up and sneers as it watches Zo fall to the ground. (Hold up the “Boo” sign.) The cutworm takes a few more bites then crawls away.

The animals come out of the forest for a nighttime garden party. The rabbit wiggles its nose and hops to the garden. The raccoon and deer also are invited. These animals think gardens are like “potluck picnics” with an assortment of tasty foods. Animals are fun to watch, but they can be villains in the garden. (Hold up the “Boo” sign.) The rabbit starts nibbling on leaves in the garden. Just in time, Grady, the gardener, runs out of the house and over to the garden to chase away the rabbit and other animals. Grady is a hero for saving the plants from the animals that eat them. (Hold up the “Applause” sign.) Grady smiles and picks up Zo Zinnia. (By the hand) Grady takes Zo into the house and puts her in a pretty vase with water (sets her on a chair). Zo and Zeta Zinnia, Fruitilda and Grady feel happy and content. They know that the creatures and people will work together another day to find peace and harmony in the garden.

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Creature Culture

Garden creatures are difficult to find hiding in the plants and soil. Find the garden creatures in the picture and write the letter on the drawing next to the name of the creature written below.

Green lacewing
Tomato hornworm
Lady beetle
Squash vine borer
Praying mantis
Spider
Squash bug
Aphid
Earthworm
Honeybee
Cutworm

Draw a smiley face beside the creatures in the list that protect plants and help them grow strong and healthy.

Draw a sad face beside the creatures in the list that chew or suck on the plants.
### Weevils or Snout Beetles

How could you spell the name of a small or “wee” insect that is a “vil” for “villain” because it eats many different crops we work so hard to grow? Weevils are “wee” or tiny insects that live mainly underground in wet places. They are villains when they use their long snouts to burrow into all parts of plants and ruin them for us to use or eat. If you combine “wee” for tiny and “vil” for villain, you get “weevil.”

### Earwigs

Would these make good wigs for your ears? They don’t have any fur for a wig and they really don’t like ears. Earwigs are less than an inch long and are easily identified by their large, hard, pincher-shaped tails. Their pinchers can pinch and give off a smelly liquid if you bother them. They are harmless to people and usually eat live or dead insects as well as live or decaying plants.

### Aphids or Plant Lice

What insect can appear by the thousands on a single plant? Aphids use their straw-like mouths to suck the tasty juices from plants, causing them to shrivel and die. When they eat, they release plant juice and other wastes in the form of a sticky substance called honeydew. Other insects such as ants like to eat the honeydew. Birds and other insects such as lady beetles like to eat aphids.

### Fleas

Why is it important for pets and people to shower after playing on the ground outside? Fleas are tiny, wingless insects with dark-colored, flat-sided bodies. They are bloodsucking parasites that like to live on mammals. That’s how they travel into your house and start living in your carpet or in your bed. Their painful bites cause you to itch. Their eggs are laid on the ground where they hatch so that the larvae can eat organic debris such as dung or decomposing plants. They can transmit many diseases to people and pets.

### Bees

Is it a bee or a wasp? Wasps have skinny waists; bees don’t. Bees are hairy all over; most wasps are not. Part of a bee’s back legs are larger, flatter and covered with long, stiff hairs to carry pollen from plant to plant. Pollen helps many plants produce fruit and seeds. Stand still when there are bees around you and they shouldn’t bother you.

### Grubs

What kind of grub do grubs eat? Grubs are plump, white worm-like larvae with dark heads that live right under the surface of grass. They are eating away at the roots of the grass and can destroy large sections of your yard. You would never guess what kind of adults they become – large, hard-shelled beetles such as big orange June beetles.

### Crickets

Where is the trilling, chirping song coming from that keeps you awake all night long during the summer? Crickets are singing while they eat plants, insects, and even each other during the night. They eat fiber such as cardboard and draperies inside your house, too. They rub their wings together to sing their song.

### Ground Beetle

Have you ever seen a beetle stuck on its back (like in the book)? Beetles have distinguishing lines down the middle of their backs that separate two hard wings. Ground beetles are usually black but sometimes iridescent and shiny. They hide under rocks and ground cover and hunt at night. Because their chewing mouth part helps them eat cutworms and gypsy moth caterpillars that destroy plants, they are considered beneficial to agriculture.
<table>
<thead>
<tr>
<th><strong>Leaffoppers, Froghoppers and Spittlebugs</strong></th>
<th><strong>Dung Beetles or Tumble Bugs</strong></th>
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<tr>
<td>Do the names of these insects tell you anything about them? Leaffoppers are slender, brightly colored insects that hop and fly from leaf to leaf looking for the right leaves to eat. Froghoppers look squatty and are brown or green like frogs and hop and fly from plant to plant to eat it. Spittlebugs are the nymph or young form of froghoppers. When they suck the juice from plants, they surround themselves with bubbly-looking or foamy spit, which keeps them moist and hidden from predators. Do Bummer Beetle and his beetle buddies have a ball in the garden? You could say so. Dung beetles break up dung and roll pieces of it into balls. The beetles use the balls to lay eggs and store food. They are good for the earth because they bury and eat dung, which improves the nutrient content and soil structure. They also protect livestock such as cattle by removing the dung, which, if left on the ground, could provide habitat for pests such as flies.</td>
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<tr>
<th><strong>Katydid</strong></th>
<th><strong>Centipede</strong></th>
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<tr>
<td>What did Katy do? Katydid sing their name from the treetops on summer nights. They belong to the long-horned grasshopper family with a distinguishable large, green, leaf-shaped body and thread-like antennae that are longer than they are. They eat plants, but you don’t see much damage. It’s hard to tell what Katydid do.</td>
<td>How many legs do centipedes really have? “Centi” means one hundred. Words with “ped” at the beginning usually have something to do with feet. Not all centipedes have one hundred feet or fifty pairs of legs, but they do have at least fifteen pairs of legs, one pair per segment. Notice how fast they run with at least thirty legs going all at the same time. Insects have three pairs of legs or six legs. Is a centipede an insect? Centipedes help in decomposition by eating rotten wood and leaf debris on the ground. You can find them hiding under rocks or logs.</td>
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<tr>
<th><strong>Walkingsticks</strong></th>
<th><strong>Snail</strong></th>
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<td>How can you describe a walkingstick? It’s pretty easy to describe a walkingstick; it’s harder to find one. They look like a stick and if you look closely, they even sway while they sit to imitate a twig in the breeze. They eat leaves of trees and shrubs, but aren’t a serious pest. They are fun to watch.</td>
<td>Do you know a creature that carries its house wherever it goes? Snails, like turtles, never leave home. A snail’s shell protects it from some predators. Snails’ bodies produce a thick slime. Because of this slime, they can crawl across the edge of a razor and not get hurt. Snails move with one muscular, broad, flat-bottom foot. So can snails really “race”? Has anyone ever told you that you move at a “snail’s pace”? Is that slow or fast? Garden slugs plod along, moving only 2 feet an hour. They chew large holes as they move across leaves at night or when there is dew on the ground.</td>
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<th><strong>Snakes</strong></th>
<th><strong>Frogs</strong></th>
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<td>Why do many people scream and run away when they see a snake? We often don’t see them, but their quick movements to escape cause us to jump and scream. There are all kinds of snakes slithering around outside. Sometimes you can’t find them, but you find the skin they shed. Snakes police the garden and keep unwanted insects and small, plant-eating rodents away from the plants—they should be the ones screaming and running away before they get snatched up and eaten.</td>
<td>How many times do frogs change looks, names and places they live? Let’s see. A frog starts as an egg, laid in the water. It hatches as a fish-like tadpole with a tail to swim and gills to breathe underwater. Within a few days, it starts growing legs. When its legs are developed and it has lungs to breathe, a froglet can go on the land. A young froglet’s tail starts to be absorbed and its back becomes humped. Their long, strong back legs help them leap. Frogs are similar to toads, but toads live mainly on land when they are adults. Frogs stick out their long, sticky tongues to grab insects for dinner.</td>
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### Stink Bugs

**Do stink bugs really stink or is that just an unfair name?**
Yes, stink bugs give off an odor when they are disturbed or when they are scaring off predators. This "stinky" smell enables them to avoid getting eaten by birds, frogs or toads. Stink bugs suck plant juices, especially the plant sap of young corn. This causes the injured leaves to become twisted and deformed.

### Flies and Maggots

**Do flies deserve the bad reputation that we give them? Why do flies look different than other flying insects?**
Nearly all flies have just one pair of wings compared to a double pair that other flying insects have. Flies start as eggs that are laid in places where the larvae, called maggots, like to eat. Maggots are small, legless caterpillars that live in wet places and eat rather nasty stuff. Maggots are decomposers. Adult flies suck water and nutrients from their food, which could be dung, insects, spiders, animals, people, decomposing food, and fruit. Flies can carry and transmit diseases.

### Spiders

**What makes a spider different than an insect?**
Spiders have eight legs and two body sections; insects have six legs and three body sections. Many spiders have two claw-like appendages called "palps" that look like another set of legs up by their mouths. Spiders spin webs of silk thread secreted from spinneret glands located on the spider’s abdomen. The web is used to catch or lure prey for food. Spiders can detect and locate the struggling prey with amazing speed and accuracy and wrap it in silk. They can eat it immediately or store it for later. They catch all kinds of insects. Spiders are food for birds and other predators.

### Birds

**Have you ever caught food in your mouth in midair?**
Many birds such as wrens, purple martins, Baltimore orioles, and meadowlarks do because insects are their main food source. Robins, goldfinches, sparrows, and bluebirds also eat insects. A study found that songbirds play a vital role in the health of trees by eating the insects that can cause leaf damage and stunt plant growth. We often want to attract birds to our gardens; however, not all birds are wanted guests. Some birds, such as crows and blackbirds, come in flocks as uninvited guests and roost in trees. Their droppings and feathers make messes below them that are hazardous, unsanitary and smelly.

### Cicadas

**Have you found a large, empty cicada skin on the trunk of a tree or on the ground? Have you been loudly serenaded by a cicada?**
Sometimes these strange insects are called "locusts," but that name applies to a group of large grasshoppers. Cicadas are known for their unusual life cycle. The female deposits hundreds of eggs in several slits she cuts in the bark of twigs on trees. The slits cause the twigs on new growth to die. When the eggs hatch, the newborn nymphs drop to the ground, where they burrow into the soil to spend the next 2 to 17 years sucking sap from tree roots. The adults live their short lives on trees.

### Earthworms

**Should we feel sorry for earthworms?**
Earthworms plow the soil by making tunnels. That allows air and water to reach plant roots. Good soil can have as many as 1,000,000 (a million) worms in an area the size of a football field! When a robin tries to pull up an earthworm, the worm uses short bristles on the side of its body to hold on tight to the tunnel wall. Sometimes the robin pulls so hard that the worm breaks apart. The robin eats the front end and the hind end wriggles back into the tunnel. If a bird pulls off the first seven or eight rings of the worm’s body, new segments will grow back on the part of the worm left in the soil.

### Ants

**What are the strongest insects in the garden?**
Ants can carry many times their weight. They dig tunnels and build hills quickly where they live in large colonies. There are more ants than any other land creature. Some ants, such as new queens and males, have wings. Ants eat other insects and are scavengers. They themselves are a good source of food for birds and other animals.

### Slugs

**Can you imagine a snail without its shell?**
If so, that would be a slug – not a very pretty creature. Most slugs are about an inch long, but one species, the banana slug, grows up to 10 inches long. Slugs hide under mulch and in moist areas during the day and come out at night to chew large holes in the leaves of many different kinds of plants. Gardeners go out at night and hand-pick slugs from their plants. They also put traps out that contain something that attract slugs, such as beer or a sweet beverage. The slugs go in the trap, can't get out and drown. There are chemical baits that are used to kill slugs.