



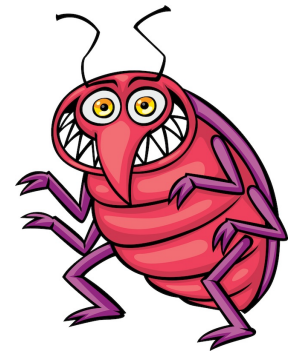
# VICTORY GARDENS

Lesson and Activity Suggestions for Middle Schoolers

## Bad Bugs, Bad Bugs What'cha Gonna Do When they Come for Your Garden?

### Learning About Garden Bugs and Natural Pesticides

We want to remember we are guest to nature while working in our Victory Gardens. We need to be mindful of nature happening all around us. However, there will be bugs that will munch on your plants throughout the season. You will have to protect your plants, first by identifying the bad bugs eating your vegetable plants, secondly, how to remove them, and finally how keep them away. We need to remember, not all bugs are bad! In fact some bugs will help our garden flourish!! For now, we will focus on the bugs you don't want in your garden and what to do with them.



### Identification is Key! Here are Four of the Most Common Plant Destroyers

#### 1. Tomato Hornworm Moth



Tomato Hornworms are at the top of the list for best plant destroyers. Overnight, one can take out an entire plant! They are challenging to see because they camouflage so perfectly with the plant. As their name suggests they love tomatoes, but will munch on peppers, eggplants and potatoes too!

#### How to Spot A Tomato Hornworm

They appear as green caterpillars in their most harmful phase. They can be as long at 5 inches in length! When you see stems and no leaves on your plants, you probably have a hornworm problem.

#### How to Prevent Tomato Hornworms

Before planting, till up your garden; this will expose the Tomato Hornworm larvae and cocoons. If you find any, put them in a bucket and let your neighborhood birds have a feast. You could also add a bird bath to your garden to attract birds so they will eat the cocoons and/or hornworms before they get to your plants. A natural spray solution on your plants could also help. Recipes to spray solution are at the end of this lesson.

## 2. Grasshopper



Grasshoppers can jump about a yard using their back legs as a catapult. Get a good workout in and try to catch these spring board bugs! They love a garden to feast on the leaves!

### Prevention

Before you start planting till up the ground which will turn up the eggs and the birds can find and eat them. There are several plants that repel grasshoppers: sweet clover, peas, cilantros and marigolds.

### Intervention

- Build a homemade trap by burying a glass jar in the ground near your plants. Mix 1 tablespoon uncultured molasses to 1/2 gallon of water. Pour mixture into jars, filling them half-way. The grasshoppers are attracted to the sweet smell and will topple into the trap jar and drown.
- You can purchase a floating row cover to place over your plants.
- Spray your garden with a natural spray solution. The recipe is at the end of this lesson.

## 3. Colorado Potato Beetle



These little guys are less than a half-inch in length, but can do some serious damage to your tomato and pepper plants in a small amount of time.

### Prevention

- Just like with grasshoppers you can purchase a floating row cover to place over your plants.
- Plant coriander, dill, or fennel, around your potato patch to attract ladybugs and stink bugs into your garden to prey on beetle eggs and larvae.

### Intervention

If your potatoes are missing their leaves, you probably have Colorado Potato Beetles. Begin by checking the undersides of the leaves and dig through the soil. When you find the little yellow striped leaf eater, remove it and place it into a bucket of soapy water. You're not done yet. Continue looking for black and yellow larvae and brick red egg clusters. Remove those from your plants, and place them in the bucket of soapy water.

## 4. Spotted Cucumber Beetle



This little guy, known as the yellow-and-black spotted Cucumber Beetle can cause major damage to your garden. Keep a close eye on your bush beans, tomatoes, pumpkins, corn, and their favorite, cucumbers. If your plants start to look wilted, like they are not getting enough water, but you know they are receiving the right amount, you might have a cucumber beetle problem.

### Prevention

- Planting companion plants, which are plants that grow well together and help each other out, will help repel insects. Plants like catnip, radish and broccoli could do the trick. Marigolds and their strong smell can also work well to keep insects and rabbits away!
- Onion skins spread around the infested plants can also help.

### Intervention

- Cucumber Beetles are not harmful to humans, so pick them off the plant and place them in soapy water.
- Bats love to munch on these beetles. Constructing a bat house would provide evening protection for your garden at night!

### Homemade Natural Pesticide Recipes

These recipes will work for all the bugs listed above, with the exception of the cucumber beetle.

**What to do:** Once per week, spray your plants and surrounding soil. Experiment with these natural pesticide recipes to see which one works best in your garden. (Even though each recipe is all-natural and non-toxic, please exercise care to avoid getting spray in eyes or on skin. Wear gloves, eye protection, and spray downwind to be safe.)

- Spray your plants thoroughly, including leaf undersides. You might need to drench your soil, too.
- Store the mixture(s) for up to 1 week in a well-labeled, covered container in the refrigerator, out of reach of children.
- You need one 8-ounce or larger spray bottle.

#### Peppermint Oil Recipe

- 8 ounces water
- 1 tablespoon of liquid soap. (I like Castile. it's olive oil based.)
- 10-15 drops pure essential oil of peppermint

#### Dill Recipe

- 8 ounces water
- 1 tablespoon of liquid soap.
- 10-15 drops pure essential oil of dill

#### Garlic & Cayenne Blend

- Chop, grind, or liquify one garlic bulb and one small onion.
- Add 1 teaspoon of powdered cayenne pepper to 1 quart water.
- Steep 1 hour, strain through cheesecloth, then add 1 tablespoon of liquid dish soap to the strained liquid; mix well.

**Resources:** <http://onlypassionatecuriosity.com/teaching-children-about-garden-bugs-and-natural-pesticide-recipes/>

## "I AM" POEM

Choose one of the bad bugs from this lesson and complete the following poem by imagining what the bug may be thinking and feeling while in your Victory Garden. Be creative!

I am

I wonder

I hear

I see

I am

I pretend

I feel

I touch

I worry

I cry

I am

I understand

I say

I dream

I try

I hope

I am



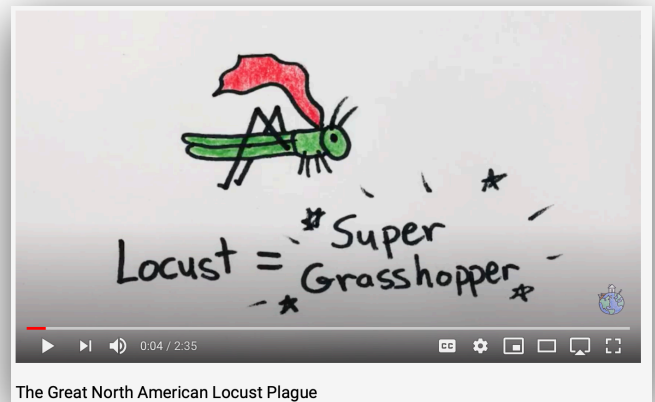
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or tag it with  
#SproutStudies

## Speaking of Bad Bugs . . . Grasshoppers versus Locusts

Locusts definitely have the reputation of being a bad bug, but there seems to be some confusion about the difference between a locust and a grasshopper. In a 2010 article on locusts, published in the *Encyclopedia of Animal Behavior* by Alexandre Vsevolod Latchininsky, Extension Entomologist for the State of Wyoming, explains that "all locusts are grasshoppers but not all grasshoppers are locusts." He defines locusts as "short-horned grasshoppers (Orthoptera: Acrididae), distinguished by their density-dependent behavioral, physiological, and phenotypic polymorphism." That's a lot of big words, but we can break this down. Locusts belong to the grasshopper family, but this bug really likes living by itself. When environmental causes, like a shrinking food source, force it to be close to other locusts, a chemical is released into its central nervous system that causes it to change its body type and move in a destructive swarm. Weird, right?

Watch this YouTube video that explains how locusts are grasshoppers with some unusual superpowers: <https://www.youtube.com/watch?v=aQ804ztWPNs>.



## Too Close to Home

Follow this link to a video showing how these shape-shifting insects destroyed many Kansas farms in July of 1874: <https://youtu.be/kSoxASgSpYg?t=58>

