



HAYES FARM TRAVELLING GARDEN TOOL KIT

BUGS!

KINDERGARTEN TO GRADE 2



Insects and other garden creatures

Today we will learn

- What kinds of insects we might find on the farm?

Here are some of the creatures that you could meet:

pill bugs, lady bugs, potato bugs, squash bugs, cucumber beetles, cabbage moths, bees, hornets, wasps and slugs and snails.

- Where do insects go in the winter?
- What do the different insects look like? We will learn a few facts about each one.
- What jobs do these insects do on the farm?

What are insects?

- Small creatures with 6 legs and 1-2 sets of wings
- Their bodies are divided into three parts – the head, the thorax (where the legs and wings are) and the abdomen (the belly)

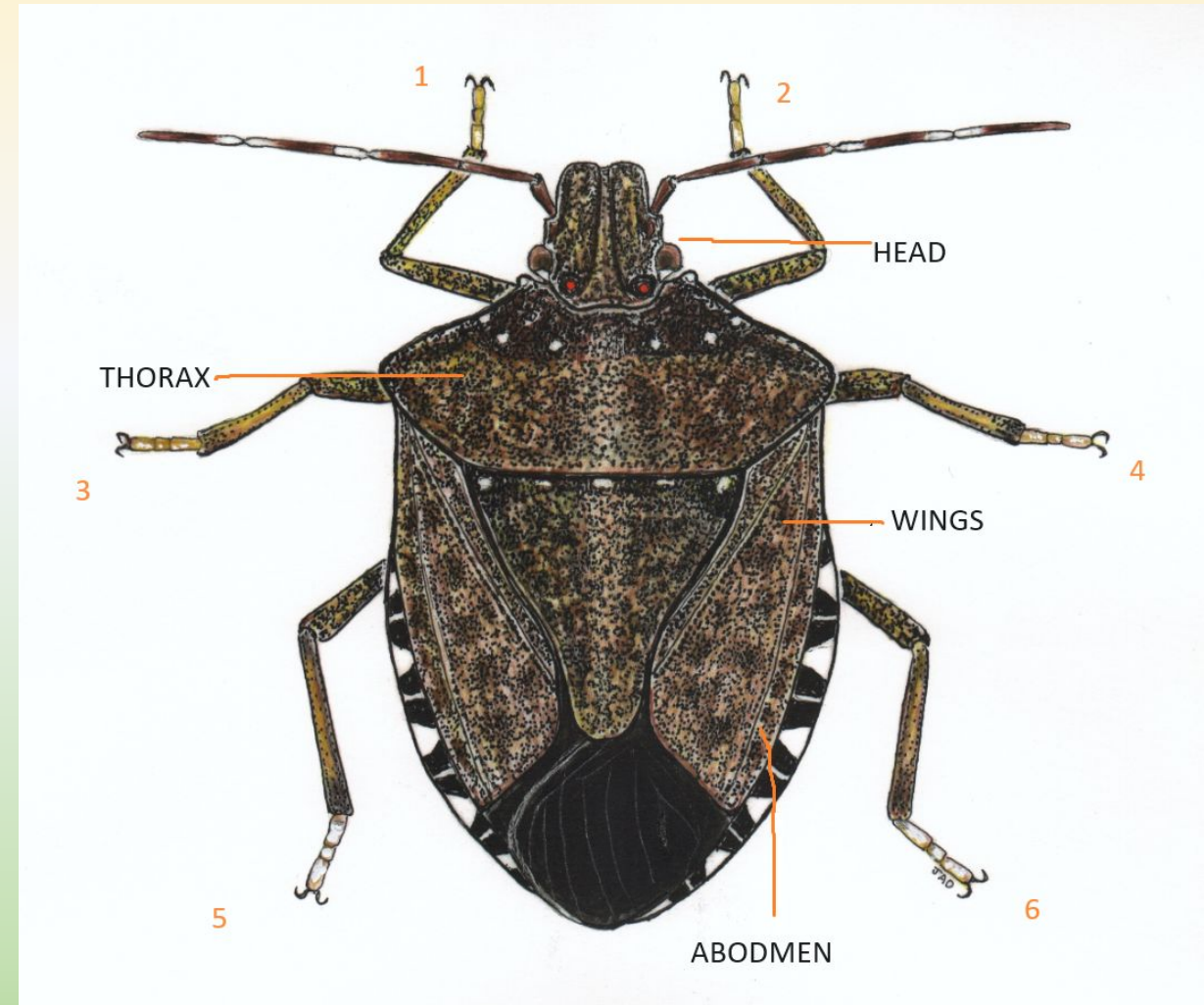


Illustration: Univ. of Maryland Dept. of Entomology, Artist J.A.D

Let's name some insects...

Do you have a favourite insect?

Why do you like it?

Role of insects on the farm

Insects do of course sometimes eat the food that we want to eat.

We generally call those insects “pests,” but often do have their own role in the ecosystem.

For pests, we want to find ways to “control” the damage they cause without spraying chemicals onto the plants that we eat or onto the soil. **This is a very important practice at Hayes Farm.**

Sometimes that means squishing individual bugs or their eggs.

We don't like to kill bugs, but sometimes we need to.

? *Where to insects go in the winter?*

? *Do they just put on winter coats?*

Getting through the winter

We know that mammals like bears hibernate, or sleep most of the winter.

Insects do something kind of like this, they don't grow or move at all when it is cold out.

They get into warmer hiding places. Their goal is to find a place where the temperatures stay more steady. When it is warm enough in spring, they “wake up” again.

? *Can anyone think of places where insects might go for the winter?*

Insects can spend the winter under logs and rocks, under the soil, near basements of buildings, inside of cracks,...Those are all great ideas!

Have a look at this over winter cocoon case



The top of the case is made from individual pieces of grass.



The bottom of the case is a hole dug into a piece of rotting wood. Notice the wood grain.

Pill Bugs (Wood Louse)

Pill bugs have 6 pairs of legs and no wings

- No, they are a type of *crustacean* that lives on the land. Animals like lobsters and crabs are also crustaceans.
- They are covered in a shell that looks like armour and their legs have joints.
- Like creatures that live in the ocean, they breathe through gills.



Photo: Amy Floyd

They are also called Roly-Poly bugs because they can roll into a tight ball to protect themselves!

Their job on the farm is to clean up!

- They compost dead plants and other creatures like dead bugs and worms
- They can even remove soil pollution

? ***Who knows what composting means?***



Photo: Pill bug rolled up. Carnegie Museum of Natural History

Composting

Composting is when living materials that have died get turned back into soil.

Did you ever wonder where all of those leaves, mowed grass, and tree branches go?

Insects, along with bacteria and fungi are super hard workers!

Together they create the Soil Food Web which helps to compost everything in the world.

Just imagine if every living thing that ever existed on earth just stayed here, like even dinosaurs!



Photos: Amy Floyd

Lady Bugs

- Lady Bugs have 6 legs and 1 pair of wings
- They have different numbers and patterns of spots, they can be different colors too
- The one we most think of is the 7 or 9 spotted lady bug, bright red with a black head with white patches.
- They can live for 2-3 years and you can tell which ones are older because their spots start to fade.



Photo: Vulcan Termite and Pest Control (U.S)



Photo: 7-spotted lady beetle,
Denis A. Doucet, Gov. of Canada

Lady Bugs

- Young Lady Bugs look like tiny alligators
- The young Lady Bugs, called larvae eat even more aphids than adults! They can eat almost 200 aphids a week.
- They can eat up to 5000 insects in their life.
- Lady beetles spend the winter under logs, rocks and sometimes in houses.

Their job on the farm is help the farmer!

They eat aphids and other bugs (include Potato Beetle eggs) that eat garden plants.



Photo: Carol Muncer

The Colorado Potato Beetle “Potato Bugs”

- Potato Beetles have 6 legs and 1 pair of wings
- They have stripes on their wings and a spotted pattern near their head.
- Potato Beetles don't eat the potato, but they suck the sweet juices from under the leaves and stems.
- Adult beetles will spend the winter buried in the soil

Their job on the farm is mostly to be a pest! Although, there are some birds and other insects that will eat them. Unfortunately, we need to squish these bugs and their eggs.



Photo: US Dept of Ag. Extension Services

Cabbage Moths

- The cabbage moth has six legs and two sets of wings.
- Cabbage moths don't only eat cabbage, they also love kale, broccoli, cauliflower, and Brussels sprouts.
- The caterpillars have a fluffy look because of tiny hairs on their bodies. They are sometimes called "Loopers" and they move like inch worms.
- Just like other moths and butterflies, the young ones look very different from the adults.
- They live in a cocoon all winter and come out in the spring.

Their job on the farm is to be a pest. Unfortunately, we need to squish these bugs and their eggs. Lady bugs and some other bugs will eat their eggs though.

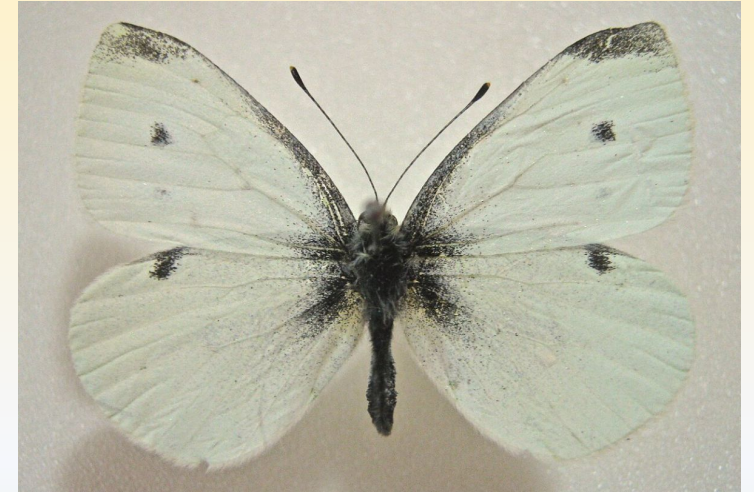


Photo: Wikipedia



Photo: Maryland Botanical Garden

Squash Bugs and Cucumber Beetles

- They have 6 legs and 1 set of wings.
- Cucumber Beetle adults are yellow with black stripes.
- Squash Bug adults are dark grey, with light spots. They have a flat back with an x across it.
- These bugs have sap sucking mouths, to take the sugary food from the plant
- They like to eat pumpkins, squash, cucumbers, zucchini and melons
- They spend the winter under soil, stones or woodpiles.

Their job on the farm is to be a pest, so unfortunately we will squish them.



Photo: Striped Cucumber Beetle, Ric Bessen, Univ. of Kentucky



Photo: Adult Squash Beetle, Utah State Univ. Extension

Pollinators – Bees, Wasps, Hornets

- Bees, wasps and hornets have 6 legs and 2 sets of wings

Stinging

- Many people are afraid of bees, wasps and hornets because of their sting.
- They usually don't sting unless you accidentally (or on purpose) squish them or bother them at their nest/ hive.
- If bees sting animals with fur or thick skin their stinger can get stuck and they die. This is why bees usually don't sting unless they are afraid.
- Male bees collect most of the food and they have no stinger.
- We do need to be careful though, because some people are allergic to stings.



Solitary wild bee photo:
Xerces Society/ Rich Hatfield

- Bees have wide bodies, thick legs and look furry. Bees look furry because they are covered hairs that pollen sticks to.
- With the exception of honeybees and bumblebees, most bees live alone in underground nests.
- Honey bees are not originally from Canada and they are not wild.
- Wild bees don't make honey, they use all of the food they collect to help them get through the cold winter.
- Native bees can be many colours, blue, green, black...



Lifecycle Photo: Carol Muncer



Photo: Yellow Jacket, Poulin's Pest Control, Can.



Photo: Mud dauber, Hawx Pest Control, (U.S)

Wasps and **hornets** have skinny bodies with narrow waists.

- Their bodies are mostly hairless.
- They can sting multiple times.

Yellowjackets are a type of social wasp that will nest above or below ground. They are social because they live in colonies.

- These wasps attach papery nests made from chewed fibers to tree limbs or the eaves.

Just imagine if you had to chew up all of the materials to build your house!

There are many solitary wasps such as **digger wasps** and **mud daubers**.

- Solitary wasps nest in the ground or in cracks in wood or stone.

Their job on the farm is to be a pollinator, which means they help plants to make seeds. This is a really important job!

For rainy days on the farm – Slugs and Snails

- Snails and slugs have one big foot and no wings
- They are mostly a head, belly and a big foot that moves them along. They are called a gastropod (gastro=stomach), (pod=foot)!
- Their big foot makes a mucous (like snot) that helps them slide along and find their way back home!
- Slugs have no shell, but snails do.
- They have two pairs of tentacles on their heads. The longer pair is the eyes. The short pair is used for smelling and feeling its way around.
- They live on the ground or water. They are active at night and on cloudy days.
- They can eat leaves and damage plants, especially when they are young.



Photo: Pinhead Spot Snail
by James Bailey from iNaturalist

Their job on the farm is to be a cleaner!

The remove dead plant matter and they are food for some animals like birds, racoons, mice, squirrels, toads, turtles, etc. Unfortunately they do sometimes eat our vegetables though!



Photo: Milky slug by Bruce Marlin, Wikimedia

Activity

1. Let's have a look at some models that show the lifecycle of a few insects.
2. We can also play The NAME GAME on the next slide.



Let's match the insect with its name.

You can write your answers on the board to keep track...

- A. Wild bee
- B. Snail
- C. Yellow Jacket
- D. Cabbage moth
- E. Potato Beetle
- F. Lady Beetle
- G. Cucumber Beetle
- H. Pill Bug
- I. Squash Beetle



Answers – Let's see how many you can correctly remember

- A. Wild bee - #4
- B. Snail - #2
- C. Yellow Jacket - #3
- D. Cabbage moth - #8
- E. Potato Beetle - #6
- F. Lady Beetle - #9
- G. Cucumber Beetle - #7
- H. Pill Bug - #1
- I. Squash Beetle - #5

We can't wait to see you on the farm!



Hayes Farm