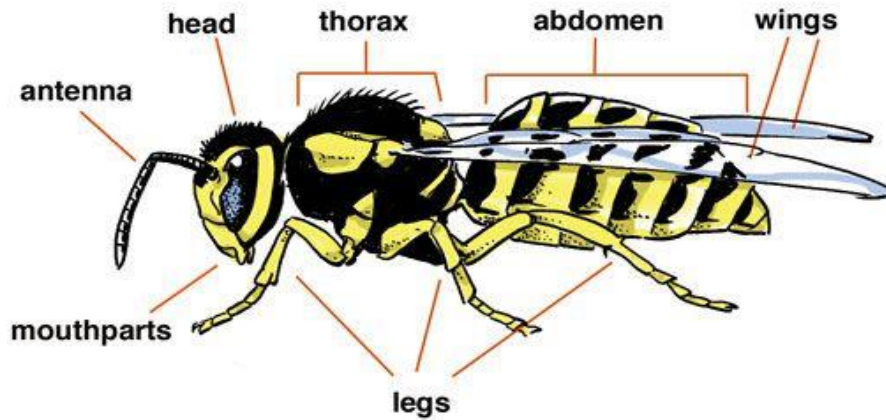


What is an insect? How is it different from a bug?

[Watch an insect video](#)



### Insect Evolution & Success

Insects have been on Earth for 400 million years. Insects are the most numerous and successful creatures on Earth with over 1 million species described (it's thought there could be 2-7 million!).

### Common Garden Insects

#### Beetles:

[Beetles](#) are the largest order of insects with over 350,000 species identified! Beetles are found in nearly every habitat on Earth. Beetles have two pairs of wings. Their front pair of wings is a hard shield that protects their more delicate back wings and their abdomen. Beetles are mostly helpful to the garden by pollinating small, white flowers and also eating non-beneficial larvae and small insects.

#### Ladybugs:

Ladybugs are a type of beetle that protect garden plants by eating aphids. Ladybugs go through 4 stages in their metamorphosis (egg, larvae, pupa, and adult). It's important to recognize [ladybug larvae](#) that look very different from the adults!

#### Aphids:

Aphids are tiny and usually cluster together as they eat garden plants. They can be green, black, and some species are even orange or pink. Ladybugs are their main predators. Ants sometimes "farm" aphids by protecting them from ladybugs (chemicals on ants feet also tranquilize and keep aphid colonies close by; ants will even remove aphids wings) in return for "honeydew", a sweet secretion the aphids make when eating plants. More info on this amazing mutualistic relationship between ants & aphids: [aphid farming video](#)

#### Ants:

Ants live in colonies. These colonies can be large or small. The larger colonies have drones, workers, and queens, similar to honey bee colonies. Ants and bees belong to the same order. Ants are very hard workers, as are bees. Ants antennae can detect chemicals, vibrations, and air currents. Ants communicate by tapping

antennae with another ant (almost like morse code). More info on ant communication here: [antennae tapping](#). Ants also have an internal pedometer that enables them to accurately count their steps and always return home- more info here: [ant pedometer](#)

### **Bees:**

There are so many amazing things to know about bees! Namely, that most of our fruits and vegetables depend on bees for pollination and that there are over 20,000 species of bees. Just like butterflies and ladybugs, bees go through 4 growth stages. Bees can be solitary or live in colonies. More bee facts here: [Bee Facts](#)

### **Butterfly or Moth?**

Butterflies and moths can look similar- both belong to the *Lepidoptera* order. Both can be excellent pollinators, going through 4 growth stages (egg, larva, pupa, and adult). How to tell them apart: butterfly antennae are long, slender, and have small clubs on the ends while moth antennae are feathery; moth bodies are usually chubbier; when at rest, butterflies hold their wings above their bodies while moths hold them out laterally; moths usually fly at night (pollinating fragrant, white, night-blooming flowers) and can be less colorful than butterflies. An amazing video about Monarch Butterflies [here!](#)

### **Other Little Guys (invertebrates but not insects):**

#### **Worms**

Worms are detritivores; they eat decaying organic matter. As they tunnel and eat they dig tunnels in the soil that provide air space for water and roots and also transform the organic material into important soil nutrients. Worms have a segmented body but no legs, teeth, or eyes. Similar to a bird, they have a tiny gizzard to help grind up their food. They are extremely gentle, sensitive to light, air, and loud noises.

#### **Millipede or Centipede?**

Millipedes have two pairs of jointed legs (4 legs) on almost all of their body segments (usually at least 20 segments). Like worms, they are detritivores and eat decaying matter. Millipedes move slowly, are usually gentle and shy and will curl into a spiral when scared.

Centipedes have one pair of legs (2 legs) per body segment. Centipedes are predators and can move fast- they do not curl into a spiral. Some centipedes can bite humans so watch out, but they are beneficial by also eating pests in the garden.

#### **Pill Bugs and Rollie Pollies:**

Pill bugs have a hard, shell-like exoskeleton. They have many body segments and can roll into a ball when you touch them. They have 7 sets of legs and antennae. They breathe through gills, so must live in areas of high humidity, such as under a log or in leaf litter.

#### **Slugs:**

Slugs bodies are almost entirely made up of water. They need to be in damp environments at all times and prefer damp, protected areas, such as under logs or groundcover, or in thick vegetation where water has not evaporated. Slugs are garden pests (eat our veggies!) but are important detritivores in the forest by helping to decompose decaying plant matter.