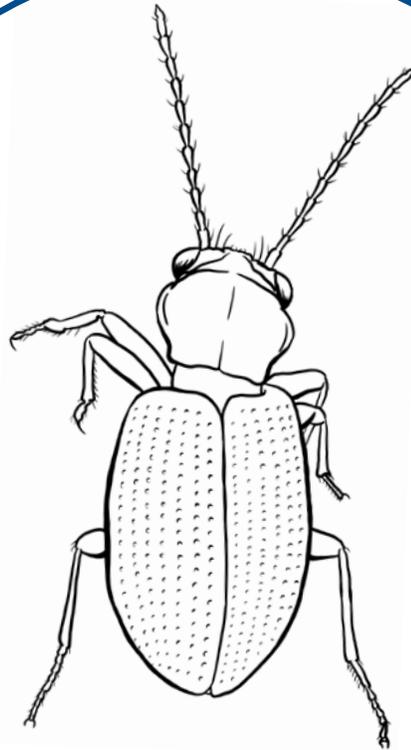


# UTOWN@UBC Nature Club



## Insect Guide

**Make new friends while getting to know your  
human, plant and animal neighbours!**



a place of mind



ubcbotanicalgarden  
& centre for plant research

# We share our world with so many cool critters!

## Can you identify them?

Use this guide as you search for bugs that live in your UBC backyard. The creatures in this guide are divided into major groups that scientists call classes, and more specific groups called orders. Use the information below to determine which major group your creature belongs to.

## Insects

There are so many different kinds of insects. This group includes grasshoppers, flies, beetles, and ants.

### All insects have:

3 body parts (head, thorax & abdomen)

6 legs

2 antennae

Many have wings

## Arachnids

This group includes spiders, ticks and mites.

### All arachnids have:

2 body parts (the cephalothorax and abdomen)

8 legs

No antennae

No wings

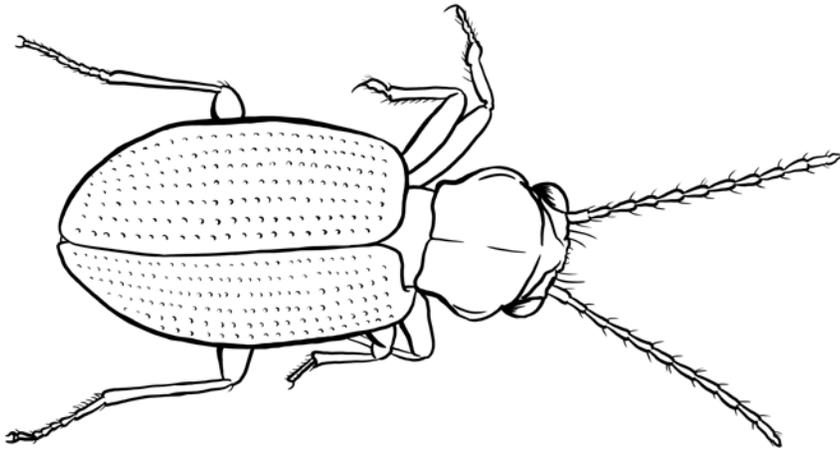
## Other Common Critters

These other major groups of spineless critters live on land and are less common than insects and arachnids. They include centipedes, millipedes and pill bugs.

### These critters can be very different from one another but all have:

At least 2 body parts

At least 10 legs



**Insects (Class Insecta)**  
3 body parts, 6 legs, 2 antennae

## Beetles

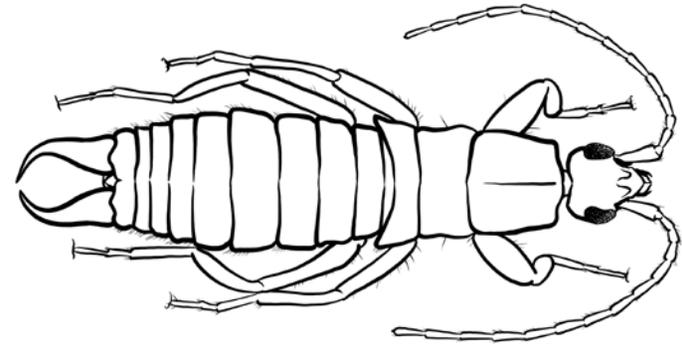
**Order:** Coleoptera

**Wings:** 4 wings (2 pairs). The front wings are hard and shell-like. The back wings are thin and folded underneath when not being used.

**Body Shape:** Usually round or oval.

**Other Unique Features:** Beetles are found almost everywhere. The only places they can't be found are in the oceans and in cold, polar areas.

**Cool Fact:** Beetles are incredibly abundant. About 25% (or 1 in 4) of species that scientists know about is a beetle.



**Insects (Class Insecta)**  
3 body parts, 6 legs, 2 antennae

## Earwigs

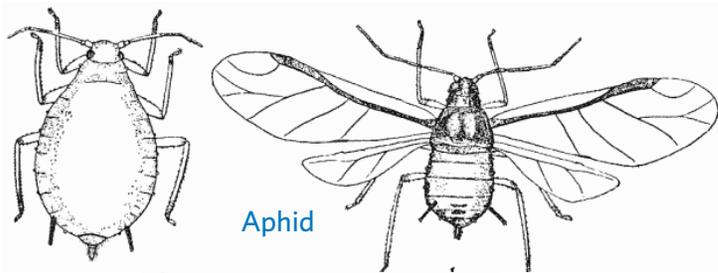
**Order:** Dermaptera

**Wings:** 4 wings (2 pairs) or none. The front pair of wings is hard and tough, and the back wings are thin and folded underneath. Most earwigs can fly, but they rarely do.

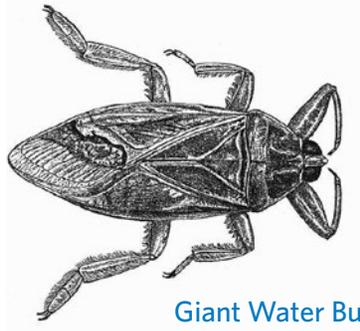
**Body Shape:** Their body is generally long and somewhat flattened. It can be hard to distinguish the 3 body parts.

**Other Unique Features:** All have two distinct pincer-like structures at the back end of their body.

**Cool Fact:** Earwigs are nocturnal. During the day they often hide in dark, damp places. Despite what the name suggests, earwigs won't crawl into your ears!



Aphid



Giant Water Bug (Heteroptera)

## True bugs

**Order:** Hemiptera

**Wings:** 4 wings (2 pairs). The two main groups of true bugs, Heteroptera and Homoptera, have different wing types.

**Body Shape:** The body shape of this group can be quite variable. It can be difficult to see the 3 different body parts.

**Other Unique Features:** All have sucking mouth parts.

**Cool Fact:** Although people often use the word “bug” to describe all small, spineless critters, it is only this specific group of insects that scientists call “true bugs.”

### Seed Bugs and Plant Bugs

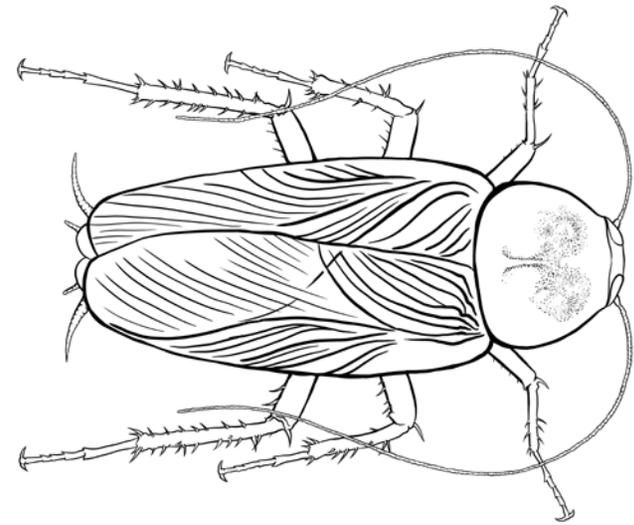
**Suborder:** Heteroptera

**Wings:** 4 wings (2 pairs). The front pair is leathery at the base but thin and clear at the tip.

### Cicadas and Aphids

**Suborder:** Homoptera

**Wings:** Most individuals do not have wings. If they do, they have 4 wings (2 pairs) that are similar in shape. Both are clear and thin.



Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Cockroaches

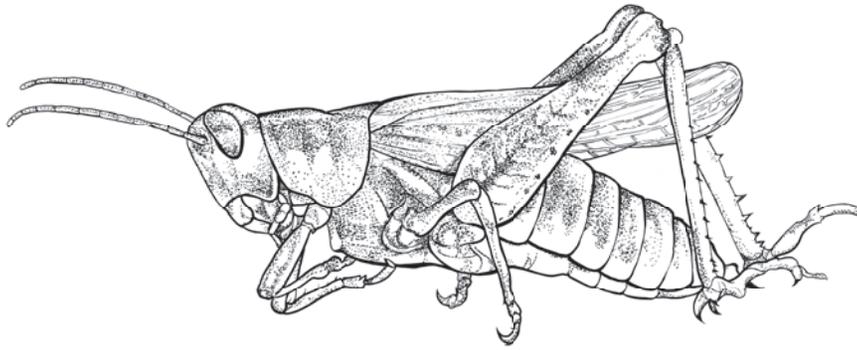
**Order:** Dictyoptera

**Wings:** 4 wings (2 pairs). The front pair of wings is leathery and has veins. The back wings are thin and folded underneath when not being used.

**Body Shape:** Generally oval-shaped.

**Other Unique Features:** The back legs are longer than the front legs and are designed for running.

**Cool Fact:** Cockroaches are incredible survivors. Studies have shown that they can live up to one month without food, and up to 45 minutes without air.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Grasshoppers & Crickets

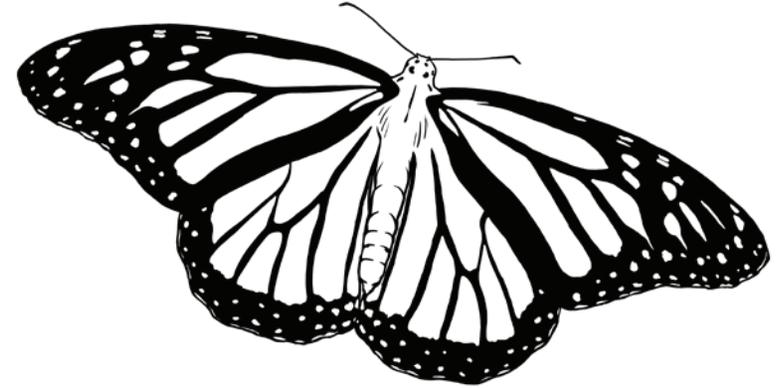
**Order:** Orthoptera

**Wings:** 4 wings (2 pairs). The front pair of wings is leathery and has veins. The back wings are thin and folded underneath when not being used.

**Body Shape:** This group can have diverse body shapes.

**Other Unique Features:** Their back legs are bigger and designed for jumping.

**Cool Fact:** While crickets and grasshoppers are well known for their chirping sounds, it is only the males of this group that make sound. Females are typically silent.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Butterflies & Moths

**Order:** Lepidoptera

**Wings:** 4 wings (2 pairs). All wings are similar in structure and covered in tiny scales.

**Body Shape:** Moths usually have a thicker body than butterflies, which tend to be more delicate-looking.

**Other Unique Features:** Most have a long, sucking mouth called a proboscis to help them drink nectar from flowers.

**Cool Fact:** Butterflies and moths don't grow. During their larval or caterpillar stage they grow, but once a butterfly or moth emerges from its pupa or cocoon it will not grow any more.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Bees, Wasps & Ants

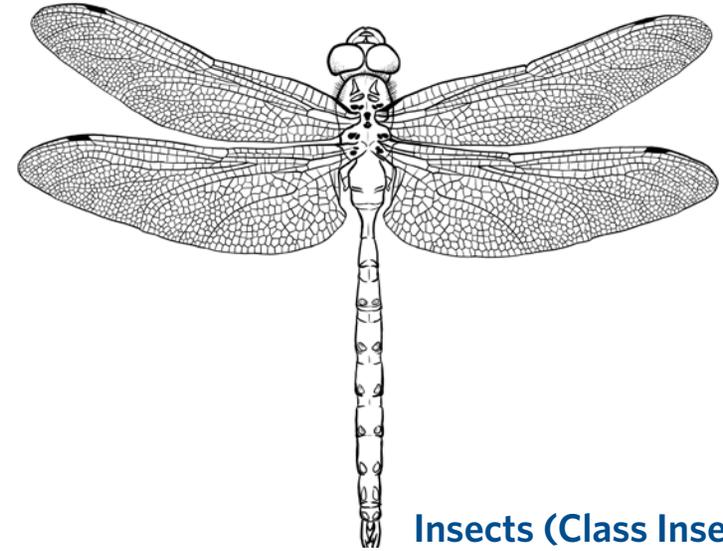
**Order:** Hymenoptera

**Wings:** 4 wings (2 pairs). Both wings are clear and thin, with few veins. The wings are linked together with hooks and beat together when they fly. Worker ants do not have wings.

**Body Shape:** Most bees, wasps and ants have a narrow “waist”, making it easy to distinguish their 3 body parts.

**Other Unique Features:** Most members of this group have chewing mouthparts, except for bees, which have a tube-like mouth for collecting nectar.

**Cool Fact:** Ants, bees and wasps are incredibly social creatures. Individuals within colonies or hives typically have different jobs that allow them to work together to care and provide for the group. Groups are normally organized around a queen, who is responsible for laying eggs.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Dragonflies & Damselflies

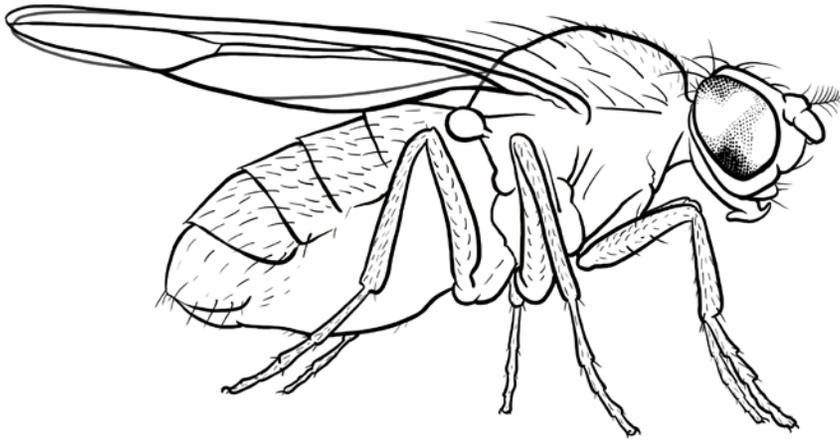
**Order:** Odonata

**Wings:** 4 wings (2 pairs). Both wings are long and narrow, thin & clear and have many veins.

**Body Shape:** Most members of this group have an elongated abdomen at the back of their body.

**Other Unique Features:** All dragonflies and damselflies have chewing mouthparts.

**Cool Fact:** The largest insect that ever lived was a dragonfly with a wingspan of over 70cm.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Flies & Mosquitos

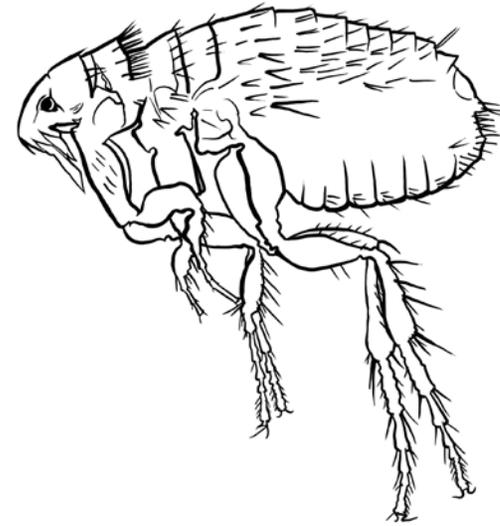
**Order:** Diptera

**Wings:** Flies have 2 wings (1 pair) that are thin and clear.

**Body Shape:** Flies typically have short bodies that are well developed for flight. The 3 body parts of flies can be seen relatively easily.

**Other Unique Features:** Generally, flies have sucking mouthparts or fleshy pads for drinking. They typically do not eat solid food.

**Cool Fact:** Many insect names contain the word "fly", but not all are true flies. How do you tell the difference? Generally, only insects that have names with "fly" as a separate word (e.g. Fruit fly, house fly or black fly) are true flies. Insects that have names with "fly" attached to another word (e.g. Dragonfly, butterfly, firefly) are not true flies.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Fleas

**Order:** Siphonaptera

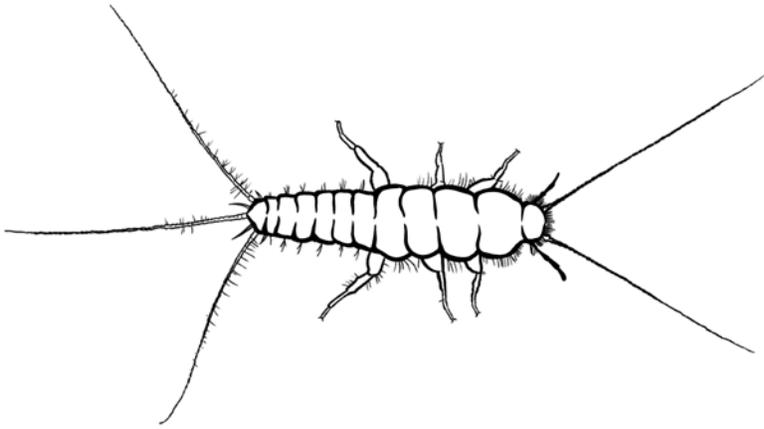
**Wings:** No wings

**Body Shape:** Fleas have a body that is flat from side-to-side to allow easy movement through the fur of their hosts.

**Other Unique Features:** Their hind legs are very long and designed for jumping. They have tube-like mouthparts designed for piercing and sucking blood from their hosts.

**Size:** All fleas are small at just 1.5-3.3 mm.

**Cool Fact:** Fleas are one of the best jumpers in the animal world and can jump over 100 times the length of their body. If you had the jumping power of a flea, you would be able to jump the length of a soccer field!



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Silverfish

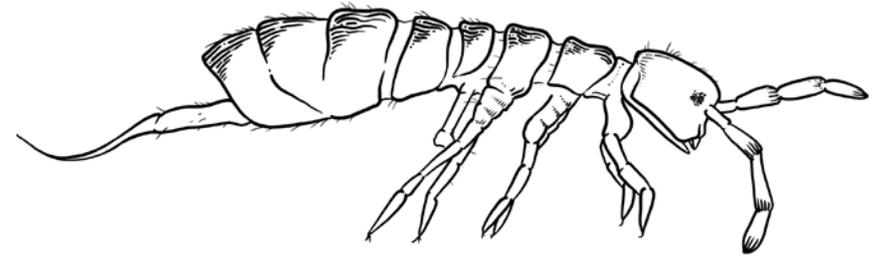
**Order:** Thysanura

**Wings:** No wings

**Body Shape:** Silverfish have elongated, flattened bodies. It is hard to distinguish their 3 body parts.

**Other Unique Features:** All silverfish have long, jointed thread-like antennae and tails. They are often found indoors in damp places.

**Cool Fact:** Silverfish were named for the silvery glitter of scales covering their bodies and for their fish-like movement that makes them look as though they are swimming.



### Insects (Class Insecta)

3 body parts, 6 legs, 2 antennae

## Springtails

**Order:** Collembola

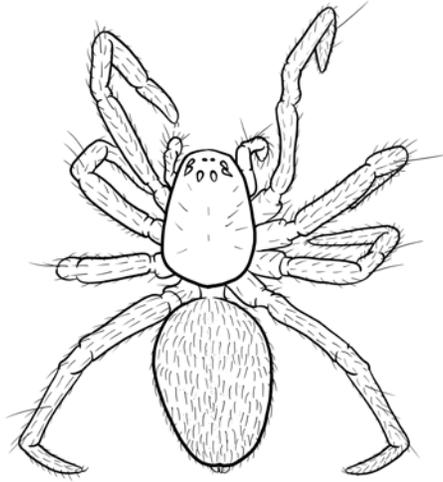
**Wings:** No wings

**Body Shape:** Most have a long, tail-like appendage that is folded and hooked beneath the body while at rest. When threatened, the appendage is released and causes the springtail to “spring” into the air.

**Other Unique Features:** Springtails have no visible mouth parts.

**Size:** All members of this group are small at less than 6 mm. They could fit on end of a thumbtack.

**Cool Fact:** Scientists believe that springtails are one of the most common animals in the world. They can be found in huge numbers in soil, leaves and other decaying material on the ground. Chances are you’ll find them if you look!



### Arachnids (Class Arachnida)

2 body parts, 8 legs, no antennae, no wings

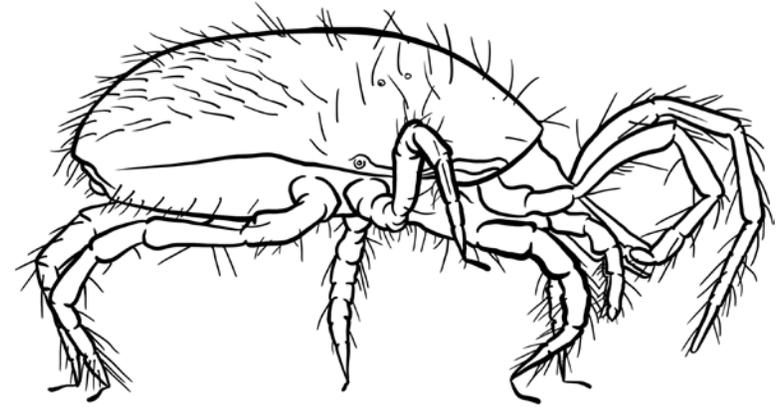
## Spiders

**Order:** Araneae

**Body Shape:** All spiders have a narrow “waist” or section in their body, making it easy to see their 2 body parts.

**Other Unique Features:** All spiders have mouth parts called chelicerae with fangs that can inject venom. While some spiders can be dangerous to people, most are harmless. All spiders have spinnerets on the back of their body that produce silk for things like webs and safety lines. All spiders are predators.

**Cool Fact:** Spider silk is lighter, stronger and more elastic than any substance humans are able to make.



### Arachnids (Class Arachnida)

2 body parts, 8 legs, no antennae, no wings

## Ticks & Mites

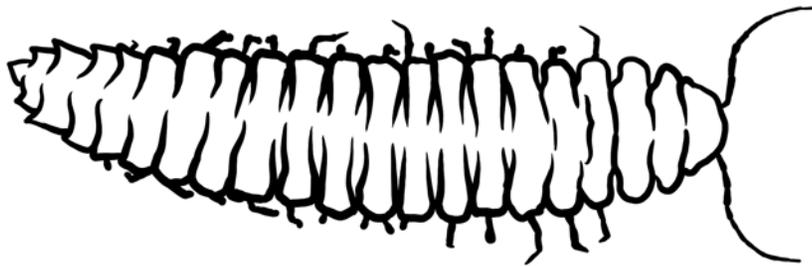
**Order:** Acari

**Body Shape:** Ticks and mites have oval-shaped bodies. Unlike spiders, they do not have a “waist”.

**Other Unique Features:** Mites can be found in a huge variety of habitats, including in water and on land.

**Size:** Most mites and ticks are tiny, measuring smaller than the head of a pin (1 mm).

**Cool Fact:** Mites are believed to be one of the first animals to move onto land from the sea about 400 million years ago. Today, mites are found in nearly all habitats, including hot deserts, cold mountaintops, deep oceans, streams and lakes.



**Other Common Critters**  
At least 2 body parts; At least 10 legs

## Centipedes

**Class:** Chilopoda

**Body Shape:** Centipedes have elongated, flattened bodies with lots of body segments.

**Legs:** They have one pair of walking legs per body segment. Their legs stick out the side of their body and the back legs are often longer than the front legs. Although their name means “100 legs”, some species have fewer than 100 legs and others have over 350.

**Antennae:** They have 2 antennae (1 pair), and use them to find prey.

**Other Unique Features:** Centipedes are predators with large mouthparts that end in sharp claws and have venom glands to help paralyze their prey.

**Cool Fact:** The Amazonian giant centipede is the largest centipede in the world. It can grow to over 30 cm in length (the length of a standard ruler) and can eat frogs, mice, birds, lizards and even bats!



**Other Common Critters**  
At least 2 body parts; At least 10 legs

## Millipedes

**Class:** Diplopoda

**Body Shape:** Millipedes have long, cylinder-shaped bodies with lots of body segments.

**Legs:** They have two pairs of walking legs per body segment. Their legs are thin and short, and are attached to the underside of their body. Although their name means “1000 legs,” no known millipede has more than 750 legs and most have fewer than 400.

**Antennae:** They have 2 short antennae (1 pair).

**Other Unique Features:** Millipedes protect themselves by curling their bodies into a tight roll or coil. They can also emit poisonous hydrogen cyanide gas. Millipedes are mostly slow moving and can be found in soil and leaf litter. They eat decomposing vegetation in and around the soil.

**Cool Fact:** Some animals such as Capuchin monkeys have been known to use millipedes as mosquito repellent! To do so, they purposely aggravate millipedes, and then rub the hydrogen cyanide gas the millipedes produce for defense on their bodies.

