Invertebrate Identification Guide

Welcome to the BioKIDS Invertebrate Identification Guide!

This guide will help you identify animals you find in your schoolyard. It is only for **INVERTEBRATES**! Invertebrates are animals with no bones; nearly all the ones you'll find have lots of legs (6 or more!) or none at all. To identify birds, mammals, frogs, snakes, turtles, toads, fish, and other vertebrates, look at the other picture sheets or ask your teacher if there is field guide you can use.

IMPORTANT REMINDER: A few invertebrates will bite or sting to protect themselves. Watch out for bees and wasps, they can give a painful sting. Nearly all Michigan spiders are harmless, but we do have a Black Widow species here. If you see a shiny black spider, tell your teacher, and DO NOT TOUCH IT. Black Widows don't want to bite you, but they will bite to defend themselves, and their bite will make you very sick. Other big spiders may bite too, but only the black shiny ones are dangerous.

How to Use This Guide (Please Read This!)

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- Read and answer the first question, then **follow the steps** to the next questions. The guide will tell you the common name of your animal group and the scientific name. **Look very closely at your specimen!** - use your magnifier as much as you can.
- The questions are different for different kinds of animals, so follow the steps carefully.
- Sometimes you cannot identify an animal very well. There are thousands of invertebrate species in your area, and we can't get them all. Do the best you can, and use the "Unknown…" categories if you need to.
- If you get stuck, try going back. Each step shows the step you came there from, so you can go backwards to see if you made a mistake or missed something.
- Sometimes you will find animals you already know. That's great, but be careful. **Sometimes things are not what they seem**. For example, lots of insects look like bees, but many of them are flies or beetles or moths that look like bees for protection.

On To The Invertebrates! The questions start on the next page.

START HERE, THESE QUESTIONS WILL SEND YOU TO DIFFERENT SECTIONS OF THE GUIDE:

Start 01: Does your animal have wings? Look closely, they might just be little flaps that are too small to fly with, or the front wings might be a tough or hard covering for the back wings.

Yes? Then it is an insect. Go to **Step I-01** on **page 6**.

No? It might still be an insect, or maybe another kind of invertebrate. Go to the next question.

Start 02: How many legs with joints does your animal have? Soft suction-cup legs with no joints don't count. Look carefully! Sometimes big invertebrates have small legs!

No legs? Are you sure? Ok, **go to Step N-01** on **page 3** (the next page).

Six legs? It's an **Insect**! Jump ahead to **Step I-24** on **page 11**.
(Note! If your animal has six legs, but is very small (less than 2 mm long), has no antennae on its head, and the body is not separated into sections, it is actually a Mite or Tick (order Acari in the Class Arachnida).

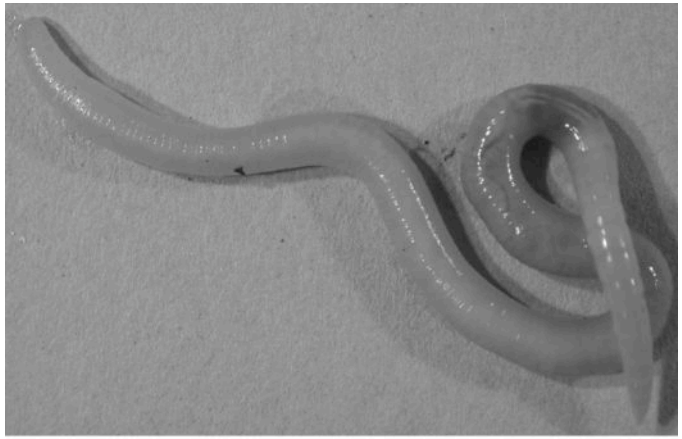
Eight legs exactly? You've found an Arachnid! Go to **Step A-01** on **page 16**.

More than eight legs? Go to **Step M-01** on **page 19**.

ANIMALS WITH NO LEGS -- START HERE

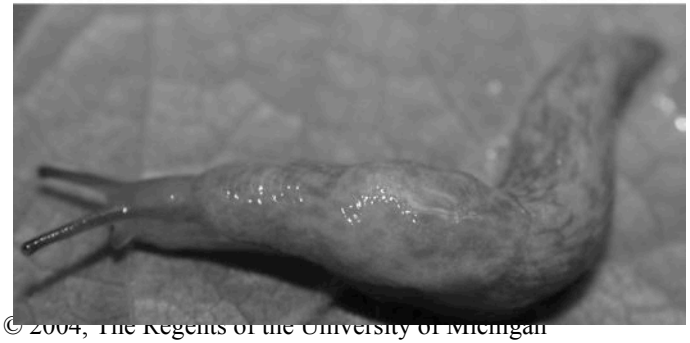
(If you get stuck in the questions below and can't figure out what your legless animal is, you can still record it as an Unknown Invertebrate)

Start by looking at these common legless invertebrates. Have you found one?



Earthworms (class Oligochaeta) are the most common legless invertebrates in the schoolyard. Look for signs of earthworms digging in the soil.

Snails (class Gastropoda) are more common than you might think! Look for very small ones underneath things, and watch for empty shells too!



This is a slug (also class Gastropoda). Like their cousins the snails, they like to hide under things during the day.

If you can't identify your legless animal from these pictures, turn the page and use the questions to help you.

Step N-01 (from Start 02): Does your animal have a shell?

If no shell, go to Step N-02.

If it does have shell, then it's definitely a Snail (class Gastropoda).

Step N-02 (from Step N-01): Look at the body of your animal. Does it have lots of lines across it, like its body is made of lots of little rings or segments?

If your animal has lots of rings or segments, it is either a kind of worm or an insect larva. These kinds of animals are round or flat, their bodies usually look the same on top and bottom, and they have no tentacles. If that describes your animal, go to Step N-03.

Is the body of your animal is smooth, with no rings or segments? It may be very small and thin, like a tiny worm, or it may be bigger (up to 8 cm long) and much thicker. Either way, if it has no visible segments skip ahead to Step N-06.

Step N-03 (from N-02): Does your animal have a head that is different from its body? The head will probably be a darker color and harder than the soft body.

If your animal doesn't look like it has a head, go on to the next step (N-04).

If your animal does have a head, then it is an Insect larva. We can't tell exactly what kind without using a special microscope and making very detailed observations. You can record it in CyberTracker as an Unknown Insect.

Step N-04 (from N-03): Look at the body of your animal. Is there a single suction cup at the end? Is the body round (like a pen) or flat (like a ruler)?

If your animal is round like a pen, and doesn't have a suction cup at the end, go to step N-05.

If your animal is flattened and has suction cups, it's a Leech (class Hirudinea)! Don't worry, leeches in Michigan aren't dangerous, though some will try to bite you and get your blood like a mosquito (other leeches are predators and eat small animals).

Step N-05 (from N-04): Look for the rings or lines running around your animal. They show how the body is divided into segments. Count the segments. You can stop counting if you get to 20.

If your animal has more then 15 segments (probably lots more), it is an Earthworm (class Oligochaeta).

If your animal has less than 15 segments, but no visible head or legs, then it is probably a larva of a True Fly (class Insecta, order Diptera). If it can keep growing, it will eventually transform into a flying adult. True Flies are Insects.

Step N-06 (from N-02): What does your animal look like? Is it a very small and thin worm, less than 1 cm long, or is it larger and fatter, with slimy skin?

If your animal looks is a **very small and thin** worm with no segments, then it is probably a Nematode (say "nem-a-toad") (phylum Nematoda).

If your animal is larger, it is probably a Slug (part of the class Gastropoda). Slugs are related to snails, but that have evolved to live without a shell. When they crawl they are easy to recognize with their tentacles sticking out from their heads, but when they are resting or hiding, they may pull these tentacles in for protection and then they look more like worms.

ANIMALS WITH 6 LEGS AND WINGS -- START HERE

If you need a reminder on Insect body parts, look at the back page of this booklet.

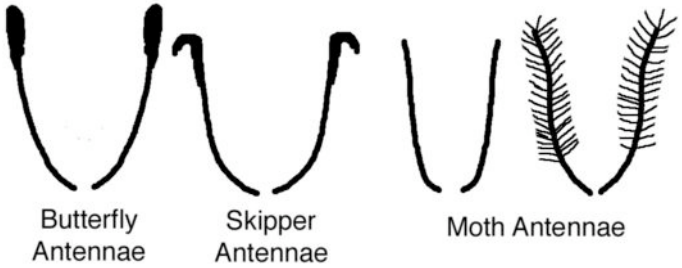
Remember that if you can't figure out what kind of animal you have, as long as it has six legs you can record it as an Unknown Insect.

Step I-01 (from Start 01): Look at the wings of your insect. Are they clear and smooth or do they have tiny colored scales on them that block the light? Use your magnifying lens to check!

If the wings are partly or totally covered with tiny colored scales, then your insect is a Butterfly, a Skipper, or a Moth. (all in the order Lepidoptera). Go to Step I-02.

If there are no scales on the wings, and you can easily see light through them, then skip ahead to Step I-04 on the next page.

Step I-02 (from I-01): Look at the antennae on your insect (if you're not sure what or where antennae are, look at the last page of this guide). Match the antennae on your insect to the ones in this picture:



If the tips of the antennae are thicker than the middles, your animal is a Butterfly (order Lepidoptera). Go to Step I-03 on the next page.

If the tips are not thicker than the middles, or if the antennae are fringed like feathers, then your animal is a Moth (order Lepidoptera).
Note: Another check is to see how the insect holds its wings when it's resting. Butterflies fold them straight up over their back so the edges point towards the sky; Moths fold their wings down, sticking out on either side of their body like airplane wings.

Step I-03 (from I-02): Look at the antennae again. Do the ends bend into little hooks? Also look at the body of the insect. Is it long and skinny (like a pencil) or short and stout (like a peanut)?

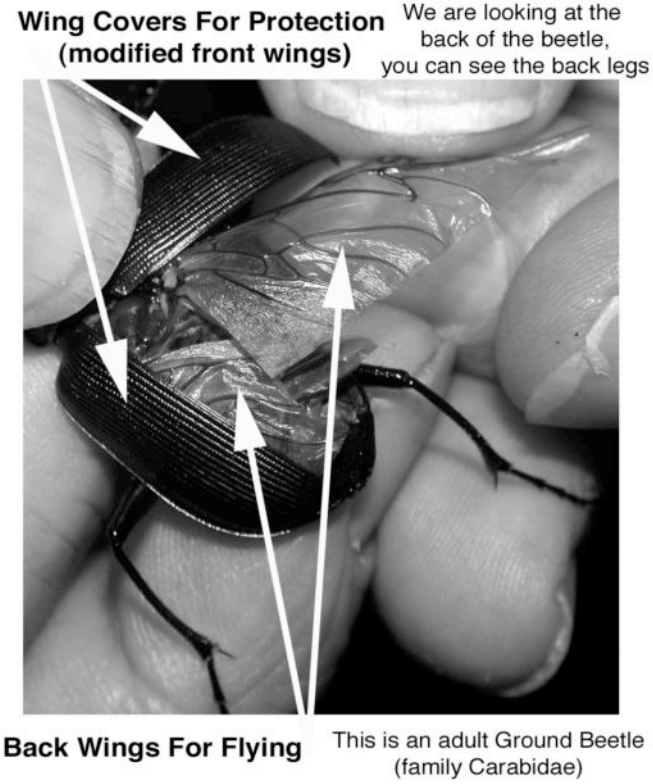
If the antennae are not hooked, and the body is long and skinny, your insect is a Butterfly.

If the antennae do end in little hooks, and the body is short and stout, your insect belongs to a special family of butterflies called Skippers (family Hesperiidae). Skippers look sort of like moths, but they are more closely related to butterflies.

Step I-04 (from I-01): Does your insect have a pair of very hard coverings over its wings? Look at the picture on the right for an example.

If your insect has very hard, rigid coverings over the wings, so hard you think they might snap if you bend them, then your insect is a Beetle (order Coleoptera). Those hard coverings are actually the first pair of wings, they have evolved into coverings for the second pair wings. There are many, many kinds of beetles. A few of them you can identify, so go on to Step I-05.

If your insect doesn't have coverings over its wings, or if it does have coverings but they are flexible, like leather, then go to step I-09.



Step I-05 (from I-04): Is your beetle longer than it is wide? Does it have very thin lines going down its wing covers (like the beetle in the picture)? Do its antennae attach to its head between its eyes and its mouthparts? Is it sort of flat?

If your beetle doesn't look like that, go to I-06.

If you answered Yes to all these questions, your beetle is probably a Ground Beetle (family Carabidae).

Step I-06 (from I-05): Is your beetle red or orange with black spots? Or black with orange or red spots? Is it rounded on top like a ball, but flat underneath? Are its antennae very short (much shorter than its legs)? Do its antennae get thick at the end like very tiny clubs?

If you answered No to any of the questions, go to Step I-07.

If you answered "Yes" to all these questions, your beetle is probably a Lady Beetle, sometimes called a ladybug (though they are really beetles in the family Coccinellidae, not bugs).

Step I-07 (from I-06): Is your beetle much longer than it is wide? If you look down on it, is it rounded at both ends? Can the front of the body (the head and first part of the thorax with the first pair of legs) move separately from the rest of the body? Are its antennae thin and bumpy?

If you answered "no" to any of these questions, go to Step I-08.

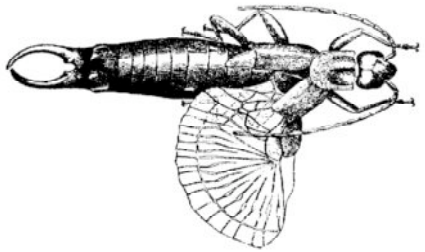
If you answered yes to these questions, your insect is a Click Beetle (family Elateridae).

Step I-08 (from I-07): Does your beetle have a long nose? Are its antennae bent, and thick at the ends?

If you answered No to either of the questions, you can't identify your beetle with this guide, except to say that it is a Beetle. Record it as an Unknown Beetle.

If your beetle has both those things, it's a Weevil (family Curculionidae).

Step I-09 (from I-04): Does your insect have a pair of big pincers sticking out from the end of its body? These pincers are curved, and the ends come together. Look at the picture on the right for an example:



If it does not have pincers at its back end, go on to the next step, I-10.

If it does have pincers at its back end just like the picture, it's an Earwig (order Dermaptera).

Step I-10 (from I-09): How many wings does your insect have? Look closely; sometimes two separate wings are hooked together. Look at the base of the wings to be sure.

If it has only 2 wings, go to Step I-11.

If it has 4 wings, skip ahead to Step I-20

Step I-11 (from I-10): Does your insect have 2 or 3 long stiff hairs or bristles at the end of its body? Are its wings folded up behind its back like this?:

 If it does, then your insect is a Mayfly (order Ephemeroptera).

If it doesn't, then your insect is a True Fly (order Diptera). This is a very diverse group of insects, and you might be able to figure out what kind of True Fly it is. Go to Step I-12.

Step I-12 (from I-11): Does your insect look like a mosquito, with long legs, a thin body, and thin little antennae? Or does it look like more like a house fly, with short legs, a thick body, and short stubby antennae? There is an example of a mosquito on the cover of this booklet, in the upper right corner.

Short and thick? Go to Step I-13.

Long and thin? Skip on to Step I-14

Step I-13 (from I-12): Does your fly look like a bee or wasp? Does it have black and yellow or orange stripes?

If your Fly looks like a bee, it is probably a Flower Fly (family Syrphidae).

If your fly is gray or brown, and looks more like a regular fly, that's probably what it is, a House Fly (family Muscidae).

There are lots of other kinds of flies in the world, but they are too hard to identify. If you don't think your fly matches these groups, you should record an Unknown True Fly.

Step I-14 (from I-12): Does your skinny True Fly have a long thin tube where its mouth should be? If you use the magnifier, can you see scales on the wings?

If it does have scales on its wings and a thin tube for feeding it is a Mosquito (family Culicidae)!

If it doesn't have scales on its wings or thin tube for feeding, go to the next step (I-15).

Step I-15 (from I-14): Is your skinny fly less than 1 cm long or more than 1 cm long?

If it is small, it is probably a Midge (family Chironomidae).

If it is large, it is a Crane Fly (family Tipulidae) also sometimes called a "mosquito hawk", though they don't eat mosquitos.

There are lots of other kinds of flies in the world, but they are too hard to identify. If you don't think your fly matches these groups, you should record an Unknown True Fly.

Step I-20 (from I-10) Does your insect have a long skinny body, big eyes and very short little antennae (as in the pictures below)?

If Yes, go to next step, I-21.

If No, skip on to Step I-22.

Damselfly, side view with wings folded over back.

Dragonfly, view from above. Wings are out to the sides.

Step I-21 (from I-20): Does your insect hold its wings out flat -- sticking straight out on either side of the body and not folded? Or does it fold its wings up over its back, so the tops of the wings are touching each other?

If the wings are folded up over the back, so the tops of the wings are touching, your insect is a Damselfly (suborder Zygoptera).

If the wings are held flat, sticking out straight on either side of the body like an airplane, then it is a Dragonfly (suborder Anisoptera).

Step I-22 (from I-20): Are the front wings of your insect the same size and shape as the back wings? You may have to move the wings around with your forceps to compare them.

If the wings are the same shape and size, go to the next step (I-23).

If the front wings are different in shape or size from the back wings, go on to Step I-24.

Step I-23 (from I 22): How long are the antennae of your insect?

If the antennae are long enough to reach back to the end of the body, then your insect is a Lacewing (order Neuroptera, family Chrysodidae). It is probably green or brown with large eyes, and definitely has a lot of veins in its wings that look like a net.

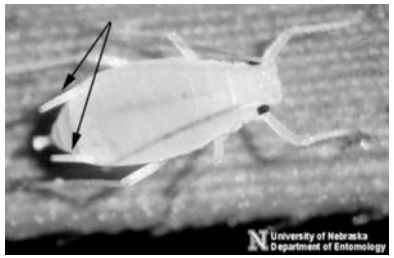
If the antennae are shorter, not long enough to reach over the abdomen, your insect is probably a Termite (order Isoptera).

Step I-24 (from Start 02 or I-22): Look at the mouth of your insect.

Can you see jaws for chewing? If you can, go ahead to Step I-25.

Is there only a thin tube where the mouth should be? Then your insect belongs to the True Bugs (Order Hemiptera). This is a very diverse group of insects, and you may be able to identify it further.

Below are pictures of some common True Bugs. See if you can recognize yours. If you can't, then enter it as an unknown True Bug



This is an Aphid (family Aphididae) Aphids are all very small (less than half a centimeter long), and all have two little tubes on the end of their bodies (the black arrows are pointing to them). You will mostly likely find aphids around new plant leaves, where they suck plant juices. Aphids can be green or brown or black or purple. Some have wings.

This is a Leafhopper (family Cicadellidae). Leafhoppers are small (less than 1 cm long) but good jumpers, and may have many different colors (this one is red and blue!). They also suck plant juices. Look for them in grass and low plants.

To the left is a <u>Boxelder Bug</u> (species *Leptocoris trivittatus*). It is black and red; even its eyes are red. Adults are about a centimeter long. This species feeds on boxelder trees that often grow around houses. Sometimes you can find large numbers of these bugs on boxelder trees and maple trees.

To the right is a stinkbug (family Pentatomidae). Stinkbugs are shaped like a shield, and look like they have broad shoulders. Look for the triangle shape on their backs. They get their name from the smelly chemicals they use to defend themselves.

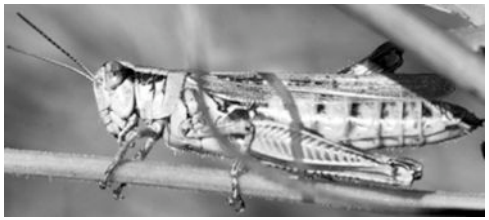
To the left is a Cicada (family Cicadidae). These are much larger than the other True Bugs; they are often 2 cm long or longer. It's hard to tell in this picture, but they look sort of like giant Leafhoppers with clear wings. These big bugs make loud buzzing sounds in the summer. They live underground for a long time before emerging. You can see the old skin of the cicada next to it on the right. You may find skins like this at your school.

<u>If your bug doesn't look like any of these, record it as an Unknown True Bug.</u>

Step I-25 (from I-24): Look at the body of your insect, behind the last pair of legs, at the place where the thorax and abdomen meet (See the last page if you need a reminder of what those are). You may have to move the wings to see it. Does the body of your insect get very thin there, or is the body the same thickness all the way along?

The wasp below is an example of a thin body

This grasshopper is an example of a thick body>>



If the body of your insect body does get thin behind the last pair of legs, go to Step I-26.

If the body is the same thickness all along, go to Step I-27

Step I-26 (from I-25): Is the body of your insect fuzzy or smooth? Does it have wings? Look at the antennae of your insect, does it have a bend in the middle, or does it stick out straight?

If your insect has wings and is not fuzzy, it is a Wasp (order Hymenoptera). There are many kinds of wasps, some with elbowed antennae and some with straight antennae.

If your insect has wings, is fuzzy, and has straight antennae, it is a Bee (superfamily Apoidea). You can find lots of different kinds of bees, from tiny little green bees to big bumblebees.

If your insect does not have wings, is not fuzzy, but does have bent antennae (as though there were elbows in them), you've got an Ant (family Formicidae).

Step I-27 (from I-25): Are the back legs of your insect much bigger or longer than the middle or front legs?

If the back legs are bigger, go to the next step, I-28

If all the legs are about the same size, skip ahead to on to Step I-30

Step I-28 (from I-27): How long are the antennae on your insect?

If the antennae are less than the length of the body, usually much less, then your insect is a Grasshopper (family Acrididae).

If the antennae are almost as long as the body, or longer, go to the next step, I-29

Step I-29 (from I-28): Look at the color and body shape of your insect. Does the body look like it was pressed down, so the body is low and wide, and flat on the back? Or does it look like it was pressed from the sides, so it is taller than it is wide, and the back is rounded or arched?

If your insect has a flat back, like it was pressed from the top, it is probably a Cricket (family Gryllidae). Most crickets are brown or black, but a few are greenish or even white.

If your insect looks like it was pressed from the sides, it is probably a Katydid (family Tettigoniidae). Most Katydids are green, and look like leaves, but some are brown.

Step I-30 (from I-27): Look at the back of your insect. Is there any sign of wings? If not actual wings, then small flaps or pads that might grow into wings?

If there are wings or wing pads, go to Step I-31

If there are no wings or wing pads at all, go on to Step I-32

Step I-31 (from I-30): Examine the abdomen, head, and front legs of your insect.

If you look straight down on to your insect, can you see the head and eyes? If you cannot, because there is a plate or sheet of exoskeleton in the way, then your insect is probably a Cockroach (order Blattaria).

Does your insect walk mainly on its middle and hind legs, while holding its front legs up in front of its body? Are the front legs strong-looking, with lots of spines? You have got a Praying Mantid (order Mantodea).

Step I-32 (from I-30): Can you easily identify the three separate body sections on your insect (head, thorax, and abdomen), or is it hard to tell them apart, especially the thorax and abdomen?

If you can distinguish the three parts, go to Step I-33.

If all you can see is a head and a body, go to Step I-34.

Step I-33 (from I-32) Does your animal look a lot like a twig, long and very skinny, or is it short, with a rounded head and pale whitish colors?

If it looks like a stick, it is a Walkingstick (order Phasmida).

If your insect is whitish and short, it is probably a Termite (order Isoptera). You will probably have found a nest of them, not just one.

Step I-34 (from I-32): Is the body of your insect covered with plates that have silvery scales on them like a fish? Does it have some long stiff hairs on the end of the abdomen?

If your insect has both these features (scales and threads), then it is a Silverfish (order Thysanura).

If your insect doesn't have these features, then it is probably a larva, a young fly, beetle, butterfly or moth that hasn't changed into its adult body form yet. Larvae are often hard to identify, but go on to Step I-35 and we'll see what we can do.

Step I-35 (from I-34): Look at the mouthparts: does your animal have thin, sharp, pincher jaws, or wide thick crusher jaws?

If your insect has thin pinching jaws, it is probably the larva of a Lacewing (family Chrysodidae).

If there are cutting or crushing jaws, go to Step I-36.

Step I-36 (from I-35): What color is your insect? Does it have any extra legs besides the six jointed ones?

If your insect is pale white or yellowish with a brown head, no extra legs and only very small hairs or spines, then it is a Beetle larva (order Coleoptera).

If your animal does have extra legs it is a larva of a Butterfly or a Moth (order Lepidoptera). Go to step I-37 on the next page.

Step I-37 (from I-36): Count the number of soft, unjointed legs on your caterpillar, and look for hairs, spines, and other bumps on the body.

If your caterpillar has 5 pairs of extra legs besides the jointed pairs, and both head and body are covered with hairs (look close, they may be small), it is a Butterfly larva.

If your caterpillar has less then 5 pairs of extra legs, or if it does have 5 pairs, it doesn't have hairs all over the head and body, then it is a Moth caterpillar (order Lepidoptera).

ARACHNIDS, THE ANIMALS WITH 8 LEGS -- START HERE

Step A-01: Is the body of your animal divided into two sections with a narrow connection between them, or does it look like a single section? Look at the last page for an example.

If the body is one section only, go to A-07.

If it has two sections, it is a Spider. There are many kinds of spiders, and you may be able to identify what family yours belongs to. Go to A-02.

Step A-02 (from A-01): Did find your spider in or very near a web?

If your spider has a web, go to A-03.

If your spider has no web at all, or only has a little silk nest to hide in, go to A-06

Step A-03 (from A-02): What does the web look like?

Is it a messy tangle? If yes, go to A-04

Is it a flat thick sheet, with lots of supporting threads? Does it have a tunnel or funnel shape? If yes to either of these questions, go to A-05.

Is it a, round, spiral web, with just one layer of threads in a neat pattern? This is the pattern that people usually think of when they think of a spider web. If this is what you see, your spider is an Orbweaver (family Araneidae).

Is the web a flat triangular net that looks like a piece of a bigger round net? If so, then you've found a Hackled Orbweaver (family Uloboridae).

If the web doesn't look like any of these, then record an Unknown Spider.

Step A-04 (from A-03): Is the web in a dark place? Does the spider have very long thin legs, and a skinny, light-colored body?

If Yes, you've found a Cellar Spider (family Pholcidae). You can read about these spiders in the Critter Catalog.

If your spider doesn't look like that, but is in a messy web, BE CAREFUL! The other family of spiders that live in messy webs like this is the Cobweb Weavers (family Theridiidae), and that includes the dangerous Black Widow spiders. If your spider is not black, then don't worry. But if it is, DO NOT TOUCH IT. TELL YOUR TEACHER ABOUT IT RIGHT AWAY.

Step A-05 (from A-03): Look closely at the sheet web.

Is there a funnel shape in one corner? Is the spider brown or gray? If so, it is a Funnel Weaver Spider (family Agelenidae). These spiders hide in the funnel, and rush out to attack prey that get bogged down in their web.

Is the spider hiding below its sheet of silk? Is it small (less than 7 mm)? If so, it is a Sheetweb Weaver (family Linyphiidae). These little spiders hide under their web, and bite passing prey from underneath.

Step A-06 (from A-02): There are many spiders that don't use a web to catch their prey. Listed below are four common varieties. Your spider may not match any of them. If it doesn't you can still record it as an Unknown Spider.

Does your spider have two very big eyes looking forward, along with six other smaller eyes? Does it jump and hop a lot? If so, it is a Jumping Spider (Salticidae). These little spiders are very active and can be fun to watch.

Is your spider hiding in a flower? Does it move sideways? Are its front two legs pointed forward, and longer than the back legs? If so, you've found a Crab Spider (Thomisidae) (there's one in the picture on the right).

Wolf Spiders (family Lycosidae) are usually brown and gray; their bodies are a bit longer than they are wide. They have eight eyes, four small ones in the first row, two larger ones in the middle row, and two medium-sized ones in the third row. The spider on the last page is a Wolf Spider.

Sac Spiders (family Clubionidae) are light-colored, light brown or yellowish with dark brown around the jaws and eyes. They get their name from the silk sac they make to hide in during the day. They are also a bit longer than wide. They have eight eyes in two rows of four, all small, all the same size.

These last two groups are pretty similar -- they both roam the ground at night hunting for prey. Look at the eyes to be sure of your identification.

Step A-07 (from A-01): Does your Arachnid have very long legs, at least 5 times as long as its body?

If it does, your arachnid is a Harvestman (order Opiliones).

If your arachnid has short legs, does it have two pinching claws at the front like a lobster?

If yes, your arachnid is a Pseudoscorpion (order Pseudoscorpiones). These are small predators (less than 6mm long). They look like tiny scorpions, but with no tail.

If the legs are not long, but there are no big pinchers, then your arachnid is a Mite or Tick (order Acari). This is a very diverse group, but the animals are so small they are hard to study.

ANIMALS WITH MANY LEGS -- START HERE

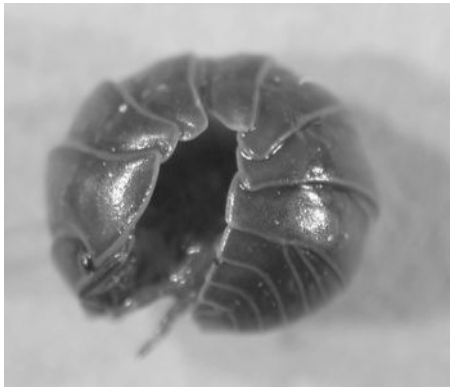
Step M-01: Does your invertebrate have big pinching claws in front like this?

If yes, then it is a Crayfish. Here's a picture of a big one:

If no, go on to the next step.

Step M-02: Is your animal long and skinny, or short and stubby?

If it has 7 pairs of legs, and is short and stubby, just a few times longer than it is wide, then it is a Roly-poly, also called a Pillbug or Sowbug (Isopoda). Some kinds can roll into a ball for protection, like this:

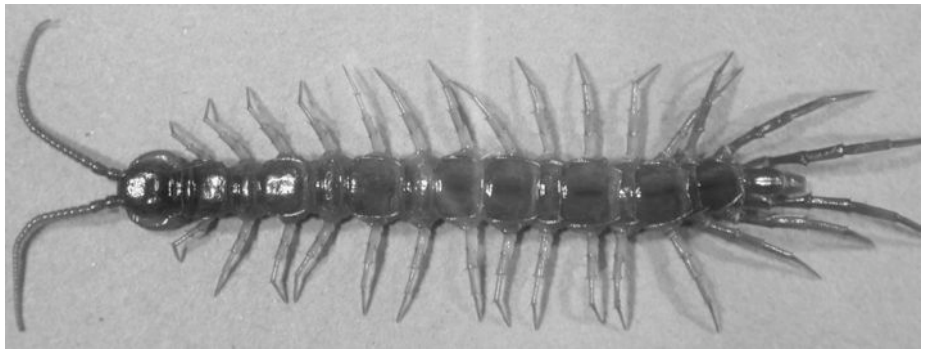


If your animal is much longer than it is wide, look at its legs. How many legs does it have attached to each body segment? If it has one pair of legs per segment, it is a Centipede (class Chilopoda). If it has two pairs, it is a Millipede (class Diplopoda). Another clue is

speed: Centipedes are fast predators, and are usually flat (like a ruler). Millipedes are slow; they eat fungus and dead plants, and are usually round like a pen. Millipedes will curl up if disturbed; centipedes will try to run away. The millipede is on the left below; the centipede is on the right.

Millipede

Centipede



Names and Parts

Insect Bodies are divided into 3 main sections: the Head, the Thorax, and the Abdomen. On the head are two Antennae used for sensing by smell and touch. The six jointed legs attach to the thorax, and so do the wings.

Spiders don't have a separate head; they just have two body sections, the Abdomen and the Cephalothorax. The mouthparts and eyes are on the front of the Cephalothorax, and the eight legs attach there. There are also two little parts called Pedipalps. They use these to grab their food, and to sense things, and males use them to mate with females. You can often tell males spiders from female ones because males have extra big pedipalps. No spiders have wings. The silk glands of spiders are underneath the abdomen. Often there are little finger-like structures there called spinnerets near were the silk comes out.