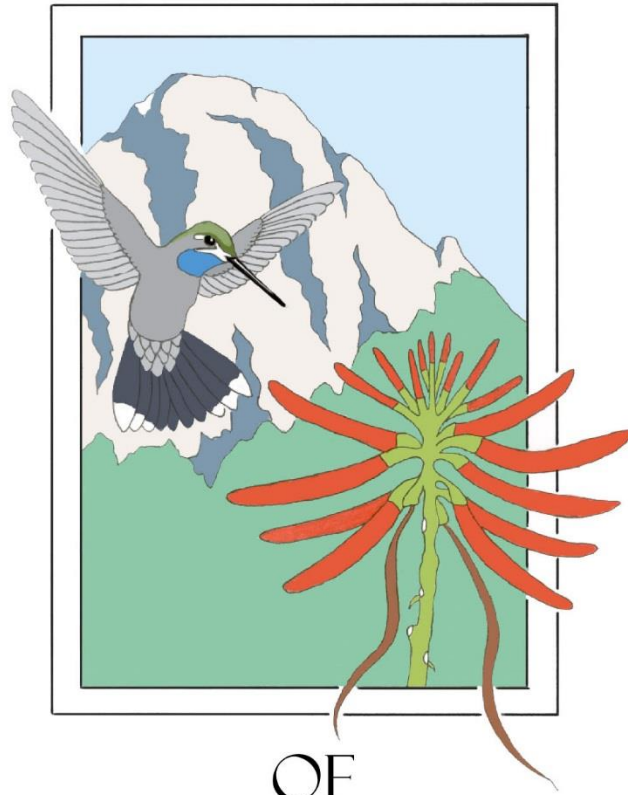


FRIENDS



OF

MADERA CANYON

Madera Canyon: Bugs!



Western Hercules Beetle

These are the Santa Rita Mountains.



These are the Santa Rita Mountains.



Madera Canyon runs down the middle of these mountains in southern Arizona.

The canyon is **east** of
Sahuarita and Green Valley, Arizona.



Hint: That's the direction from where the sun
rises every morning!

Madera Canyon is a short drive from Green Valley.



It is a great place to be outside and see nature!

Many animals love **Madera Canyon**,
because there are so many places to live.



Many animals love **Madera Canyon**,
because there are so many places to live.



Especially- **BUGS!**

But, wait a minute...

What actually is a bug?



Painted Grasshopper

But, wait a minute...

What actually is a bug?



“Bug” is a common word that we use for small invertebrate animals- usually arthropods.

Invertebrate means animal without a backbone.
There are many kinds of invertebrates!



Land Crab



Giant
Earthworm



Tree Snail

Jellyfish



An arthropod is an invertebrate covered on the outside by an **exoskeleton**- like a suit of armor!



Bark Scorpion

An arthropod is an invertebrate covered on the outside by an **exoskeleton**- like a suit of armor!



Arthropods also have jointed legs, tails and other body parts so they can move.

Many Madera Canyon arthropods are insects.



Walking Stick



Dull Firetip Skipper



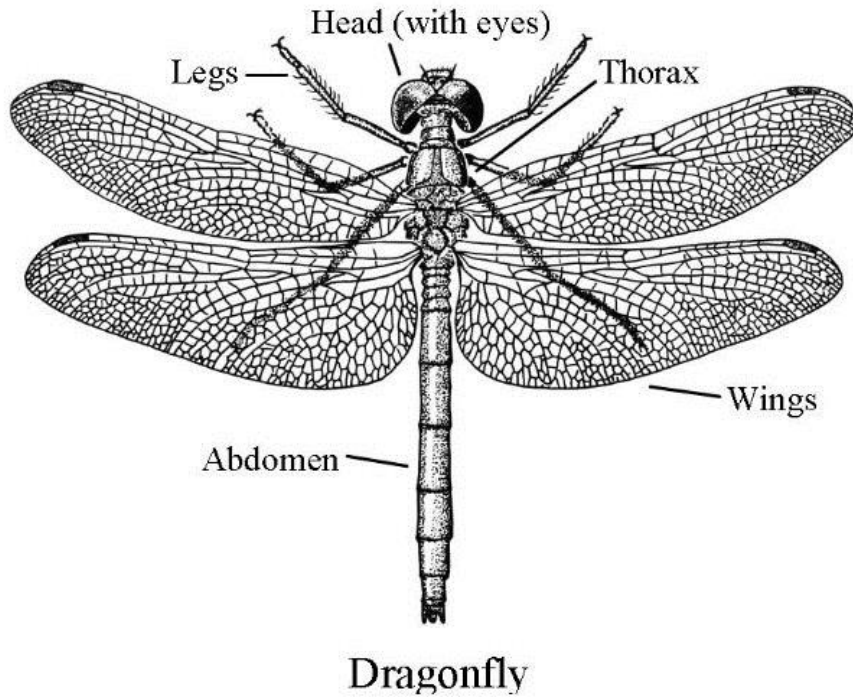
Praying Mantis



Leaf-footed Bug

And there are many different kinds of insects!

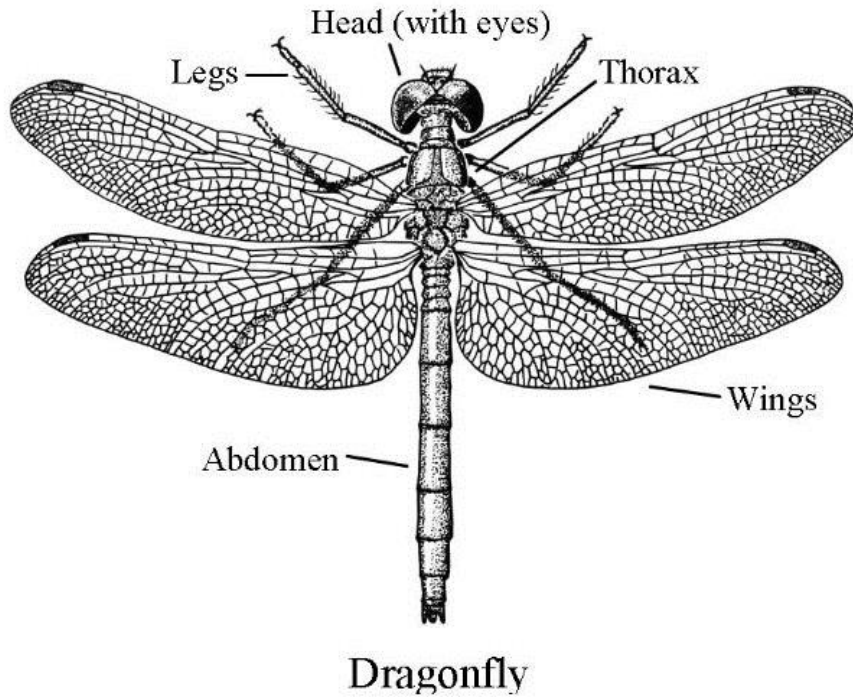
An insect has 3 main body parts and 6 legs.



Flame Skimmer



An insect has 3 main body parts and 6 legs.

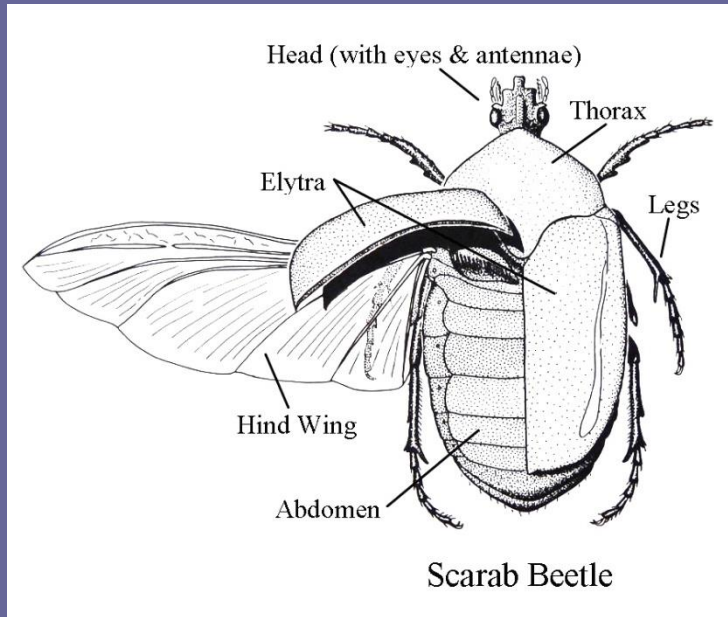


Flame Skimmer



Many insects also have wings- like dragonflies.

Different types of insects can look very different:

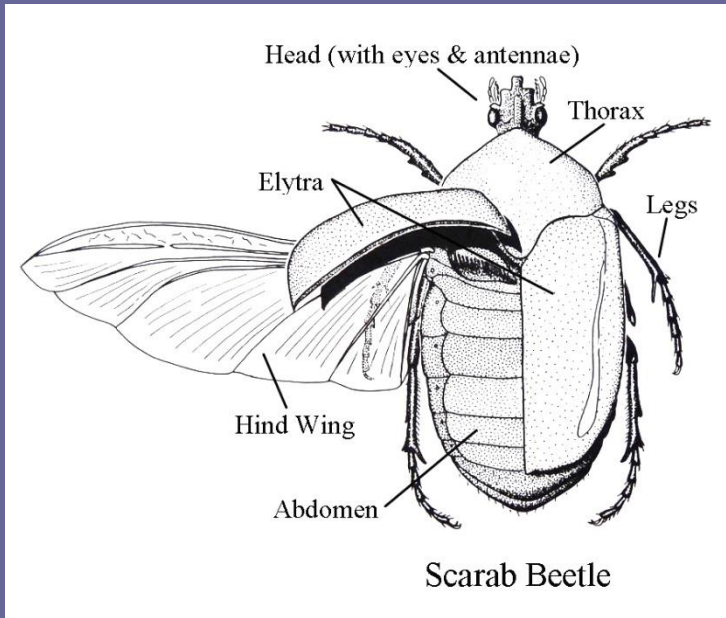


Beetle wings are protected under a hard cover called an elytra.



Beyer's Leaf-chafer
Scarab Beetle

Different types of insects can look very different:



Beetle wings are protected under a hard cover called an **elytra**.

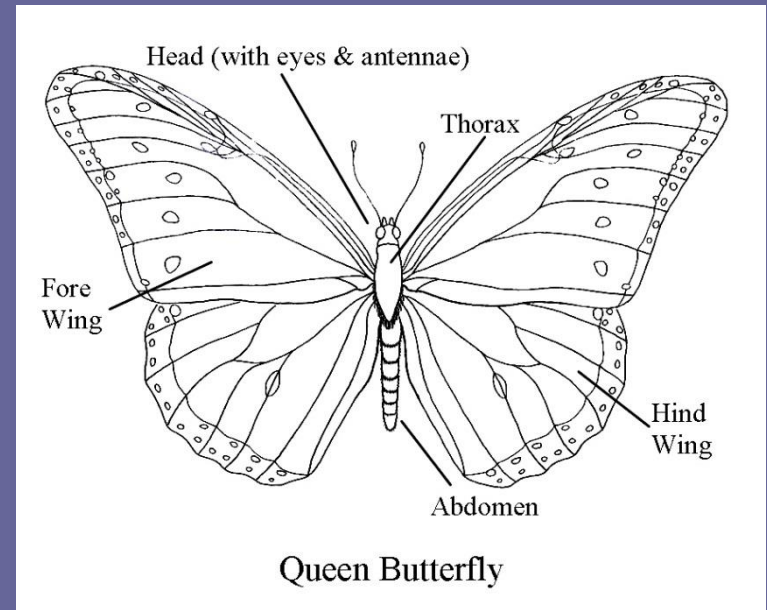
The two elytra pop up and the wings unfold out when a beetle wants to fly.



Beyer's Leaf-chafer
Scarab Beetle

Different types of insects can look very different:

Butterflies and moths have large, sail-like wings covered in tiny scales. They are great fliers!



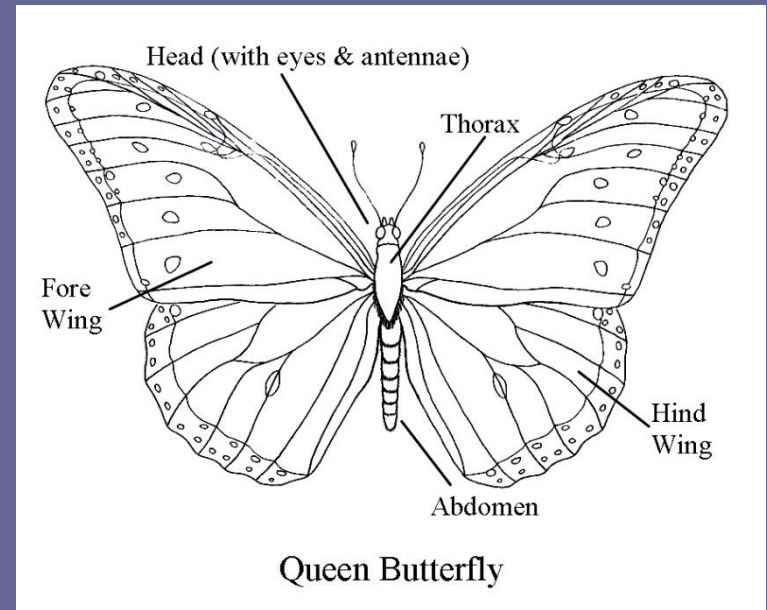
Queen Butterfly

Different types of insects can look very different:

Butterflies and moths have large, sail-like wings covered in tiny scales. They are great fliers!

Most butterflies fly in the daytime (diurnal).

Most moths fly at night (nocturnal).



Queen Butterfly

And butterflies and moths have a larval stage that is very different than the adult!



Caterpillar larva

Wild-cotton Royal Moth

Adult



Two-tailed Swallowtail- the largest butterfly in USA



Adult

Caterpillar larva



Our AZ State butterfly is common in Madera Canyon!

The changes that insects go through from



1) Egg

Queen Butterfly



2) Larva



3) Pupa (inside a chrysalis)



4) Adult

is a process called **metamorphosis**.

The common name of one group of bugs-
the Hemiptera- is actually "True BUG"!



Harlequin Bug



Giant Water Bug



Milkweed Bug

Bugs! A few more insects from Madera Canyon



Sonoran Bumblebee



Drury Cicada



Robberfly

Bugs! And more insects from Madera Canyon



Red Harvester Ants



Sand Wasp

But not all animals we call bugs are insects.



Wolf Spider

Other kinds of arthropods can be bugs too!

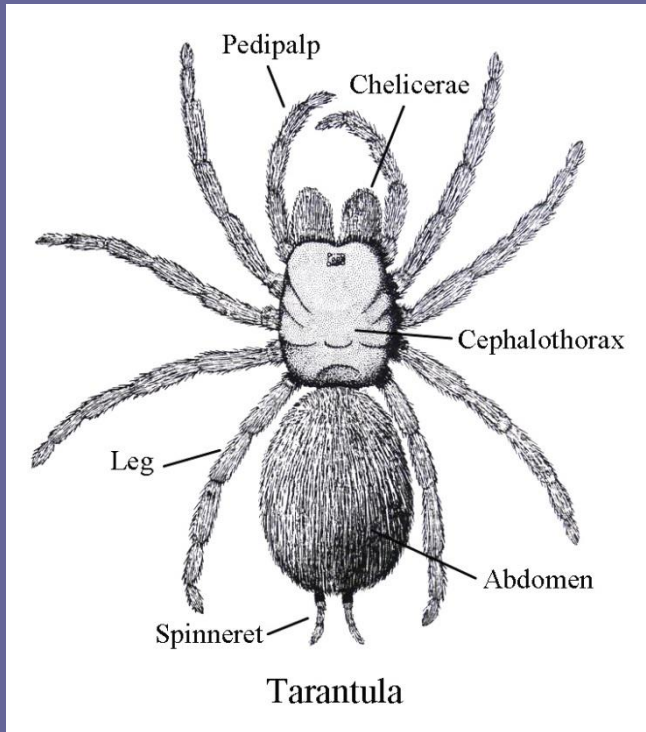
Spiders and their relatives are bugs.



Green Lynx Spider

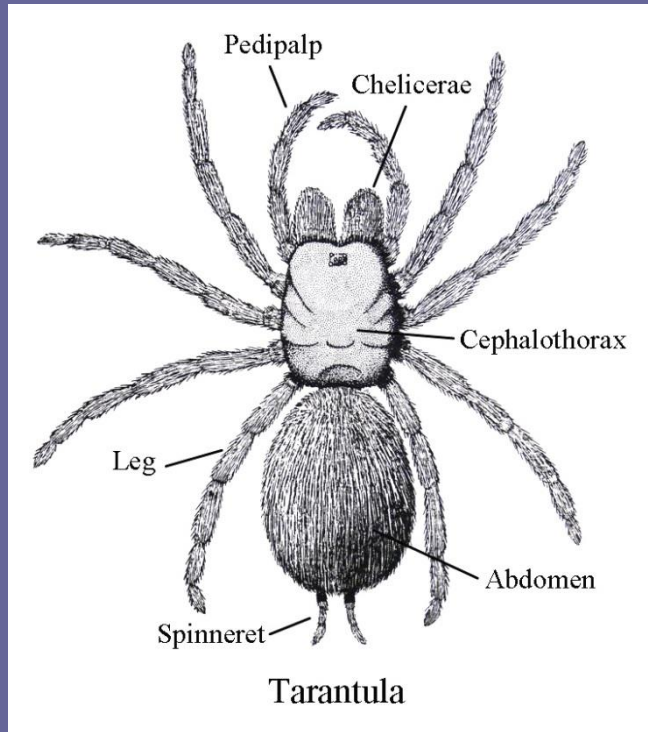
We call these arthropods arachnids.

All arachnids, like spiders, have 2 main body parts.



Mountain Tarantula

All arachnids, like spiders, have 2 main body parts.



They also have 8 walking legs. But only spiders have **spinnerets** to make silk thread for webs.

Bugs! Some spiders from Madera Canyon



Jumping Spider



Orb-weaving Spider

Bugs! More spiders from Madera Canyon



Crab Spider

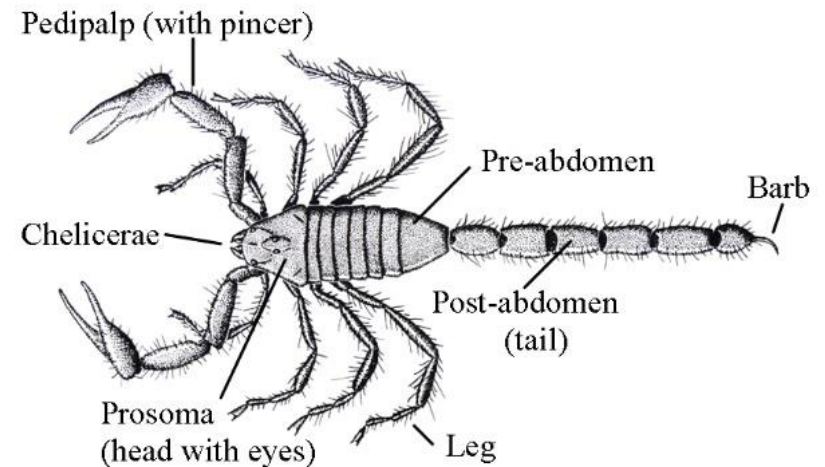


Black Widow Spider

Scorpions are arachnids too, even though they look very different from spiders.



Giant Hairy Scorpion

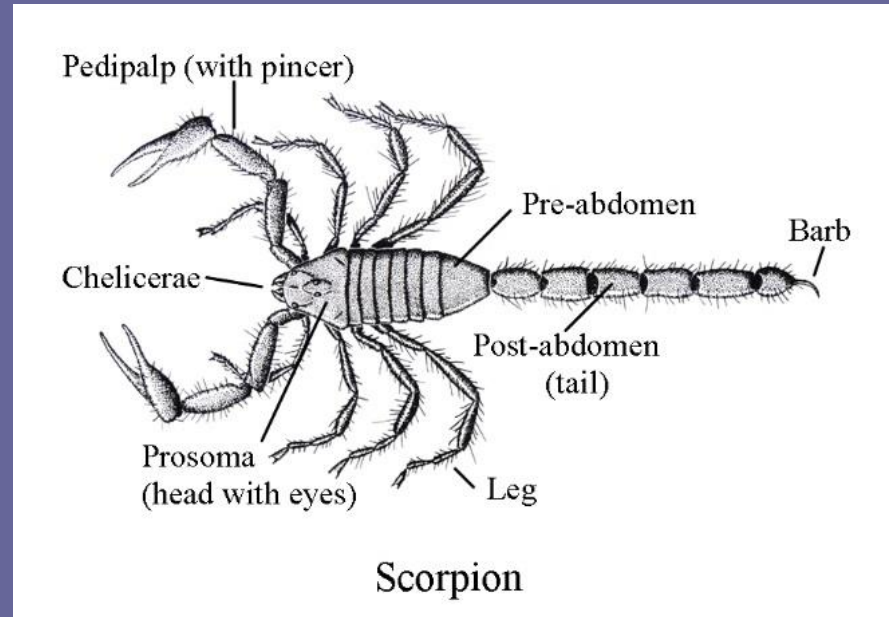


Scorpion

Scorpions are arachnids too, even though they look very different from spiders.



Giant Hairy Scorpion



Pedipalps with pincers capture prey. A barb at the end of long tail can sting with venom.

In 2015, scientists found a new species of small scorpion in **Madera Canyon**.



In 2015, scientists found a new species of small scorpion in **Madera Canyon**.



Its scientific name, *Pseudouroctonus santarita*, is longer than the scorpion itself!

Bugs! Other scorpion relatives from Madera Canyon



Whip Scorpion (or Vinegaroon)

Bugs! Other scorpion relatives from Madera Canyon



Tail-less Whip Scorpion

Bugs! Other scorpion relatives from Madera Canyon



Solifugid (or Wind Scorpion)

The *Myriapoda* are arthropods too, but they are not insects or arachnids.



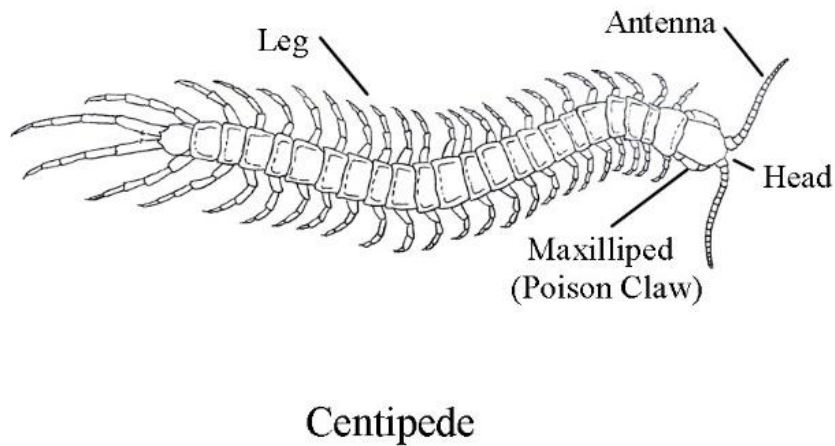
Scolopendra Centipede

The *Myriapoda* are arthropods too, but they are not insects or arachnids.



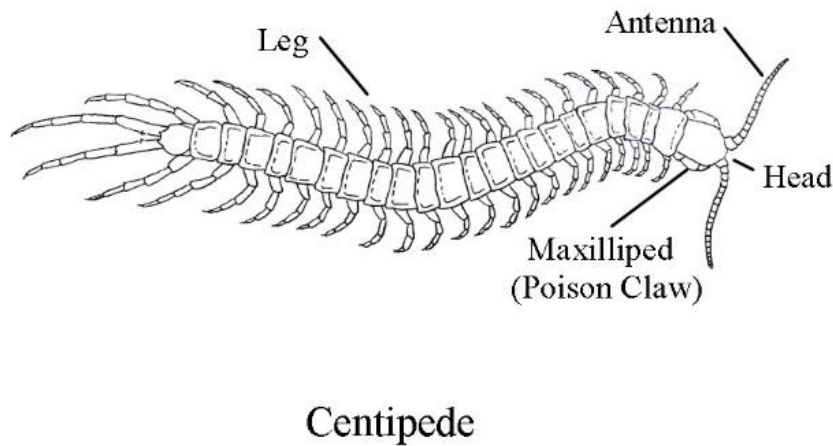
These special bugs have long bodies with many segments. They have many, many legs!

Centipedes have two legs per segment.



Scolopendra Centipede

Centipedes have two legs per segment.

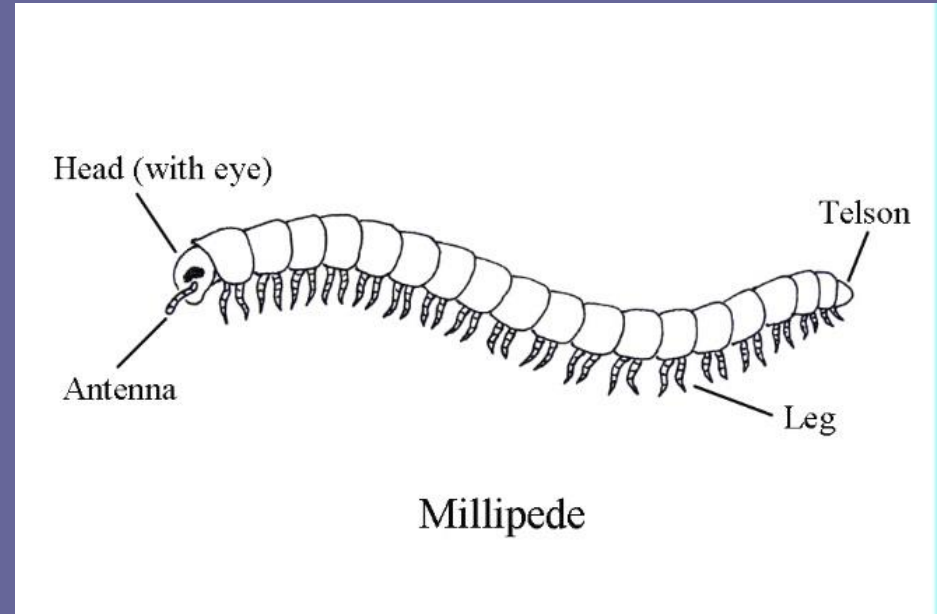


They have poison claws for catching prey.
They are fierce carnivores!

Millipedes have four legs per segment.

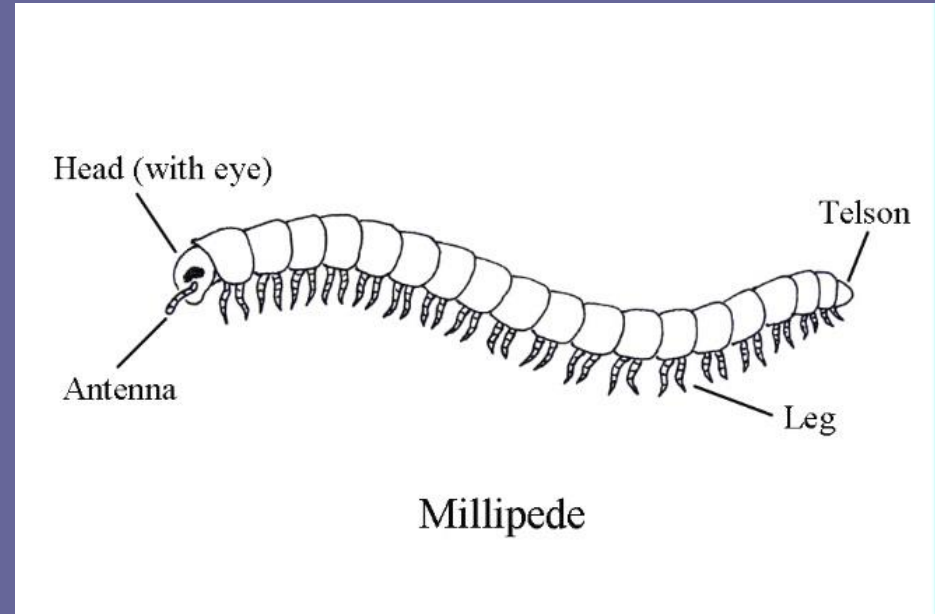


Desert Millipede



(two legs on each side)

Millipedes have four legs per segment.



They are slow, peaceful vegetarians.
Some produce stinky chemicals for defense!

And- don't forget Roly-poly bugs!



Roly-Poly (or Pillbug)

They have 14 legs
and look like short
Myriapoda- but they
are not!

And- don't forget **Roly-poly** bugs!



Roly-poly, or **Pillbugs**, are actually land-living arthropods related to shrimps, crabs and lobsters!

Madera Canyon is a great place to go outdoors-



To enjoy nature, have a picnic and take a hike!

And if you go there, don't forget to slow down



Panther-spotted Grasshopper

and look for some bugs!



Typhon Sphinx Moth

The End