

# Arthropoda

Most diverse Phylum

The total number of arthropod species exceeds the number of other animal phylum

combined

900,000 have been recorded

Probably the same number are not found yet

There are more beetle species that  
there are of all vertebrates

Arthropods means “jointed” “foot”

Like annelids have a coelom and  
segments

Appendages- structures that extends from the arthropod's body wall

Have joints and bend

Legs for walking

Antennae for sensing environments

Mouthparts

Majority are small

Size range from 80 micrometers to 3.6 meters



[http://www.afsc.noaa.gov/race/media/photo\\_gallery/invert\\_files/Red\\_king\\_crab.htm](http://www.afsc.noaa.gov/race/media/photo_gallery/invert_files/Red_king_crab.htm)



[http://biology.arizona.edu/sciconn/lessons2/Geiger/Picpages/parasitic\\_mites\\_and\\_blue\\_mold.htm](http://biology.arizona.edu/sciconn/lessons2/Geiger/Picpages/parasitic_mites_and_blue_mold.htm)

Arthropods are divided into two groups  
Subphylum Urinaria- with jaws

Subphylum Chelicerata or Subphylum  
Crustacea with fangs and pinchers

## Characteristics of Arthropods

Jointed Appendages

Segmentation

Distinct head, often with compound eyes

Exoskeleton

Tracheae and spiracles

Open circulatory system

Malpighian tubules

Wings

## Segmentation

Sometimes only exist during the larval stage

Example caterpillar vs butterfly



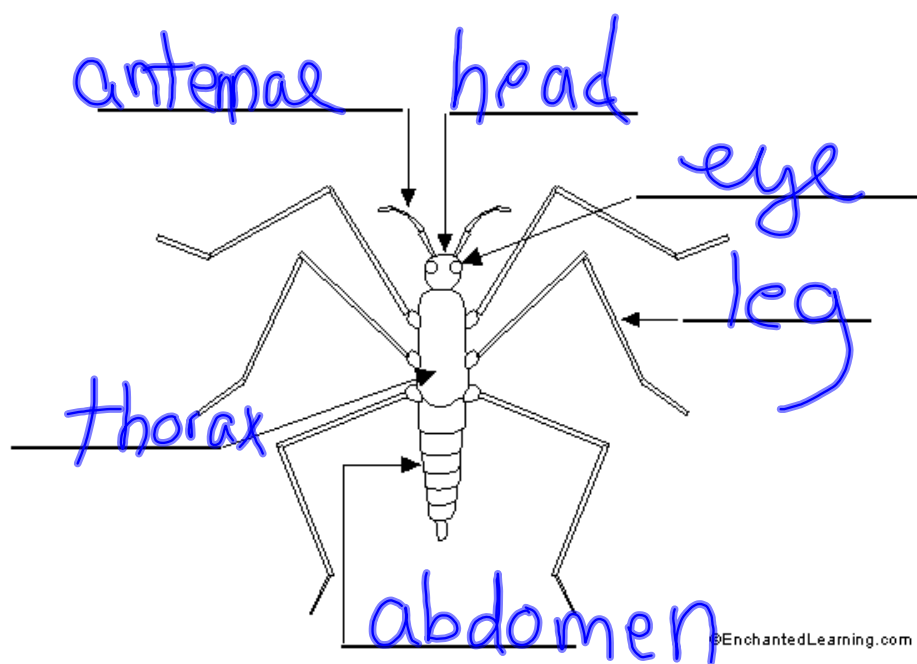
[http://www.foagm.org/Album\\_02-07/caterpillar%20\(ID\\_\).jpg](http://www.foagm.org/Album_02-07/caterpillar%20(ID_).jpg)

Adults have three distinct regions

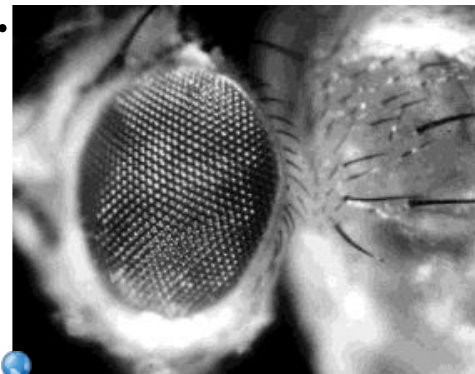
Head      Thorax      Abdomen

Some have a cephalothorax- head and thorax fused





Compound eye- an eye made of thousands of individual visual units each with its own lens and retina. The brain received images from each and pieces them together.



[http://users.rcn.com/jkimball.ma.  
ultranet/BiologyPages/C/CompoundEye.html](http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/C/CompoundEye.html)

Image is fuzzy but motion is  
seen quicker.  
Why is this important?

Some have single eyes, some  
have compound eyes, and  
some have both

## Exoskeleton

The shell is thinner and flexible where the joints are

Exoskeleton protects an arthropods from predators and helps prevent water loss

The skeleton can not grow larger so they need to shed and discard their exoskeleton (molting)

Triggered by a release of hormones

The new skeleton is beneath and still soft.

The new skeleton then hardens.

## Respiration

Tracheae- a network of fine tubes

Air enters through the spiracles and passes into the tracheae delivering O<sub>2</sub> to the body

## Excretion

Malpighian tubules- slender fingerlike extensions from the arthropod's gut that are bathed by the blood that surrounds them