

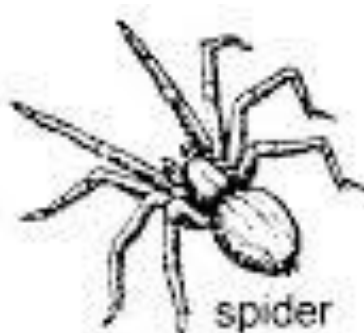


článkonožce

Phylum Arthropods



bee



spider



Examples of  
some arthropods



crab

# General characteristics

- *arthro* – joint, *pod* – leg
- 10 milion species ( $10^{18}$  individuals)
- all share similar development pattern and common body plan:
  - **jointed appendage**
  - **segmented body** (**head , thorax, abdomen**)
  - **exoskeleton** (made of chitin)
  - brain located in dorsal part of head
  - ventral nerv cord
  - opened circulation system

# General characteristics

Includes 4 main classes:

**Trilobita** (trilobites)

**Chelicerata** (spiders, scorpions, ticks, mites, horseshoe crab)

**Crustacea** (crabs, lobsters, shrimps)

**Uniramia** (millipedes, centipedes and all insect)

# Trilobita (trilobity)



*Trilobit*

# Chelicerata (klepietkavce)



- special mouthparts  
called **chelicera**

# Crustacea (kôrovce)

## FRESHWATER (microscopic forms)



**Daphnia**



**Cyclops**

## TERRESTRIAL



**extended**

"Pill bug"  
(*Porcellio  
scaber*) 3x

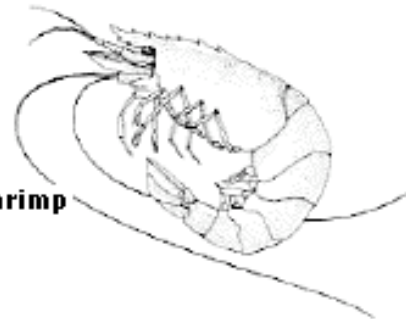


**curled up**

## MARINE



**Lobster**



**Shrimp**



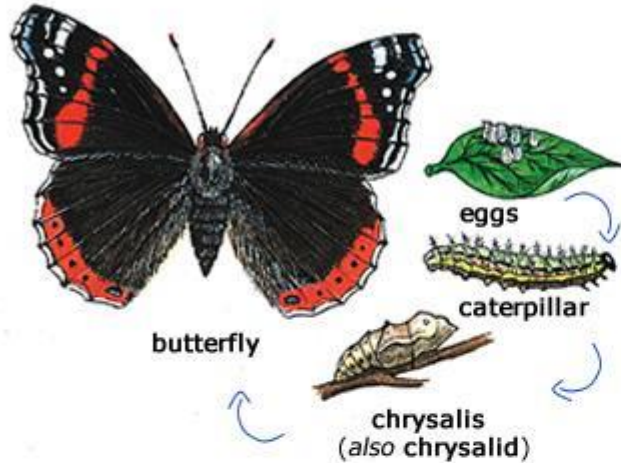
**Crab**



**Barnacles**

# Uniramia

## Insects



butterfly

eggs

caterpillar

chrysalis  
(also chrysalid)



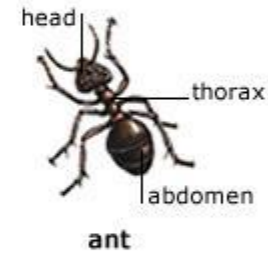
moth



flea



dragonfly



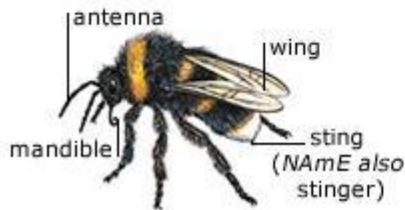
ant



mosquito



ladybird (BrE)  
ladybug (NA ME)



bumblebee



wasp



beetle

larva

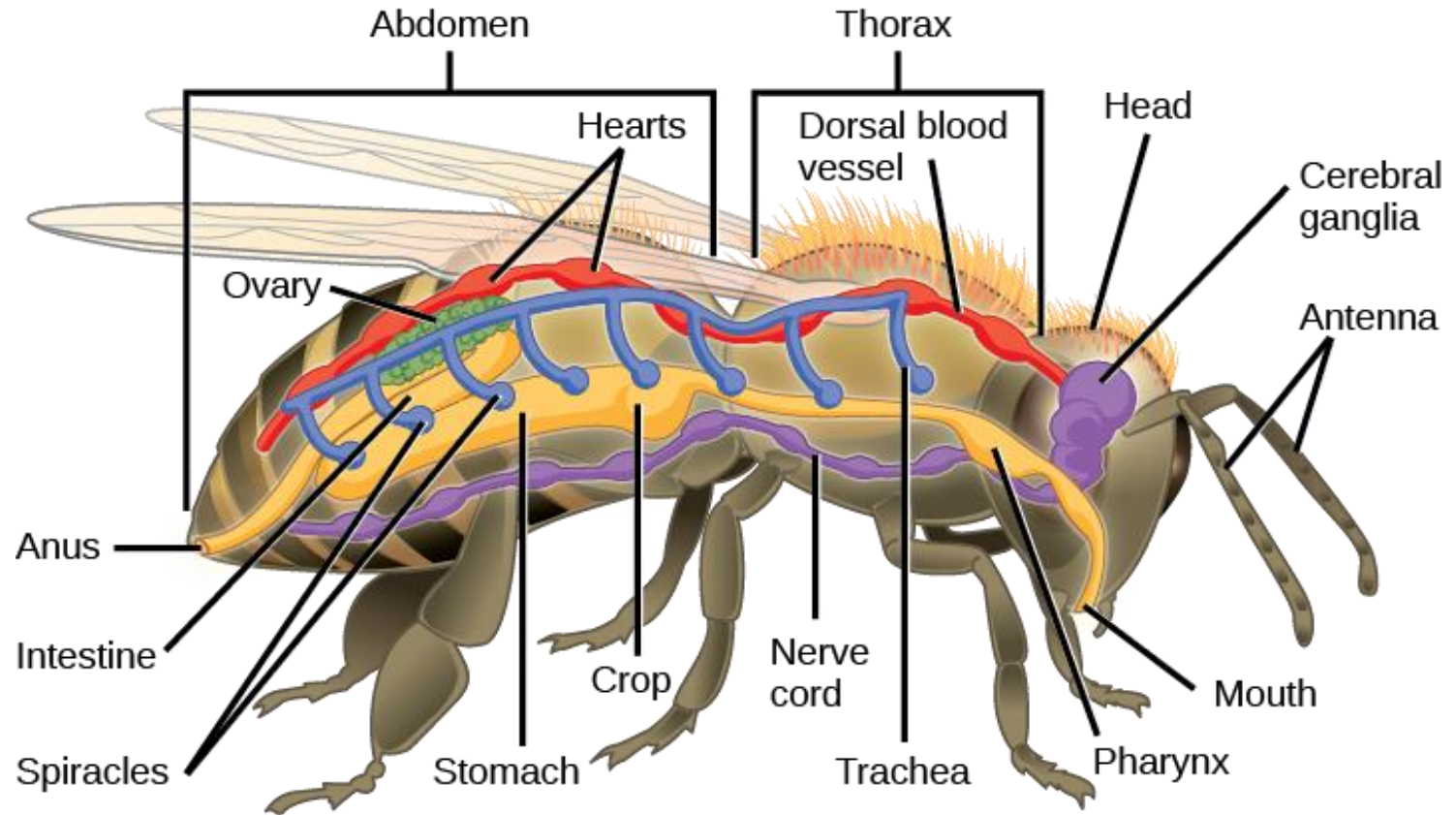


grasshopper

- huge group



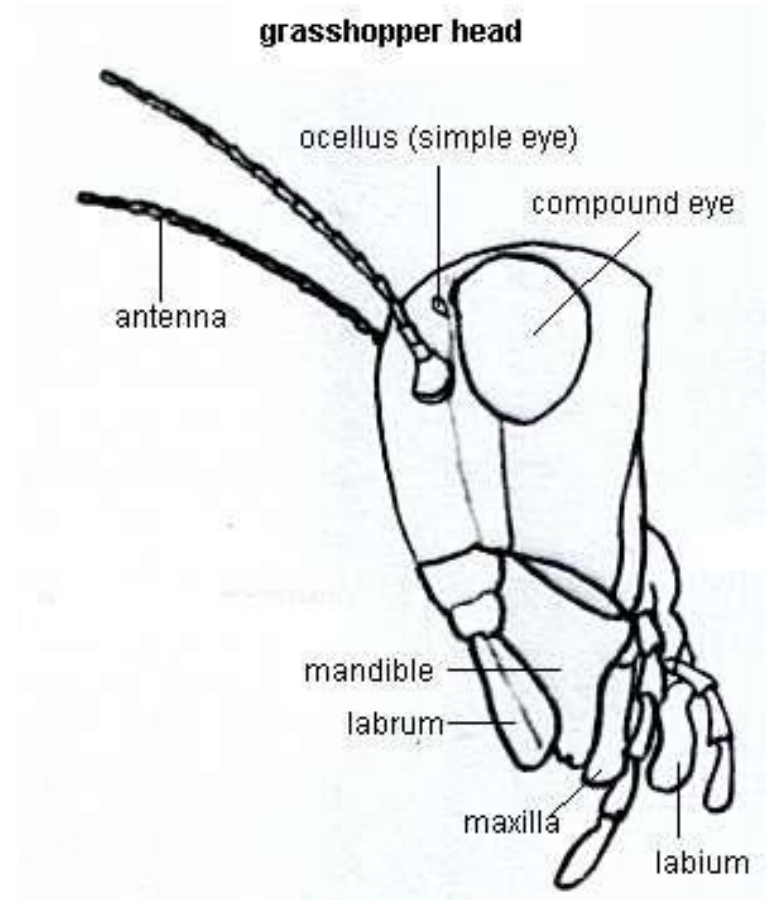
# Structures and functions



# Structures and functions

## Digestive system

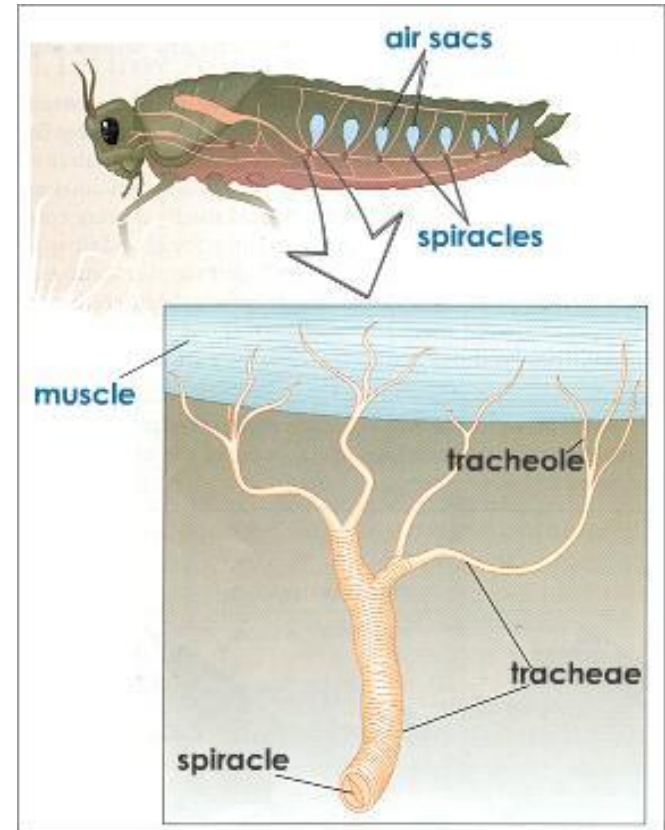
- **complete digestive tract** (mouth → anus)
- many arthropods have **specialized feeding parts**
- every mode of feeding present in this group (ex. predator, filter-feeders, parasites, scavengers, herbivors...)



# Structures and functions

## Respiratory system

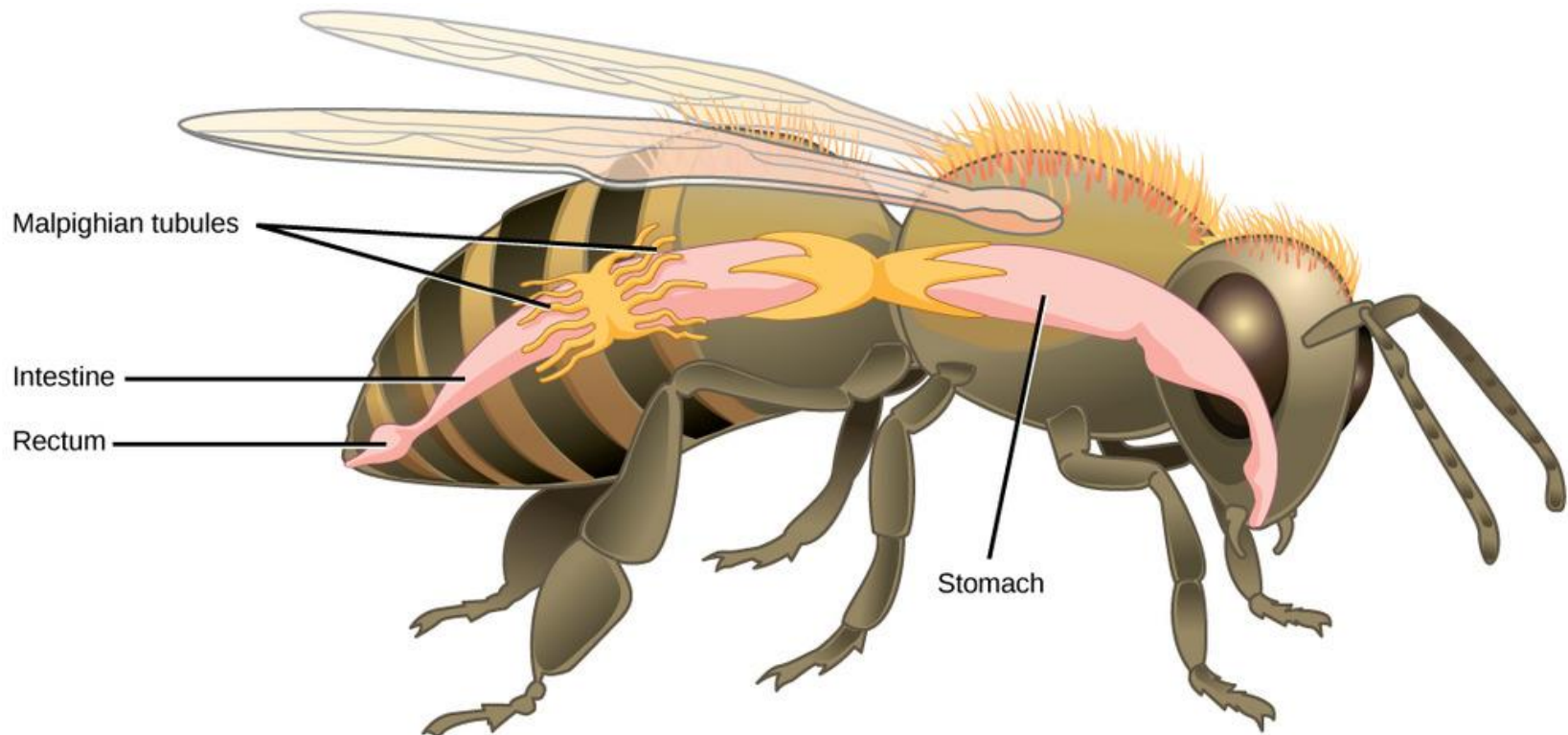
- **gills** – in crabs
- **air sacs** – in spiders
- **tracheae** – network of tubes that carry air straight to cells (insect)

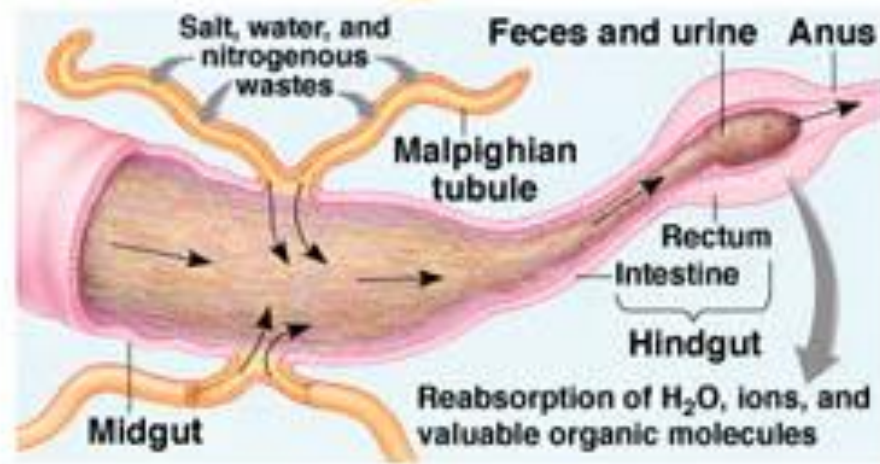
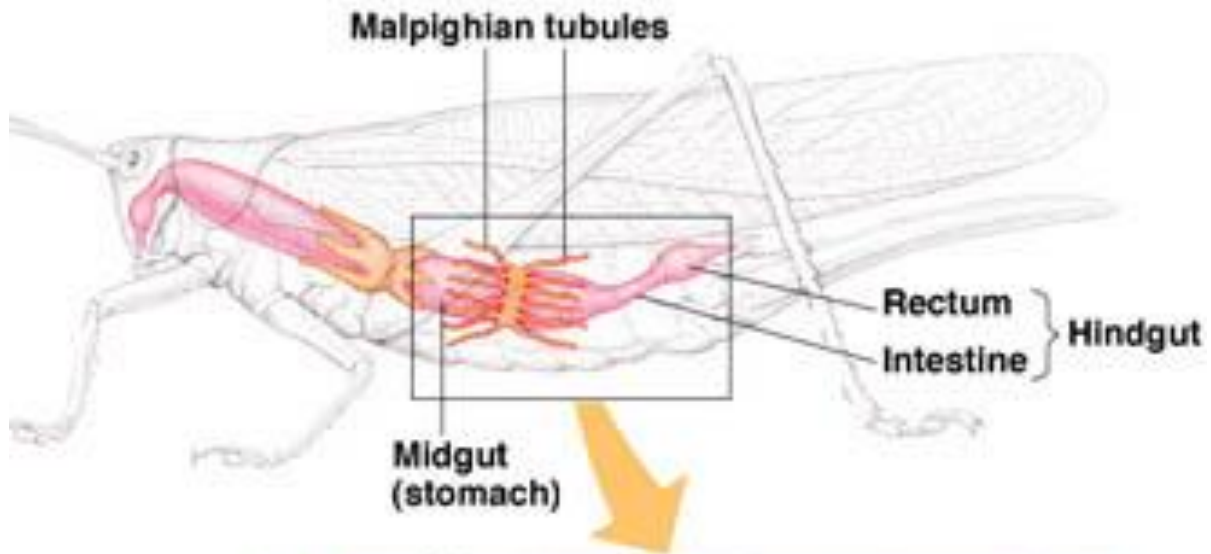


# Structures and functions

## Excretory system

- **Malpighian tubules** (terrestrial arthro.)
- **gills** (aquatic arthro.)

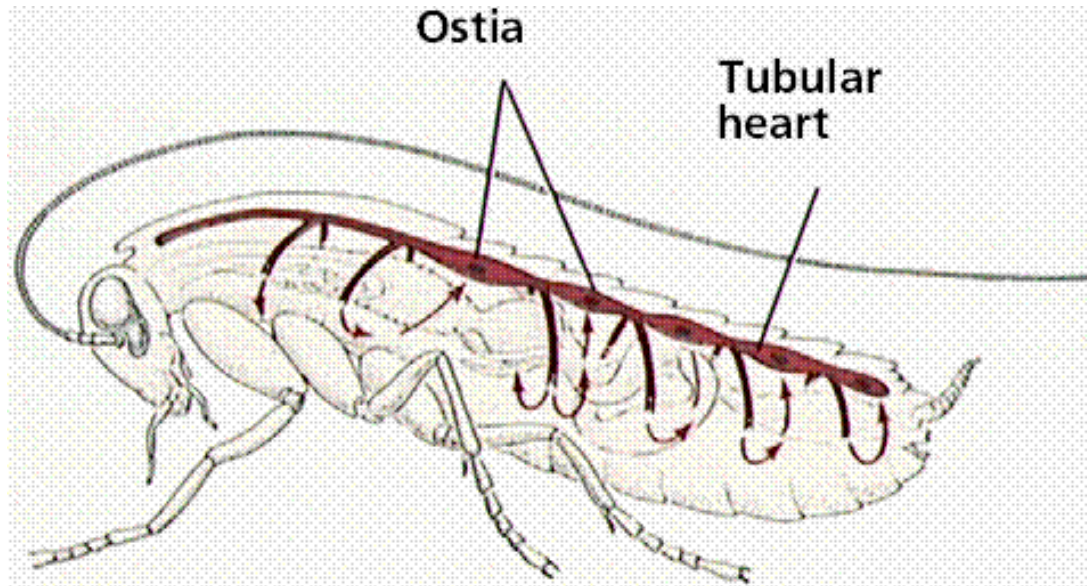




# Structures and functions

## Circulatory system

- **open circulatory system** – heart pumps **hemolymph** (blood) through open space (sinuses)



# Structures and functions

## Nervous system

- **brain** which consists of **two ganglia**
- **ventral nerve cord**
- **ganglia** along the cord
- many **senses organ** presents (eyes, antenna, chemoreceptors...)

# Structures and functions

## Musculatural system

- **movement only in joints**
- muscle attached inside of the exoskeleton
- arthropodes **moult** when they grow because the exoskeleton won't expand



# Structures and functions

## Musculatural system



# Structures and functions

## Reproduction system

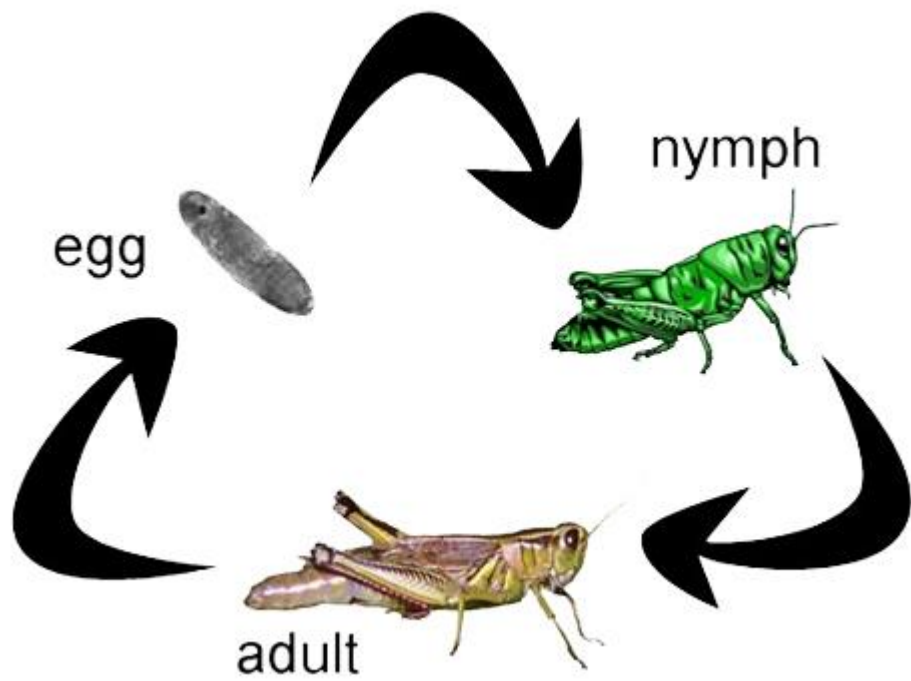
- separate sexes (gonochorists)
- sexual dimorphism
- usually **internal fertilization**
- many arthropods undergo **metamorphosis** (indirect development)

### **Incomplete metamorphosis**

Babies look like **miniature adults**. They increase in size as they grow older, but do not change over all form.

### **Complete metamorphosis**

Eggs hatch into the larvae (**immature stages that do not look like adults**). As larvae grow, they change shape dramatically.



# Ecology

HOMEWORK