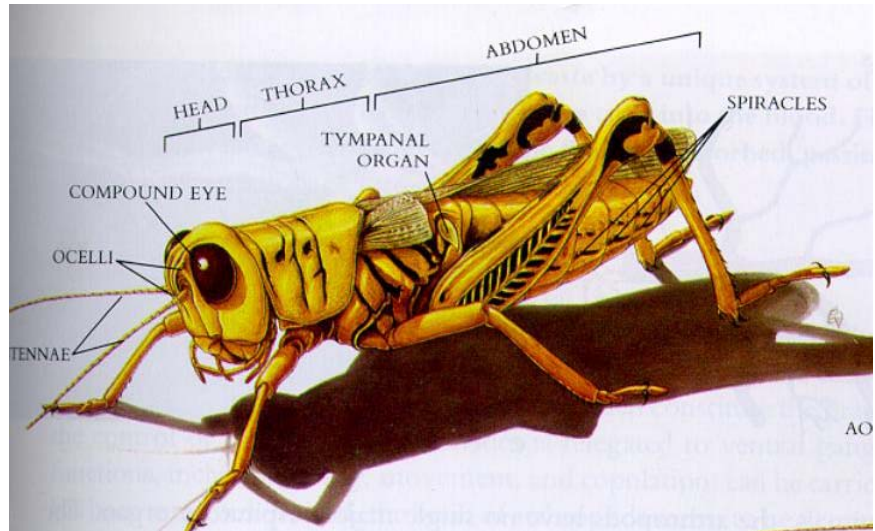


# Common Insect Orders

## Insects Have

- Head
- Thorax
- Abdomen
- 6 legs
- 2 antennae
- Usually some wings
- Compound eyes



### Order Odonata: dragonflies & damselflies

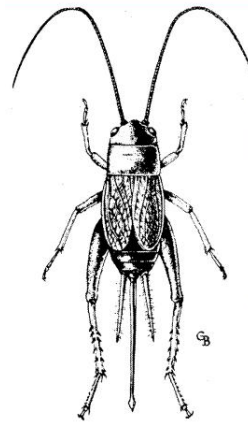


Suborder Anisoptera--**dragonflies**  
 --hind wings broader at base  
 --wings nearly horizontal at rest  
**Aeshnidae**--darners  
**Libellulidae**--skimmers



Suborder Zygoptera--**damselflies**  
 --front / hind wings similar in shape  
 --wings held together above body  
**Calopterygidae**--broad-winged damselflies  
**Coenagrionidae**--narrow-winged damselflies

### Orthoptera (or-THOP-ter-ra) ortho = straight ptera = wings grasshoppers, crickets, katydids




- 1st pair wings elongate and **leathery**
- **Filiform antennae**
- Well developed **cerci**
- **Long ovipositor** in females

## More Insect Orders on the Back









## Hemiptera

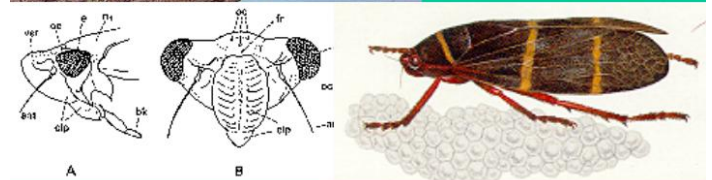
(hem-MIP-ter-ra)  
hemi = half  
true bugs

- front wing **thickened and leathery at base, membranous at tip: hemelytron**, wings at rest held **flat over body**
- **piercing-sucking mouthparts: beak** arising from **front of head**
- many have triangle shaped **scutellum**
- antennae  $\leq 5$  segments

## Homoptera

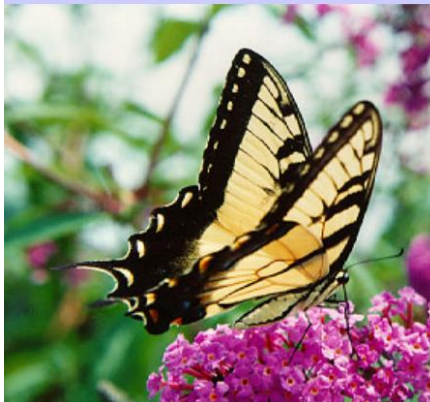

(ho-MOP-ter-ra)  
homo = alike  
cicadas, hoppers, aphids, scales



- **Piercing-sucking mouthparts: short beak** arising under head
- Most: 2 pairs of **membranous wings held roof-like over body**

## Lepidoptera



(leh-pih-DOP-ter-ra)  
lepid = scale  
butterflies, skippers, moths

- Wings covered with **scales** (come off on our fingers as "dust")
- Sucking mouthparts: coiled **proboscis**
- **Large compound eyes**

## Coleoptera



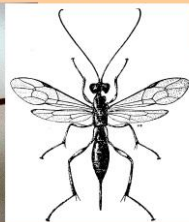
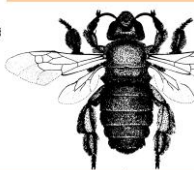
(ko-lee-OP-ter-ra)  
coleo = sheath  
beetles

- Front wings modified into hardened or leathery **elytra**, meeting in a straight line down the back and covering membranous hind wings
- **Chewing mouthparts**
- Very large and diverse order--40% of known insects!

## Hymenoptera

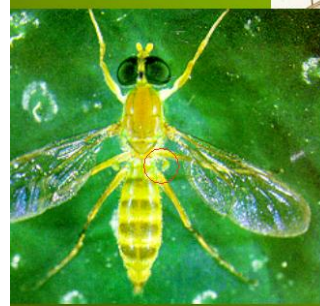

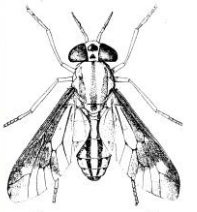

(hi-men-NOP-ter-ra)  
hymeno = god of marriage  
bees, ants, wasps

- Four **membranous** wings; hind wings smaller, have a row of hooks (= **hamuli**) for joining to front wings
- Chewing mouthparts, modified in many for lapping
- Ovipositor developed; sometimes modified into stinger
- Hard bodied, active insects, with well-developed compound eyes and often "thread-waisted"

## Diptera

(DIP-ter-ra)  
di = two

**true flies**

- **1 pair** of functional, **membranous** wings; hind wings reduced to **halteres**
- **Large compound eyes, sucking mouthparts** (piercing or sponging)
- Antennae arising between eyes, often short, 3-segmented (**exceptions**)