

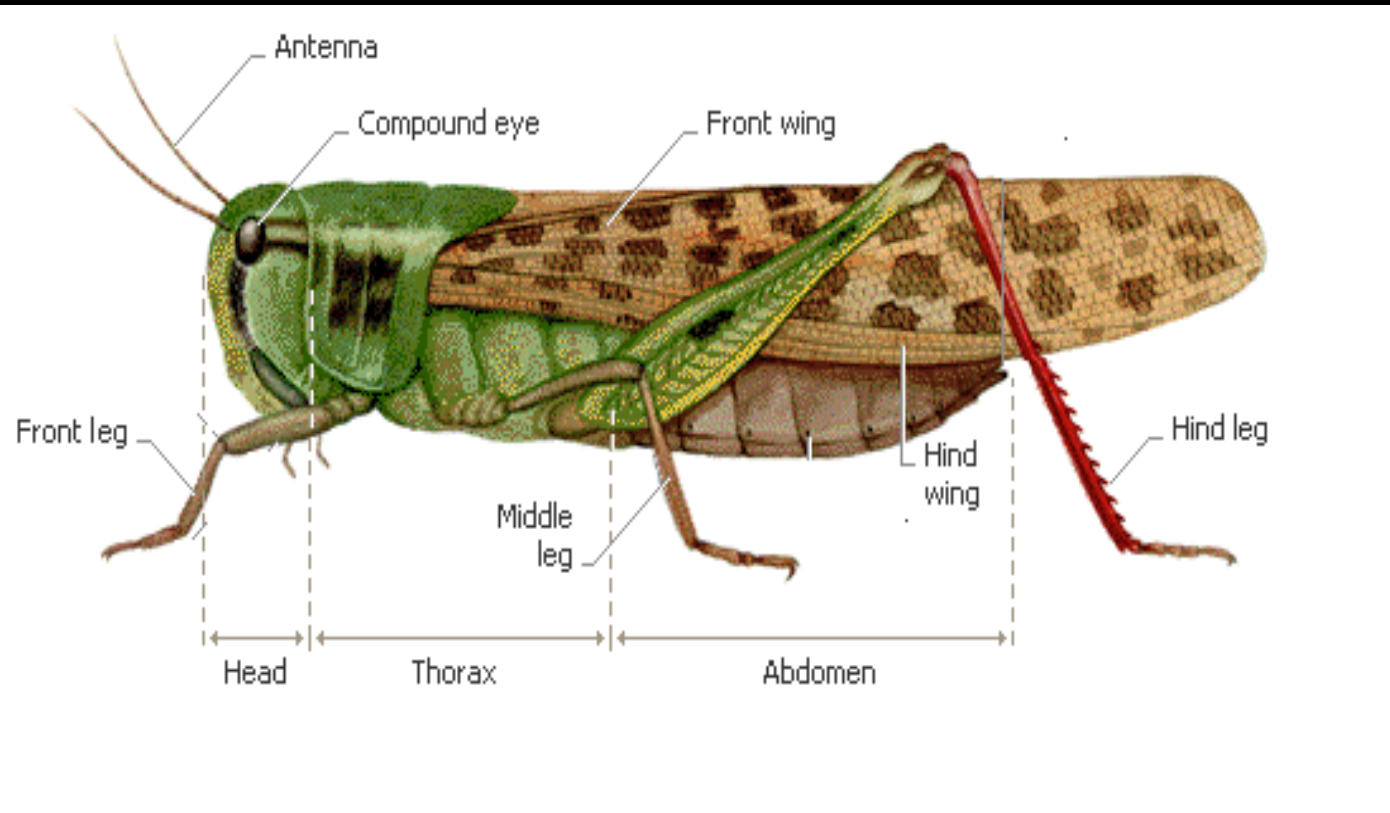


# Entomology for Beginners

**General Entomology ENT 100**

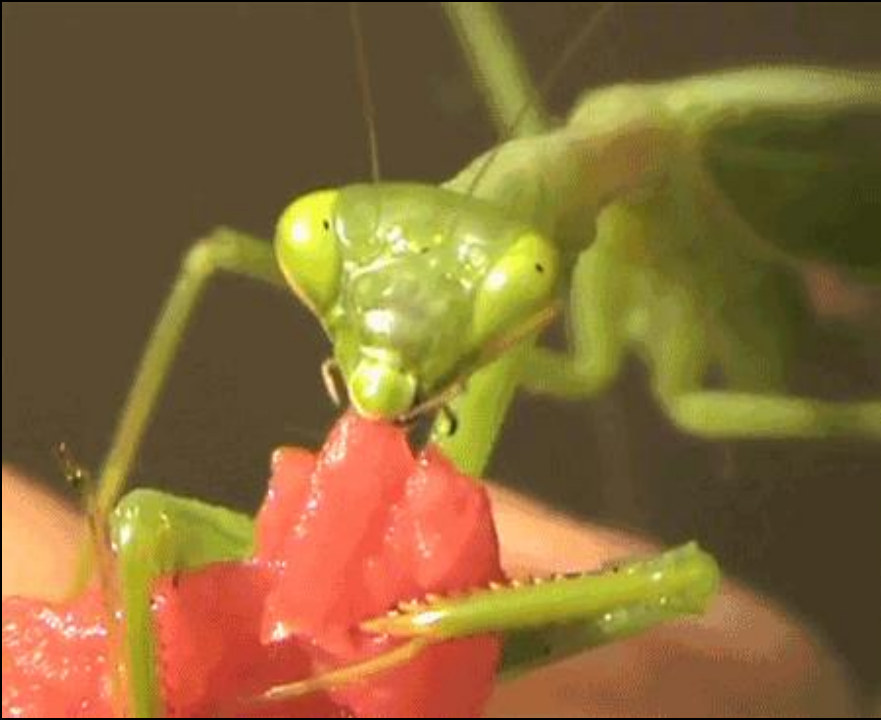
# INSECT MORPHOLOGY

All adult insects have three body parts: **head, thorax** and **abdomen**.



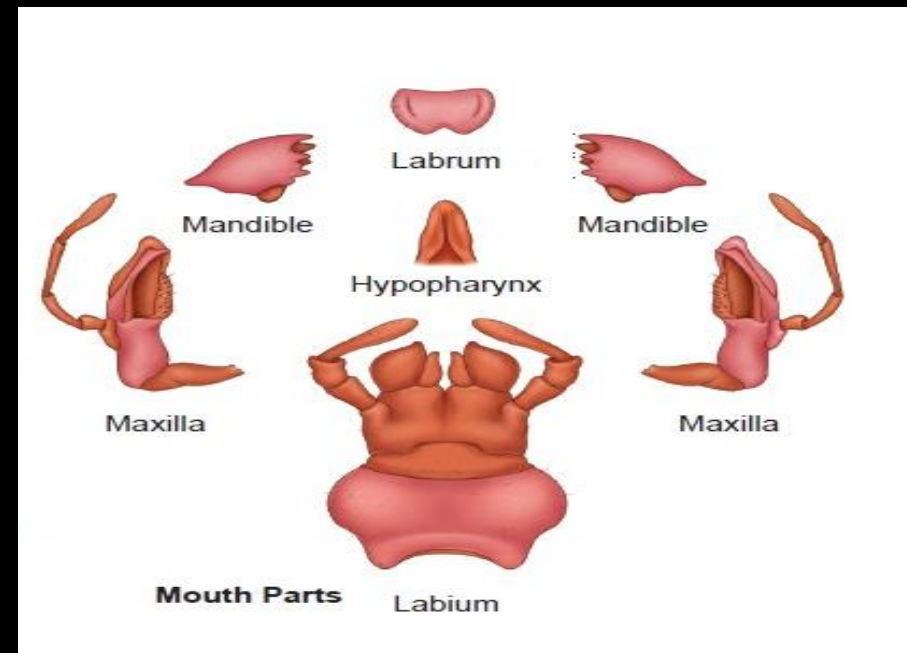
# INSECT MOUTHPARTS

Insect mouthparts differ in appearance because **the diets** of insects are different.



## Chewing mouthparts:

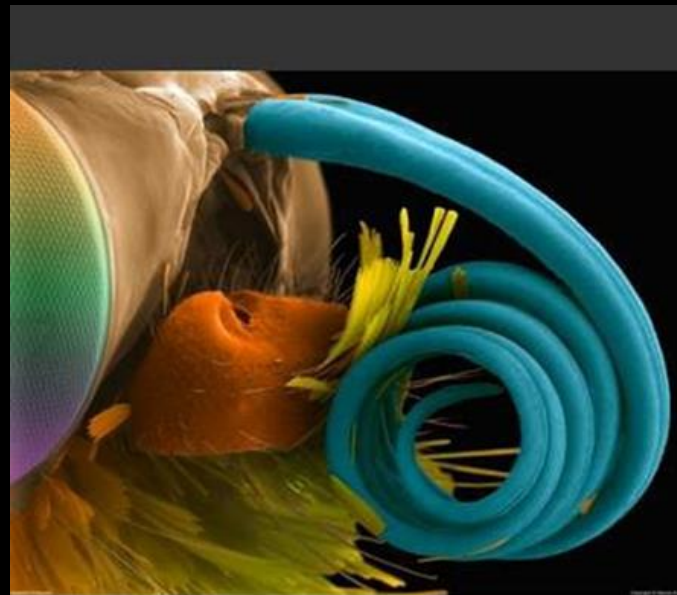
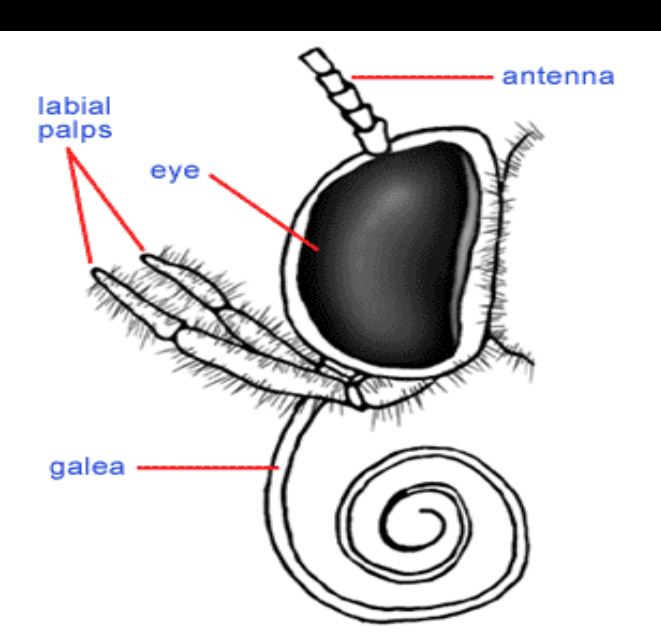
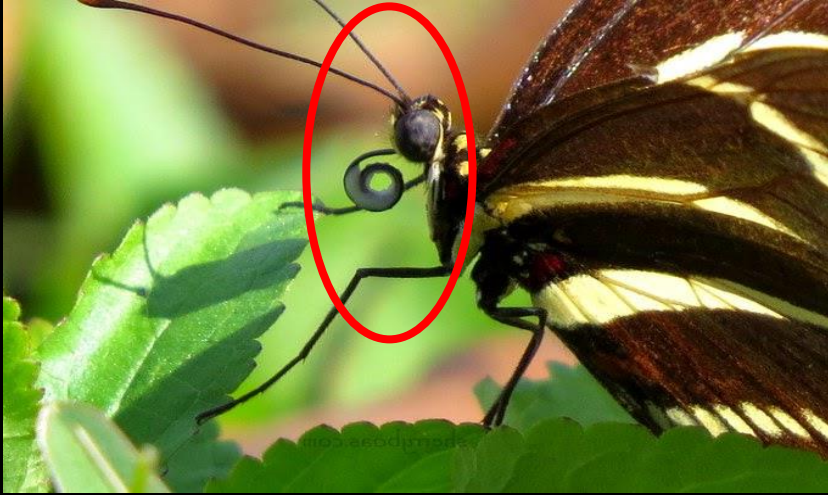
- ✓ The Insect mouth consists of several parts.
- ✓ The basic chewing mouthparts are found in cockroaches and locusts



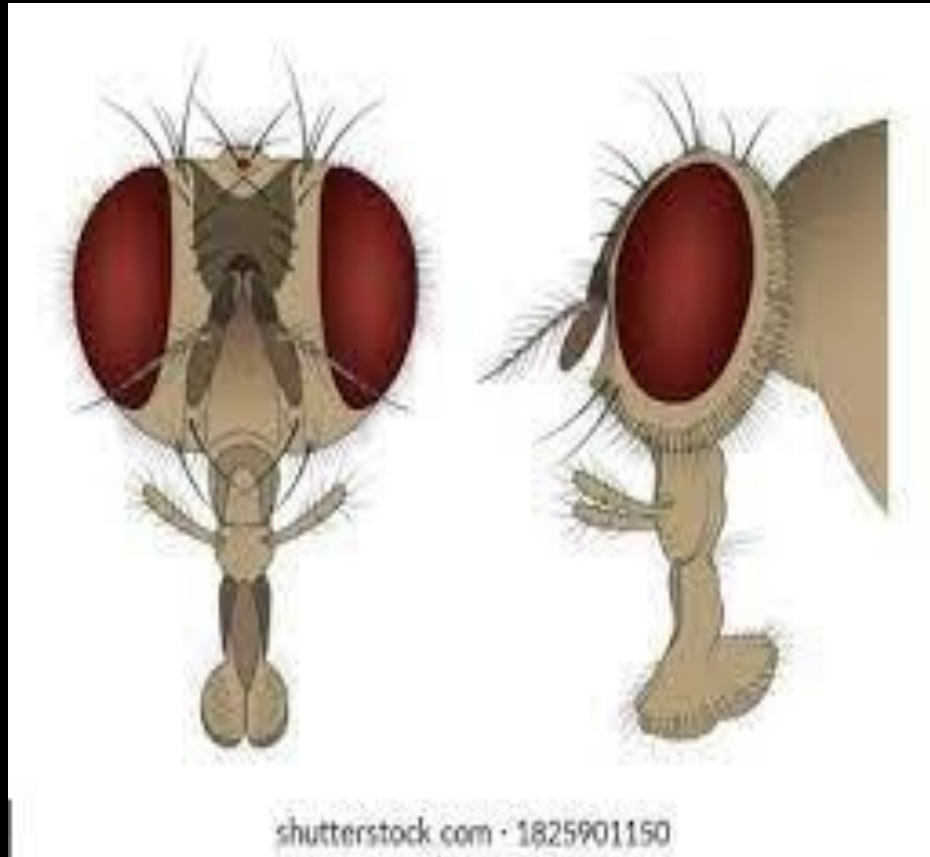


**Chewing mouthparts  
of mantis**

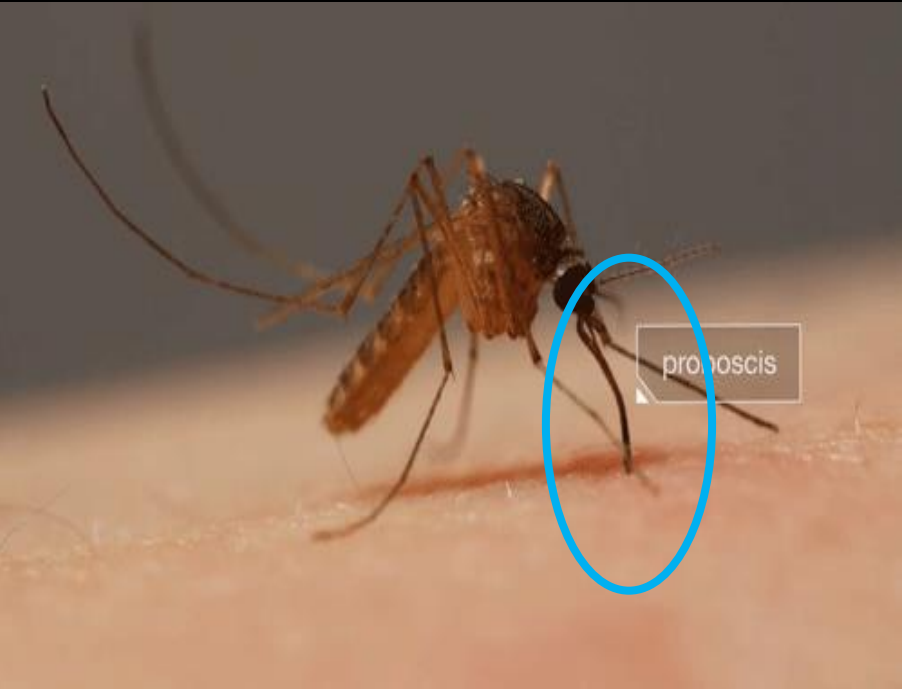
# Siphoning MP in butterflies and moths



# Sponging MP in housefly



**Piercing sucking MP in Blood and sap sucking insects such as female mosquitoes.**





**Some adult insects such as **mayflies** do not eat at all. Therefore, they **do not have mouth parts****



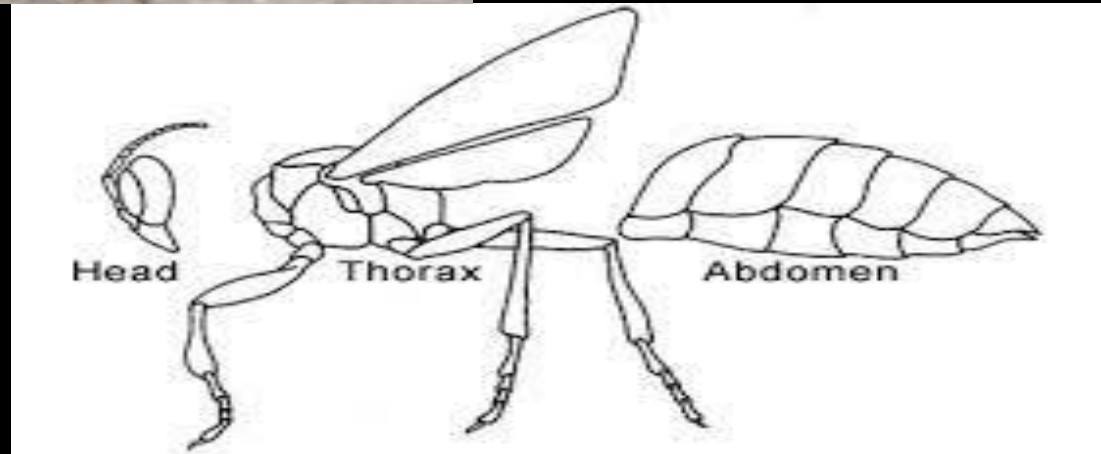
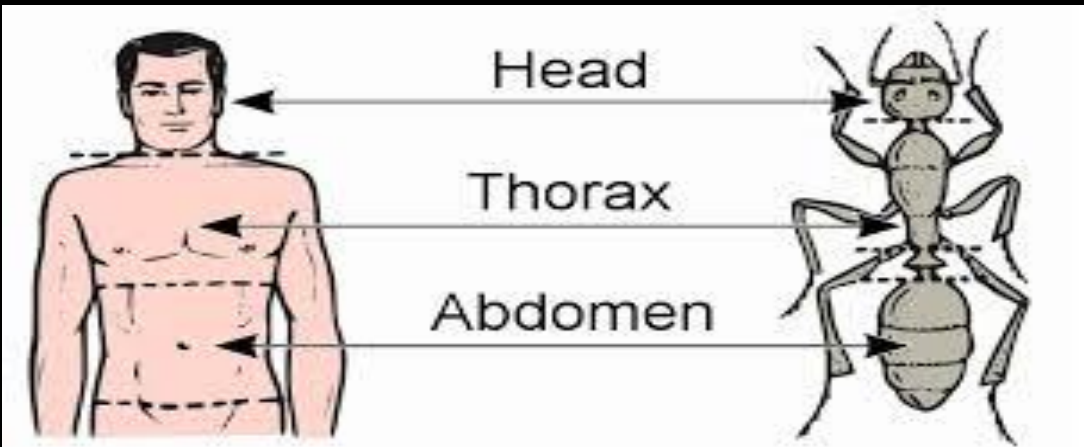
**Mayflies**

# The Thorax

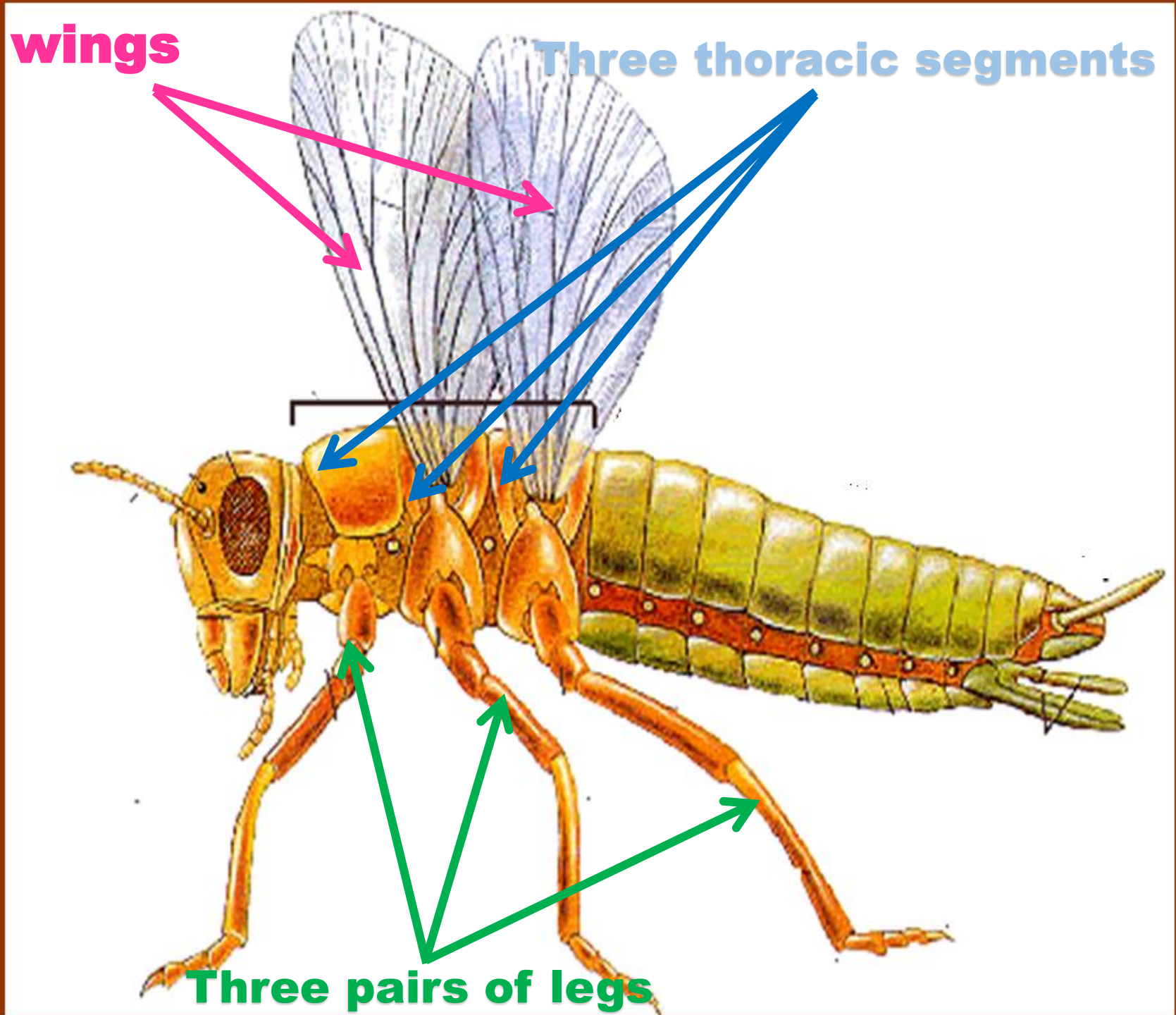


# The thorax

- ✓ The thorax is the second (middle) part of an insect's body .
- ✓ It is composed of three segments.

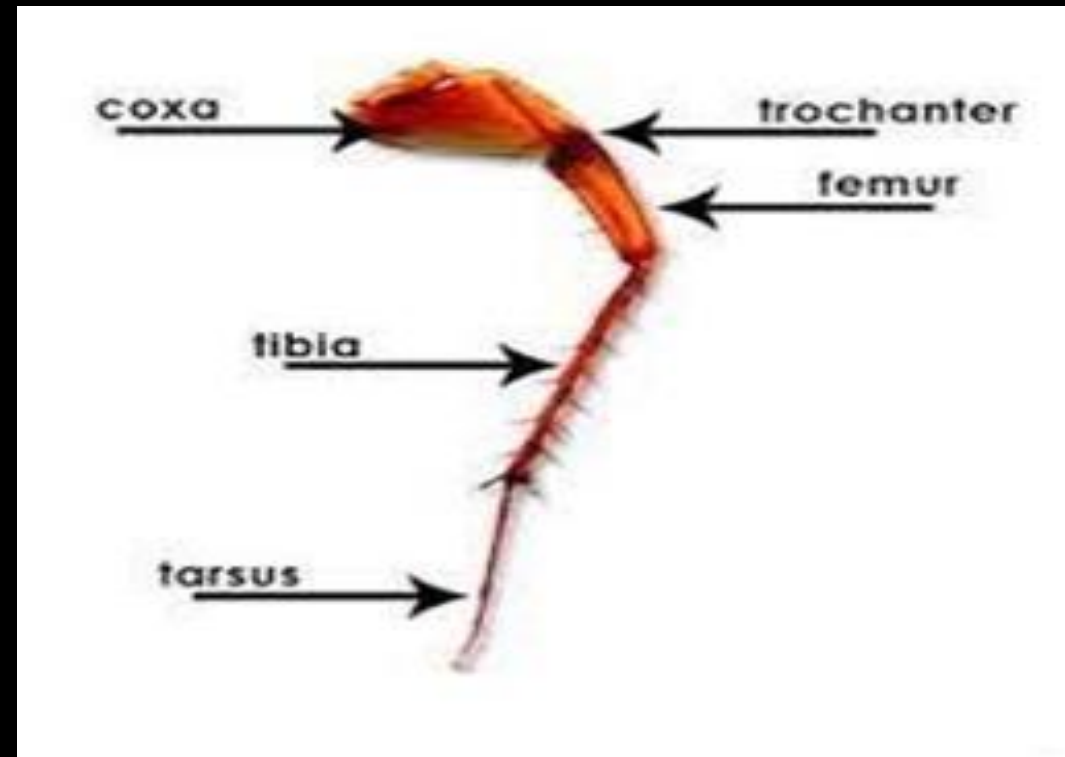


- ✓ The abdomen is adapted for locomotion.
- ✓ It carries 3 pairs of legs.
- ✓ Many adult insects have one or two pairs of wings.



# Insect legs

- ✓ All insects have 6 legs (Hexapoda).
- ✓ Each leg contains five segments (coxa, trochanter, femur, tibia and tarsus).

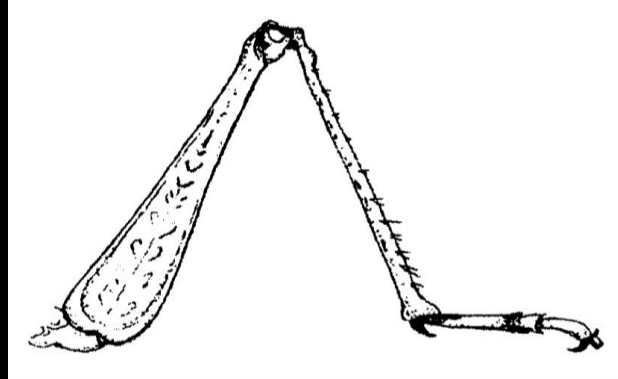


There are many types of inset legs according to their function

1) Walking or **Running legs** Ex: **Cockroaches**

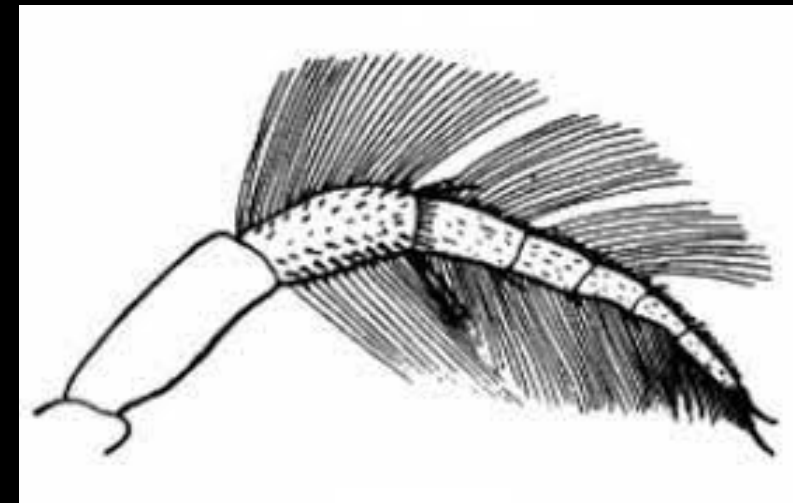
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**Digging leg**  
as in **Gryllotalpa**,

**Jumping leg**  
as in **locusts**



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**Swimming leg**  
as in **water beetles**

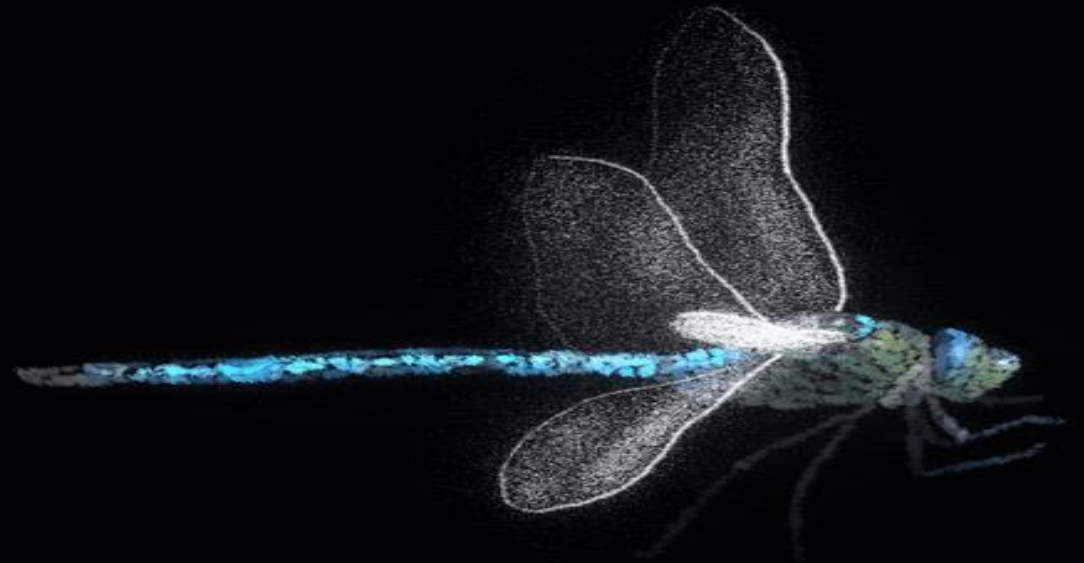




**Seizing leg**  
**as in mantis**

# Insect Wings

- ✓ **Most insects have two pairs of wings.**



**Wings of insects have different shapes and structures. The wings may be:**

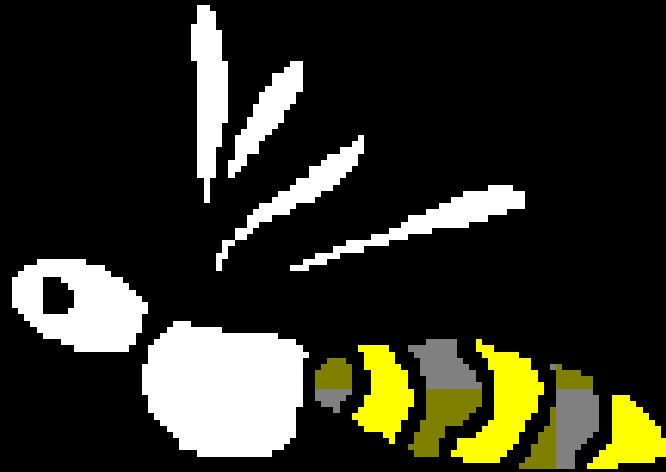
- ✓ **Membranous as in bees,**
- ✓ **Sclerotized as in beetles, or**
- ✓ **Covered with scales as in butterflies and moths.**



In most cases, a characteristic network of **veins** runs throughout the wing.

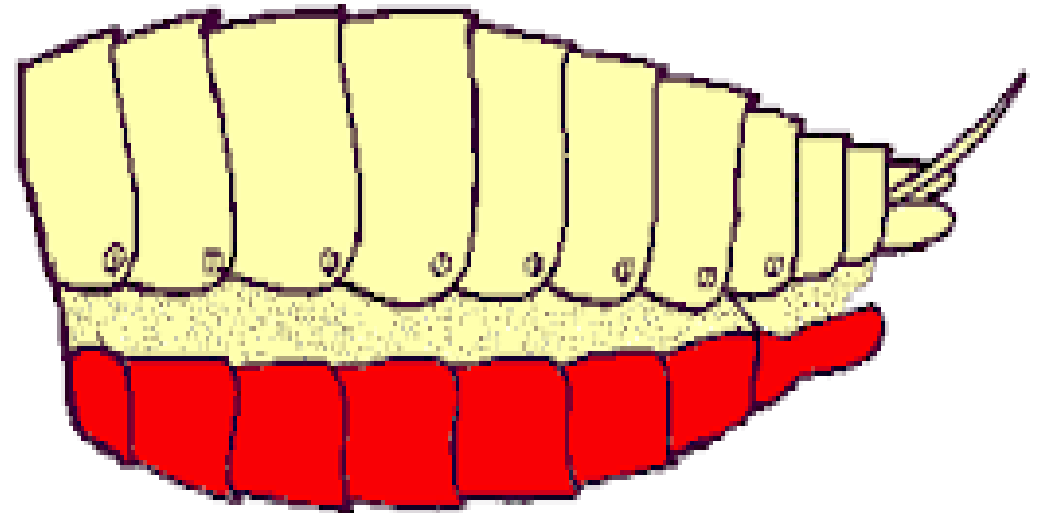
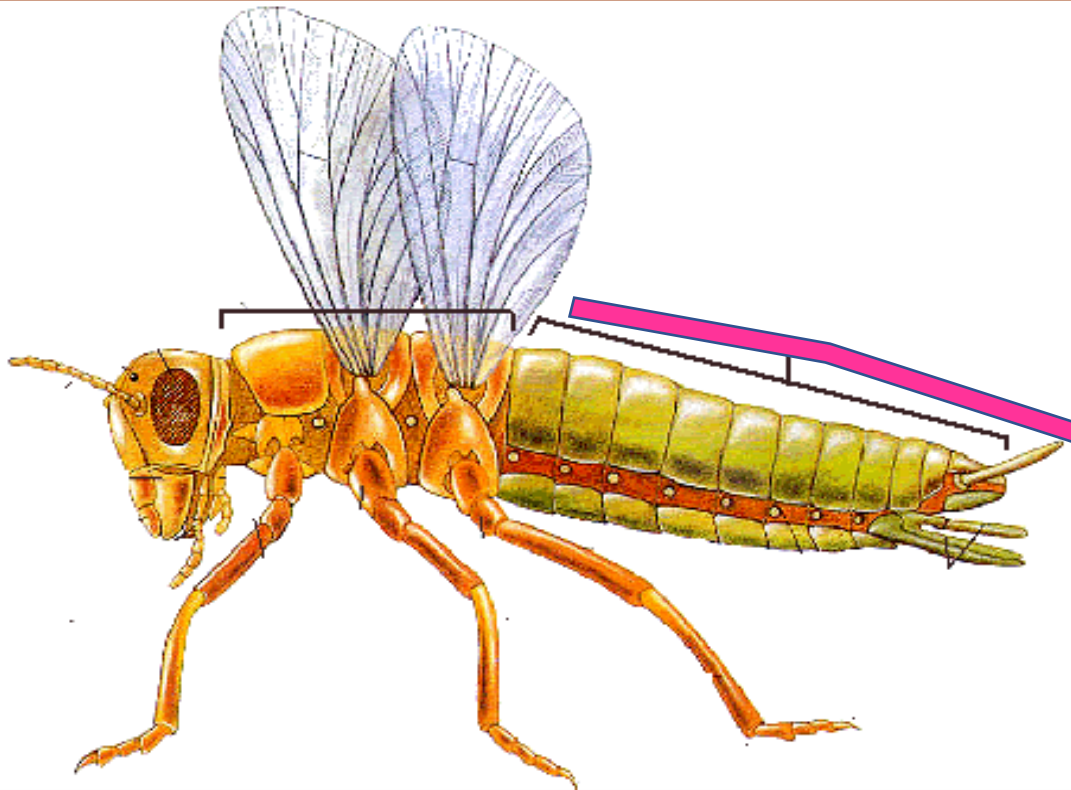


# The Abdomen



# Insect abdomen

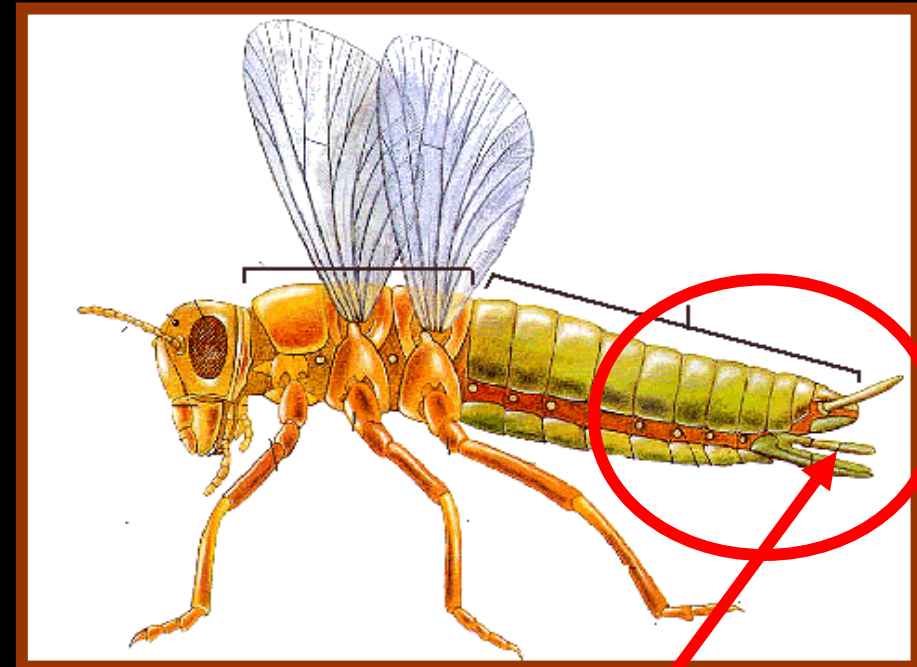
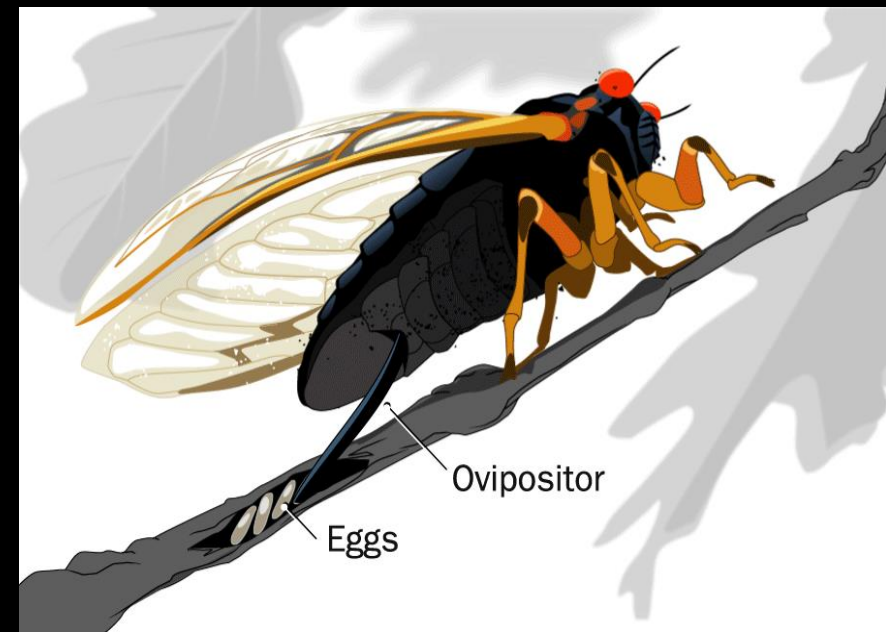
- ✓ Insect abdomen is the third region of insect's body.
- ✓ It consists of several segments.



✓ Segments often "telescope" inside each other, allowing the abdomen to expand and contract.



- ✓ At the end of the abdomen there are the **anus and genital opening.**
- ✓ In some insects there are **structures for feeling egg laying or stinging**



**Abdominal appendages**





In many adult insects, there is a **spiracle** (opening to the **respiratory system**) on each side of most abdominal segments.

