

# Phylum Arthropoda

Ex. Crayfish, insects, spiders, & millipedes



# Characteristics of Phylum Arthropoda:

- Body type: bilateral
- Ecological roles:
  - Food source
  - Pollinator
  - Parasites & vectors for parasites (mosquito, tsetse fly...)
  - Destroy crops - locusts
  - Predators
  - Control populations
  - Jobs – honey, silkworms, crabs
  - Arthritis therapy – bee stings
  - Mites live in hair follicles & dust – *some have an allergy to their waste!*
- Body organization: 3 layers- endoderm, mesoderm, ectoderm.





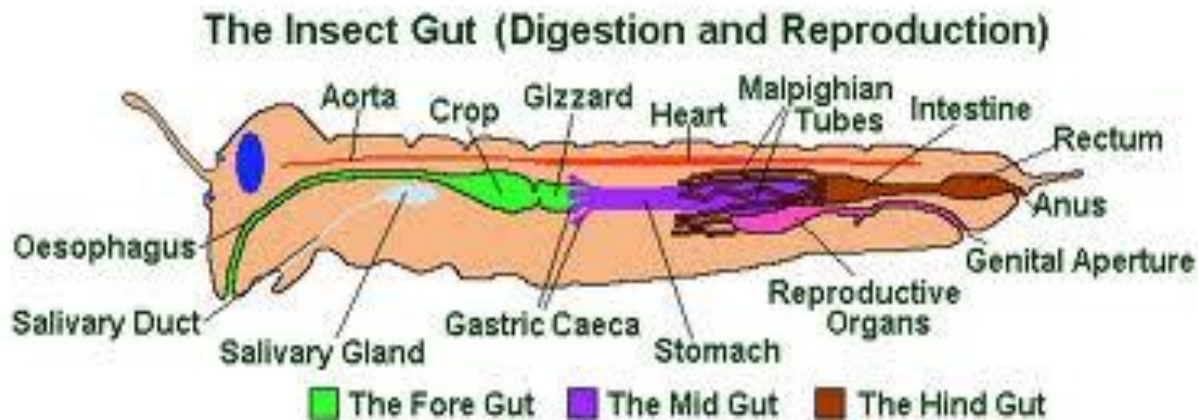
*Pediculus humanus capitis*  
(head lice)



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## Characteristics continued:

- Body cavity: coelom
- Digestive system: complete – mouth & anus with special organs
- Reproduction:
  - Sexual: dioecious
  - Asexual: some regenerate parts

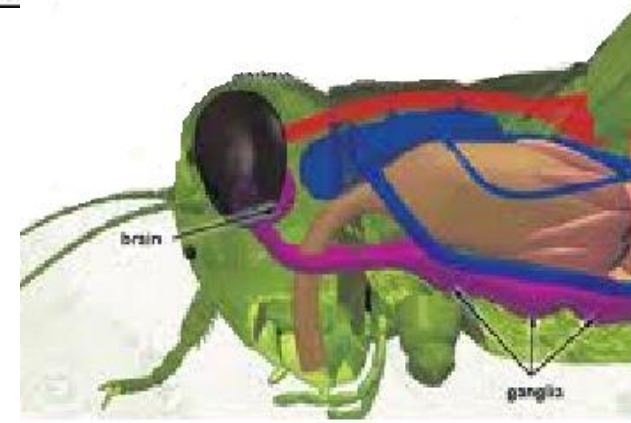
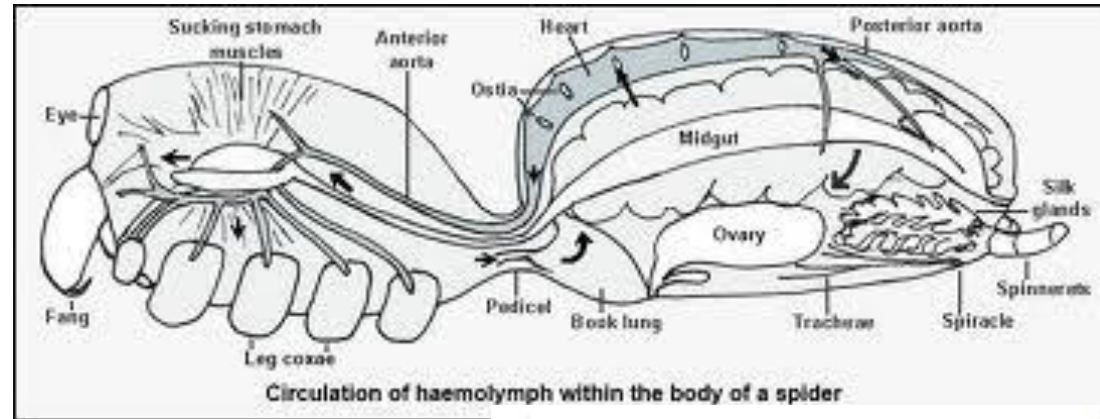
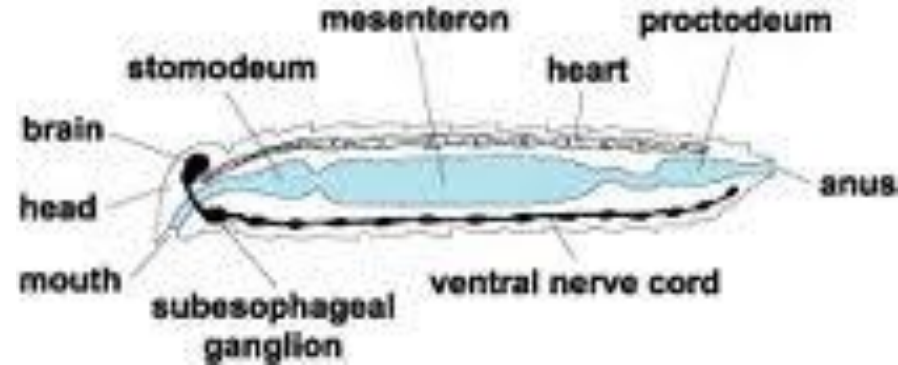


# *Ctenocephalides canis* (Dog Flea)



# Characteristics continued:

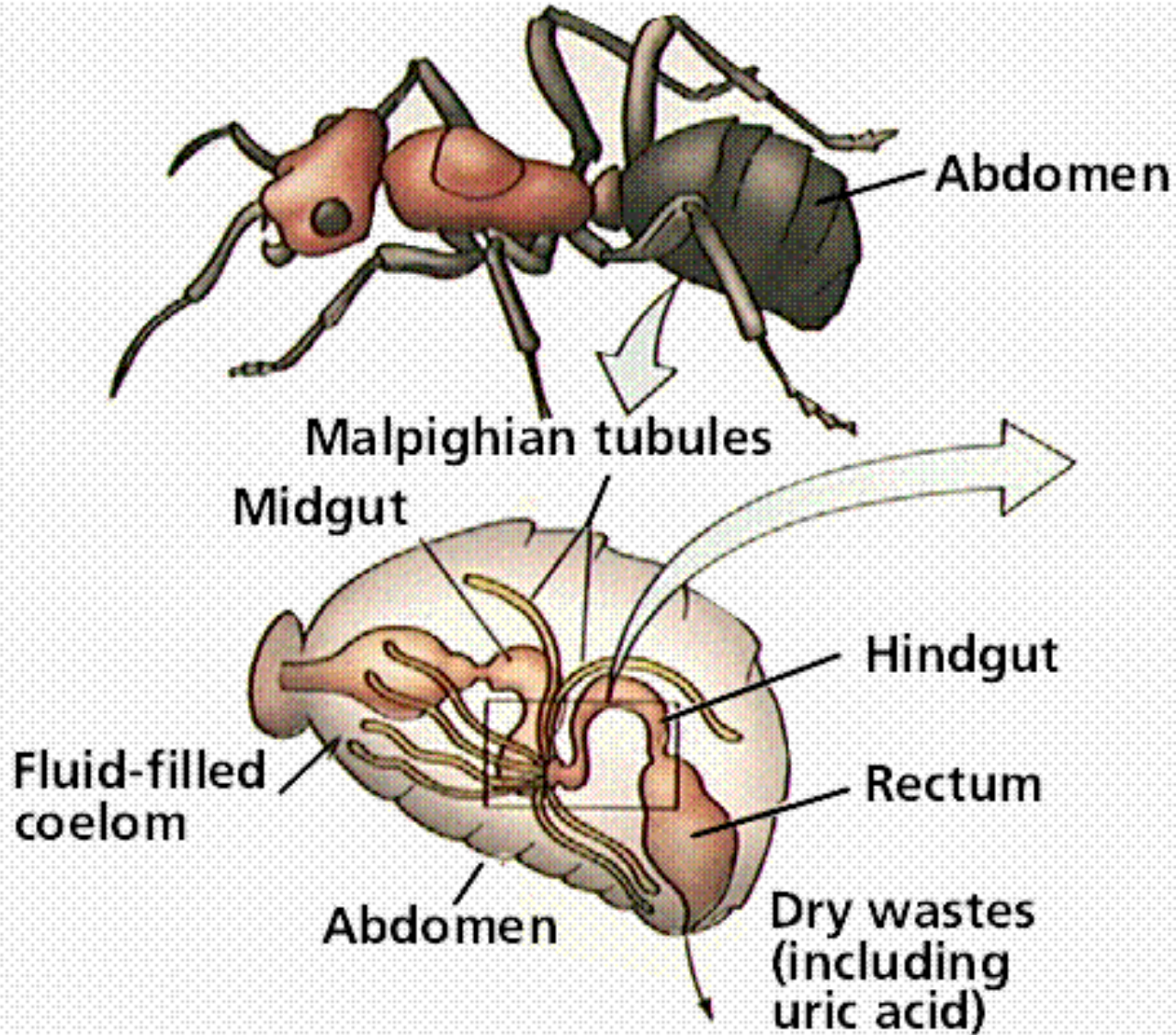
- Circulation: open system, heart (**first**), arteries but not closed & sinuses (*open spaces where tissues bathed in blood*)
- Nervous system: brain & nerves
- Respiration: 3 structures:
  - tracheal system
  - Book lungs/book gills
  - Gills
- Excretion: anus, Malpighian tubules, & spiracles
- Habitat: water & land = everywhere!!



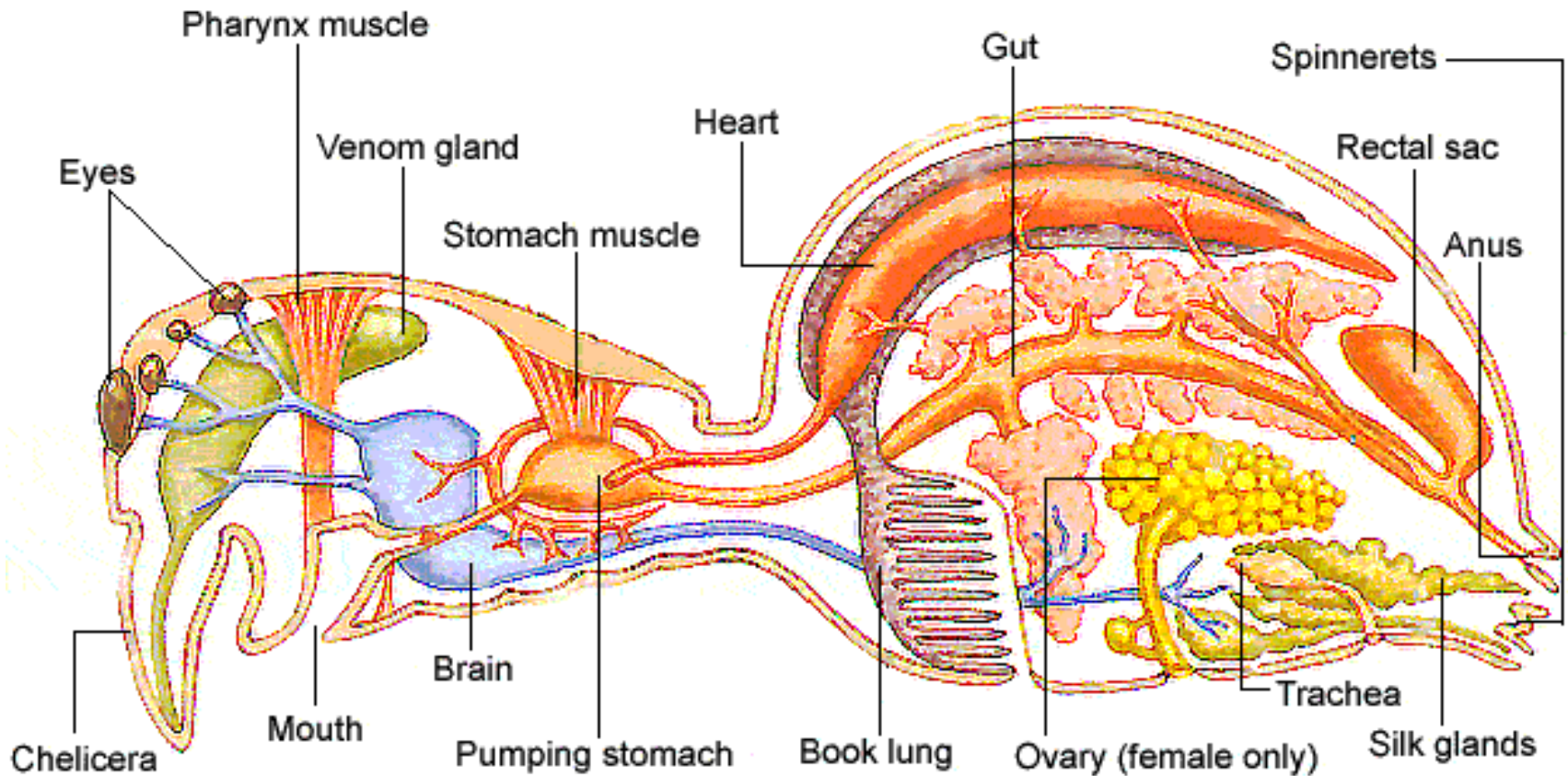


# Malpighian Tubules

Ant



# Book Lungs





# Rhipicephalus sanguineus (Tick)



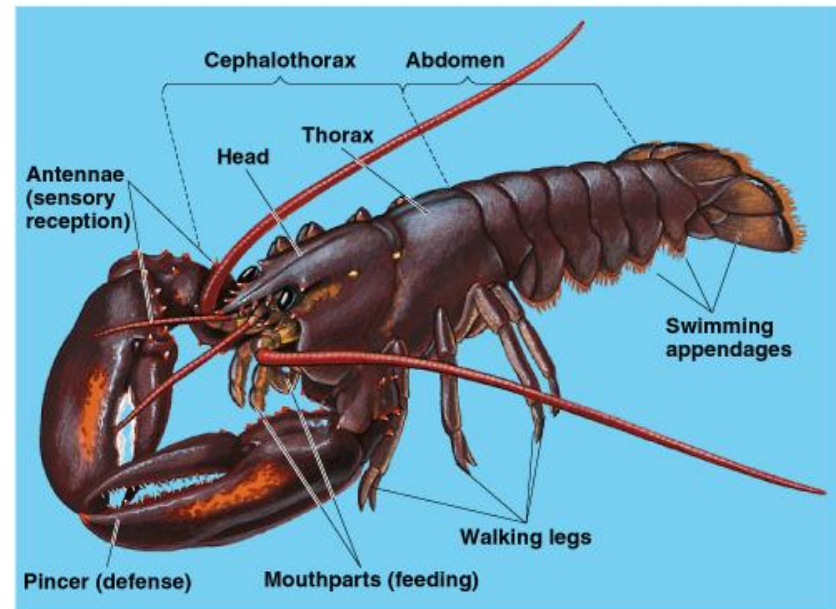
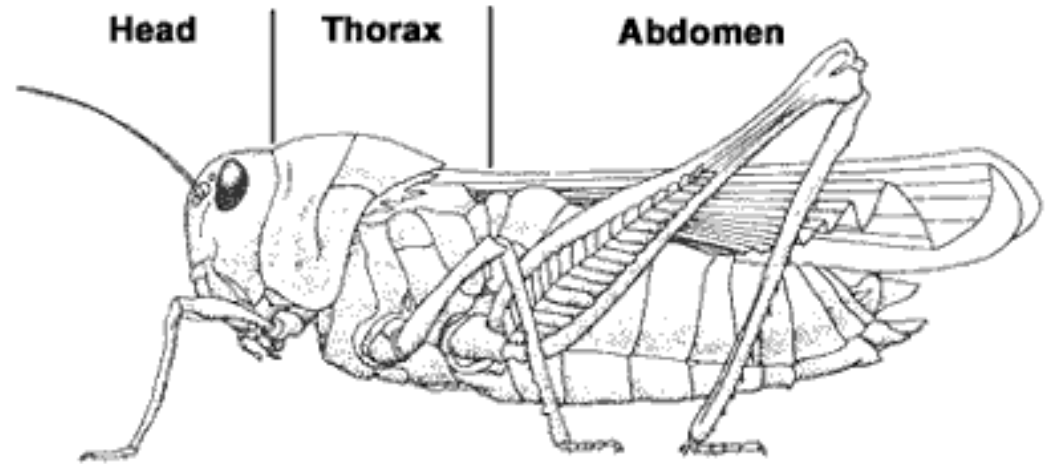
# Additional characteristics:

- Segmented:

- Head
- Thorax
- Abdomen

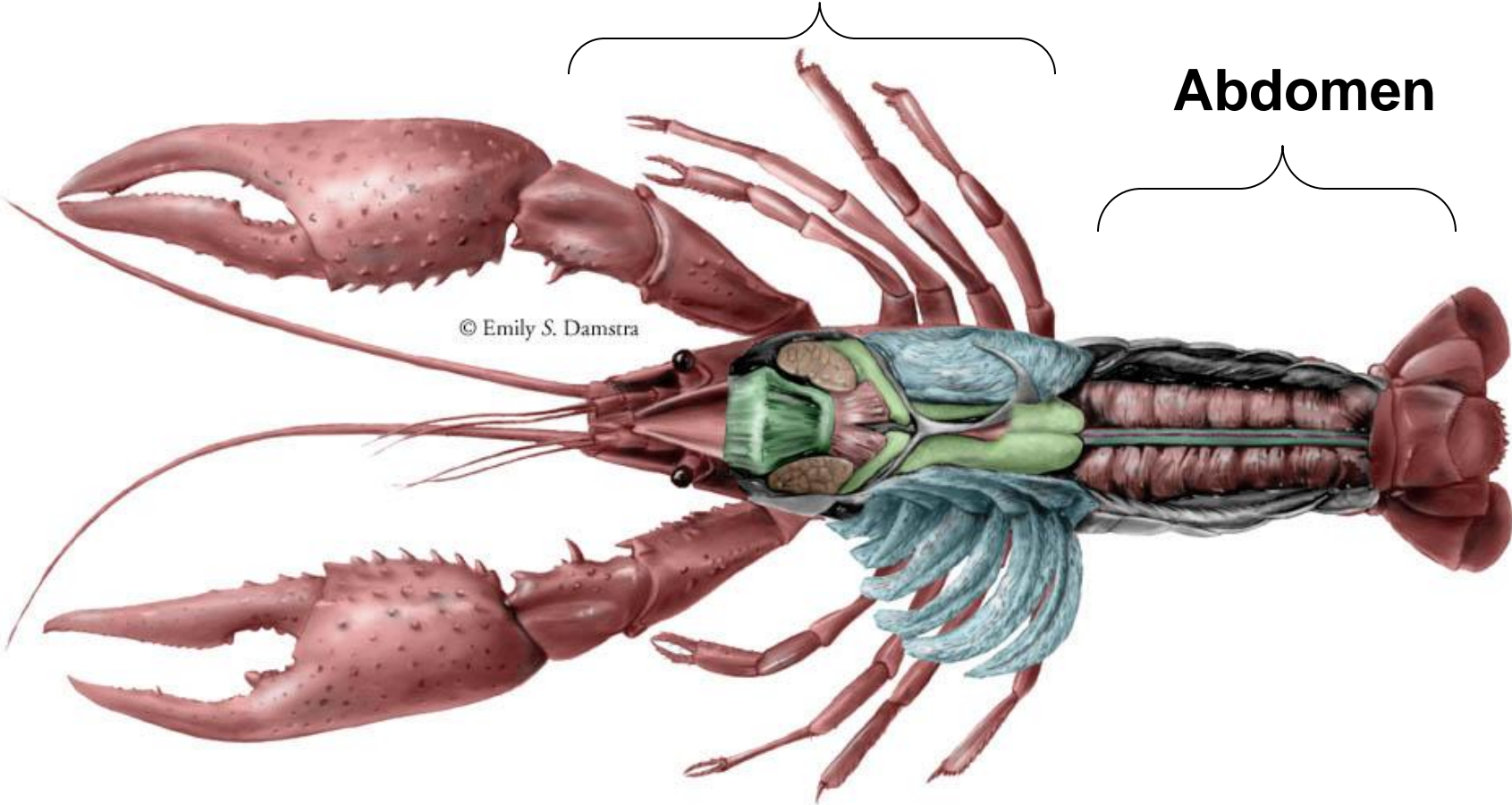
➤ When the head & thorax are fused = **cephalothorax**  
(spiders & crayfish)

## Typical body plan for Arthropod



**Cephalothorax**

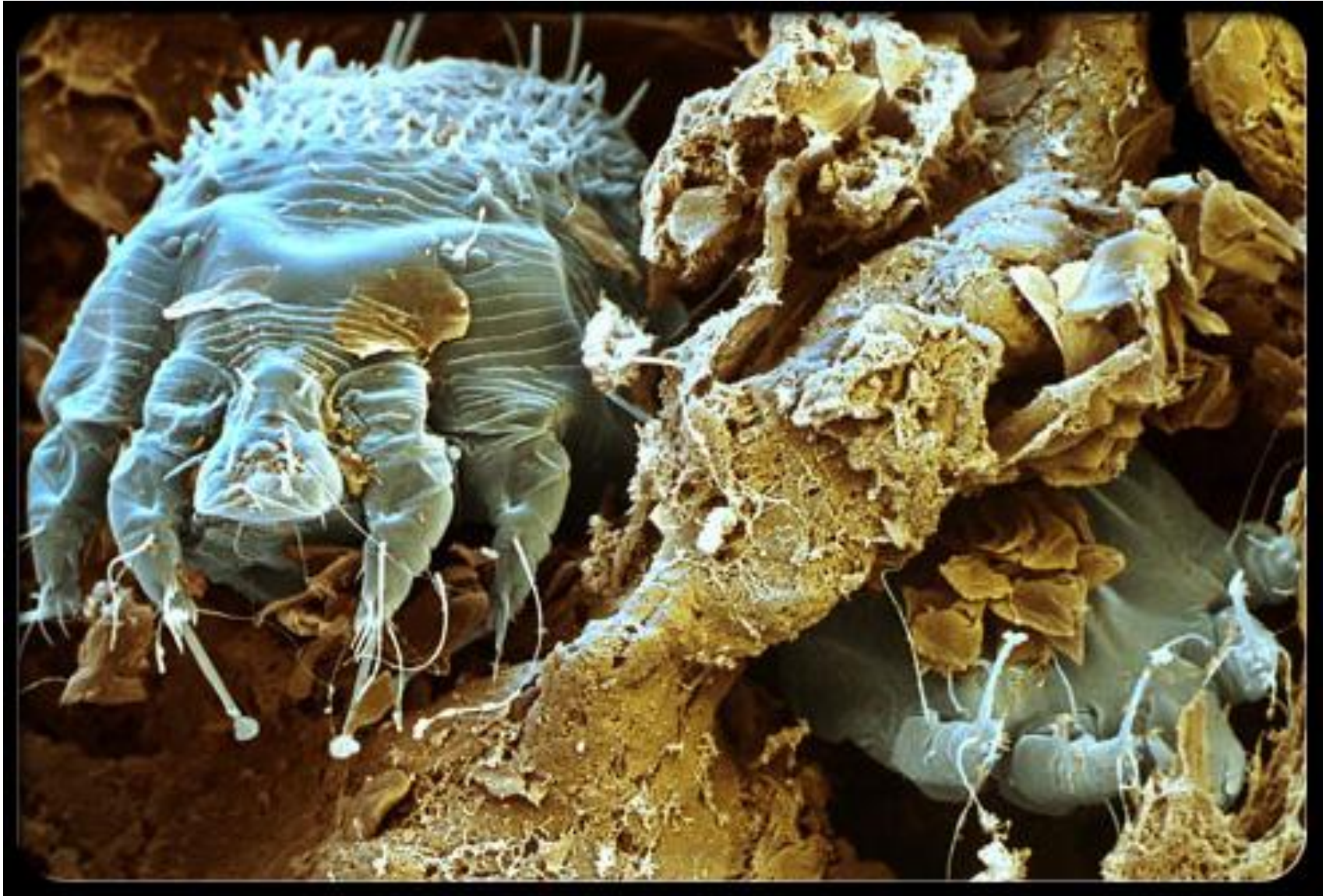
**Abdomen**



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# Sarcoptes scabiei (Scabies)



- **Exoskeleton** (external skeleton) composed of chitin.
  - Covering on outside of body to protect internal muscles, blood vessels, & organs
  - “suit of armour”
  - But it is heavy & cumbersome – it does not grow with the animal and must be molted





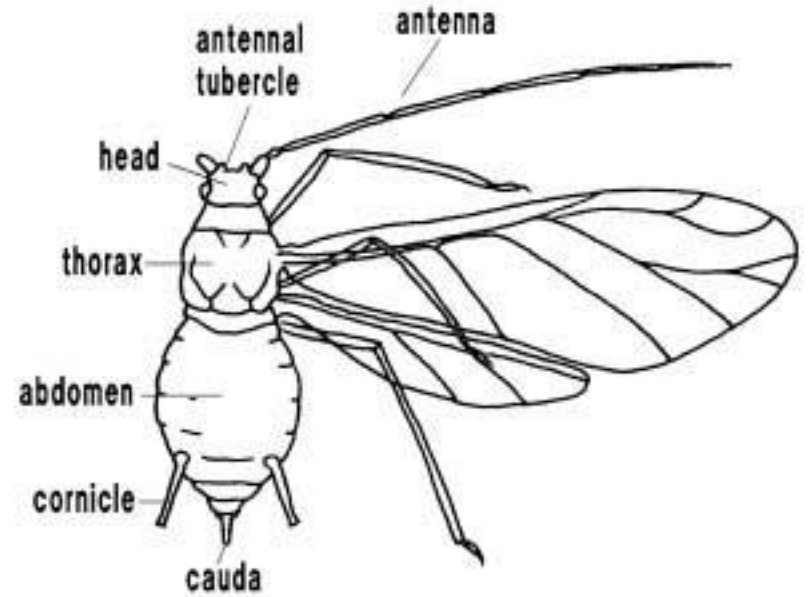
*Cimex lectularius* (bed bugs)





# Additional characteristics continued:

- Jointed appendages



- Compound eye for many arthropods

