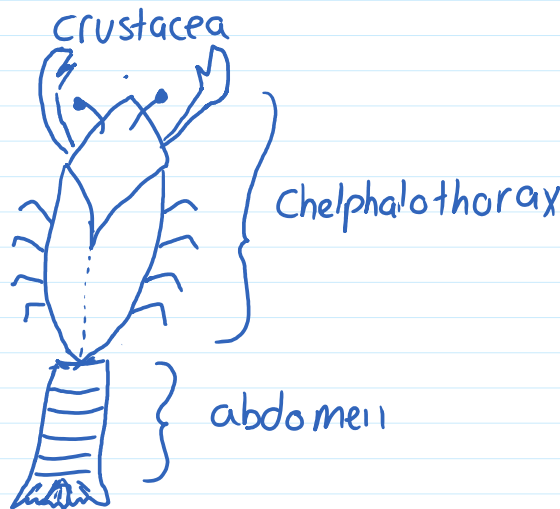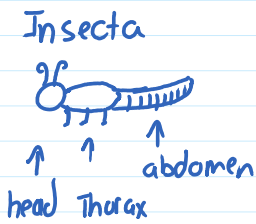# Phylum Arthropoda

General:

★ - advances over Molluses

- <u>arthro poda</u> : jointed legs ★
    jointed   leg

- exoskeleton of chitin ★

- specialized segments ★ - <u>head - thorax - abdomen</u>
    cephalothorax   ↳ "fused" in spider/crab

- specialized feeding appendages /mouth parts ★

- open circulation

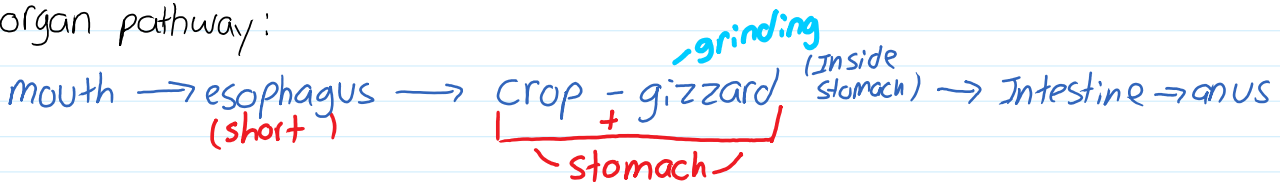- well developed senses & nervous system ★

Classes & Examples :

Insecta   - 6 legs ; head-thorax-abdomen - eg) grasshopper
Crustacea   - fused cephalothorax   eg) crayfish , crab
Arachnida   - 8 legs ; cephalothorax   eg) spiders & scorpions
Chilopoda   - lots of legs ; lots of segments; centipedes
Diplopoda   -   "   "   ; millipedes

Diagram:

Insecta

↑   ↑   ↑ abdomen
head Thorax

Crustacea

Chelphalothorax

abdomen

Digestion:

organ pathway:

mouth → esophagus → crop - gizzard (Inside stomach) → Intestine → anus
            (short)   +   grinding
                    ↳ stomach ↲

Respiration :

Respiration :

- Specialized structures for each class/environment

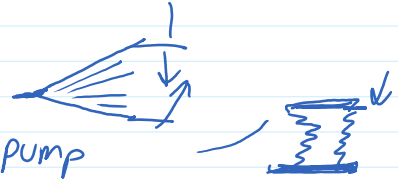   gills - aquatic = crustacea

   trachea & spiracles - Insecta
            - system of open tubes, connected to
              outside by small holes (spiracles)

   book lungs & spiracles - Arachnida
       ↳ like an accordian OR bellows
               air mattress pump

Circulation :

- open circulatory system

- dorsal blood vessel

- heart & artery (s) deliver blood to sinuses (spaces),
    blood bathes tissues in sinuses & flows back into heart thru
    small hole (ostia)

- body cavity (coelom) is called a <u>hemocoel</u>   ← blood

Excretion :

  Insecta : - malpighian tubules
           - secrete waste fluid into hindgut where
             reabsorption of fluids & dissolved materials occurs

  Crustacea : green glands

        (like a kidney but in head area)

Nervous System :

- ventral nerve cord   (like annelids)

complex arthropods   - increased brain size & complexity
                 - increased senses
                 - compound eyes (grasshopper, bee)
                  & simple eyes

                 - antennae, antennules
                 - "ear", typanum (membrane)

  Movement : - advanced & varied
            - jointed legs
            - flight/wings in Insecta
            - swimming if aquatic

- flight / wings in Insecta
- swimming if aquatic

Reproduction:

Asexual : None

Sexual : seperate sexes , internal fertilization

- eggs may develop into form resembling adult (incomplete metamorphosis)

   OR

- young do not resemble adult (complete metamorphosis)
   eg) catipillar ⟶ butterfly

- young molt / shed exoskeleton to grow