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### ((Invertebrates))

2 stage

### Lecture Four

Phylum Arthropoda

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### General Characterizations of arthropoda

- 1 – Arthropoda is the largest phylum 85 % of all organisms  
 , arthropoda are invertebrates live aquatic and  
terrestrial organisms .
- 2 - Some of them free living , others are parasitic .
- 3 – Body is segmented ( head , thorax and abdomen ) ,  
bilateral symmetrical .
- 4 - Arthropoda possess exoskeleton with cuticle made of  
chitin ( glucose + minerals + cellulose + protein ) changed  
every year .
- 5 – Arthropoda /(arthro ) jointed / poda ( means feet ) help  
in locomotion .
- 6 – They contain sensory organs like hair (antennae) ,  
auditory organs , and head bear pair of compound eyes .
- 7 - Arthropoda have open circulatory system only  
coelomic cavity filled with blood .
- 8 – Arthropoda have very developed digestive system .



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### **Classes of Arthropoda :**

**1 – Crustacea class      2 - Insecta class      3 - Arachnida class      4 – Myriapoda class**

### **Crustacea : Crust ( Latin word ) = hard scales**

**1 – Crustacea ; Invertebrates aquatic living in sea and water river moist soil others are parasitic ..**

**2 – Have two pairs of antenna located on the 1<sup>st</sup> or 2<sup>nd</sup> segments , and five pairs of appendages**

**3 - One pair mandibles with two pairs of jaw called maxillae .**

**4 – One pair nephridia which involved with excretion .**

**5 – Heart and some vessels occur in haemocoel to circulate blood .**

**6 - Respiration occurs through gills or general body surface .**

**7 – They have pair of compound eyes .**



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### Types of Crustaceans

Shrimps ( Shellfish ) , Crab , Lobester

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**Lobester**





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### Crab





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### Shrimp or Shellfish

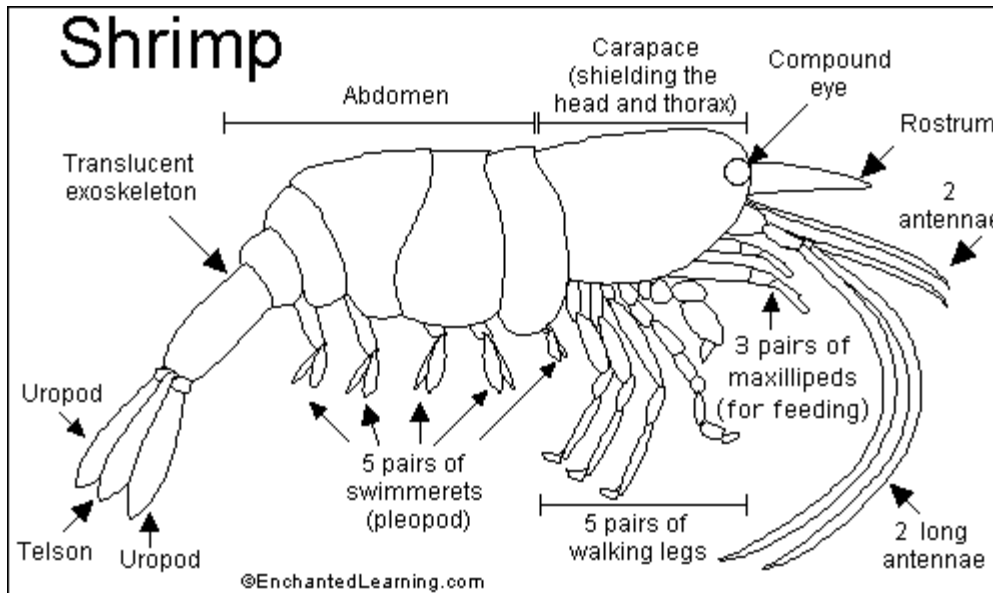


### Shrimp or Shellfish :

**1 – Segmented invertebrates Free living swimming crustacean animal have**



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an

**elongated body marine living .**

**2 – Have narrow muscular tail with thin segmented legs for walking 5 pairs found in cephalorax other 5 pairs in abdomen for swimming .**

**3 - Two pairs of long antennae**

**4 - Thousand species of shrimp harvested for food for human and large animals .**

**5 - Its length range 2 cm - 25 cm .**

**6 - Have narrow muscular abdomen with long antennae**

**.**

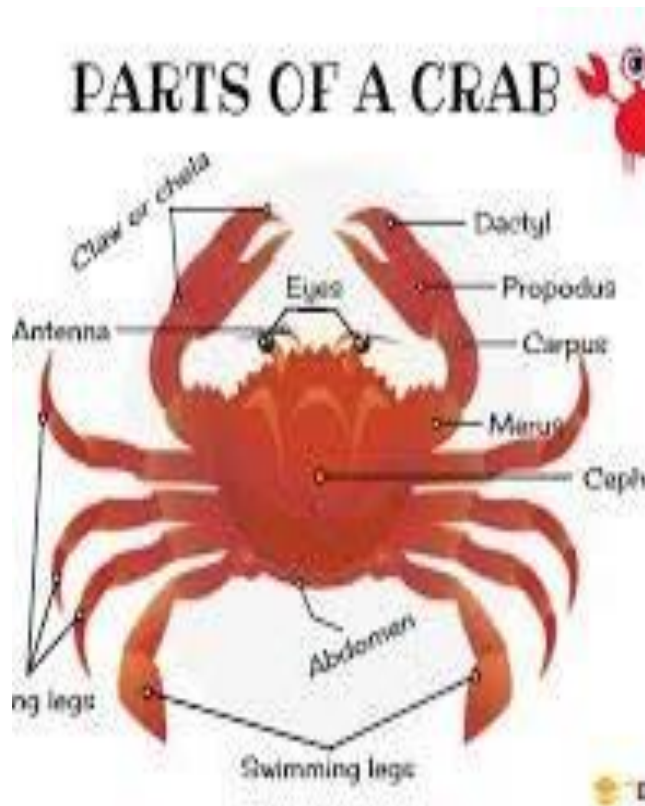


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### Crab :

- 1 – It is crustacean has short projection tail .
- 2 - Abdomen usually hidden under thorax .



- 3 - Crabs live in world oceans and in fresh water .
- 4 - Have thick exoskeleton ( highly mineralized flattened shell made up of chitin .





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5 – They have six legs ( 3 pairs for walking ) and two ( one pair ) for swimming .

6 – The crabs breathes through gills .

7 - Crabs vary in size from (few millimeters for pea crabs till 4 meters for japons crabs .

8 – 7000 species of crab live in salty water and 1300 species live

### Lobsters :

1 – It is crustacean animal live in the sea water , the crayfish resemble to lobster but smaller and live fresh water .





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2 - Lobsters are marine scavenge for dead animals but also eat live fish small molusca .

3 - Lobster has rigid , segmented body covering exoskeleton , have three pairs appendages for swimming .

4 - Lobster have compound eyes on movable stalks with two pairs of antennae .

5 - There are three pairs of walking legs on the elongated abdomen .

6 - Claws are found on the first three pairs of legs but the largest claw on the first pair .

7 - Most lobsters species live in polar seas , great depth sea ( 366 meter ) and found around south Africa .

8 - Its length 13 cm - 25 cm .

**Quiz : Compare : Shrimps , Crab , Lobster ?**

**Only differences ?**

الفروقات فقط تذكر



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