Name_____

LAB ON CRUSTACEANS

AIM: TO COMPARE EXTERNAL ANATOMY OF SOME MARINE CRUSTACEANS AND A HORSESHOE CRAB.

MATERIALS: CRAYFISH, SHRIMP, CRAB, COPEPOD, HORSESHOE CRAB, PROBE, FORCEPS, DISSECTING TRAY, MICROSCOPE. DO NOT BREAK UP OR CUT UP THESE SPECIMENS...EXTERNAL ANATOMY ONLY.

PROCEDURE: EXAMINE THE 5 SPECIMENS AND DRAW AND LABEL THE DIFFERENT PARTS LISTED BELOW. INCLUDE SEGMENT NUMBERS WHERE NECESSARY.

DATA: YOU CAN COMPARE THE FOLLOWING, DRAWING AND LISTING THE SEGMENT NUMBERS, PRESENCE OR ABSENCE ETC.

PART | CRAYFISH SHRIMP CRAB COPEPOD HORSESHOE CRAB

LEGS NUMBERS AND SKETCH ----->

CLAWS NUMBERS AND SKETCH ------>

ABDOMEN SEGMENT NUMBERS AND SKETCH ----->

CEPHALOTHORAX SIZE AND % OF BODY----->

Photos at end of lab

Part	Crayfish	Shrimp	Crab	Copepod (Cyclops)	Horseshoe Crab
Legs and Numbers					

Claws and Numbers					
Abdomen and segment numbers					
Cephalothorax- what % of the body?					

ANALYSIS:

1. WHAT ARE THE SPECIAL FEATURES THAT EACH OF THESE CRUSTACEANS HAVE WHICH ENABLE THEM TO LIVE THEIR LIFESTYLE?

2. WHICH TYPE OF BODY STYLE IS BEST DESIGNED FOR (A) SWIMMING (B) BOTTOM LOCOMOTION (C) DEFENCE?

3. BY OBSERVING THE HORSESHOE CRAB, WHAT WOULD YOU THINK THE TAIL IS USED FOR?

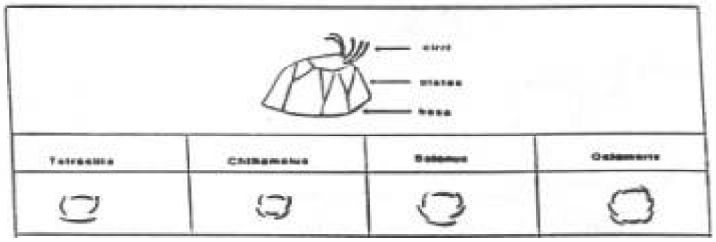
Barnacles

Barnacles are sessile crustaceans protected by shell-like plates which enable the animals to tolerate exposure at low tide. These animals are filter feeders and trap fine organic particles and plankton with six pairs of retractable feathery cirri. *Chthamalus*, the small star barnacle, occurs in dense white sheets at the top of the intertidal zone while *Tetraclita* and *Octomeris* occur lower down the shore. *Tetraclita* has the characteristic volcano shape, is grey in color and prefers more sheltered conditions than *Octomeris* which thrives on rocky shores exposed to much water movement.

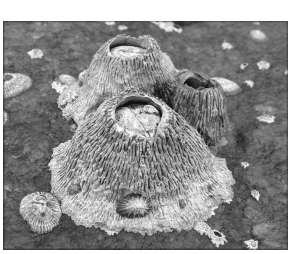
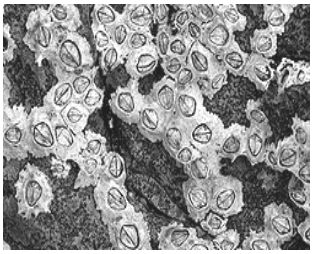
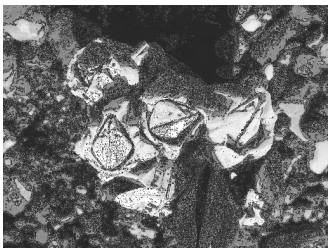
Goose barnacles encountered along the coast are associated with driftwood and ship hulls attaching themselves to a suitable substrate by means of a long fleshy stalk.

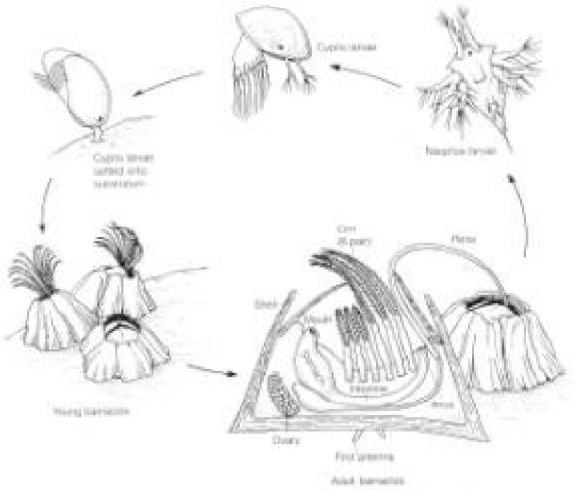
Examine the diagrams below and answer the following questions.

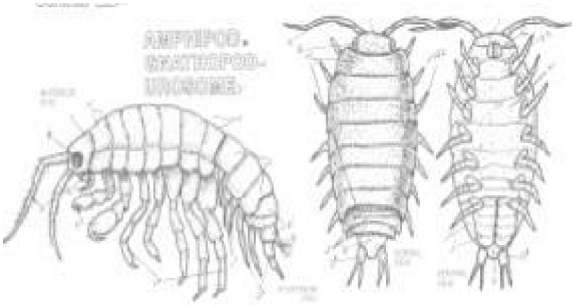
1. In comparing the plates of the different barnacles, using the information above, how is the plate arrangement and number associated with the life style of each barnacle?

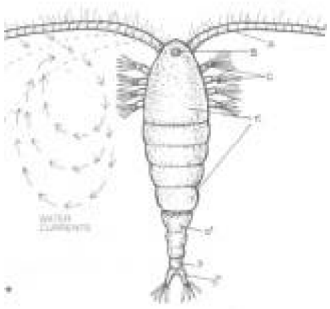


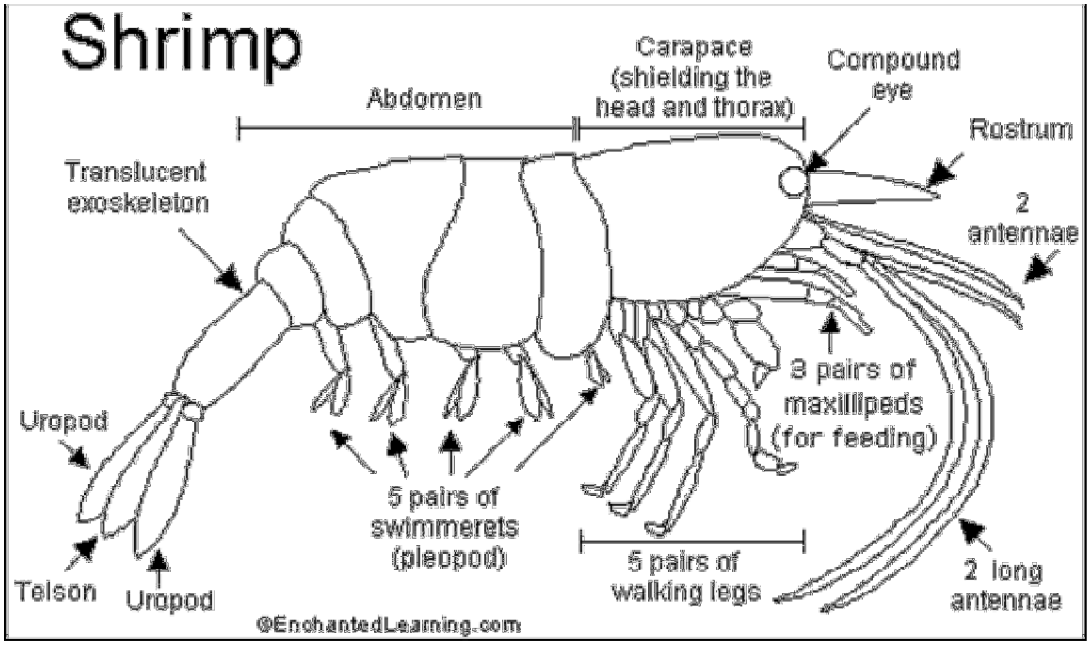
Tetracilta	Chthamulus	Balanus	Octomeris
4 shellplates	6 shellplates	6 shellplates	8 shellplates
grey	white	white w/stripes	white
volcano shape	star shape	calcareous base	



Cypris larvae
Nauplius larvae
Cypris larvae settled onto substratum
Young barnacle
Cirri (6 pairs)
Penis
Stalk
Mouth
Intestine
Ovary
Anus
First cirrus
Adult barnacle


AMPHIPOD.
AMPHIPOD.
ISOPOD.


WATER CURRENTS


Shrimp
Abdomen
Carapace (shielding the head and thorax)
Compound eye
Rostrum
2 antennae
Translucent exoskeleton
3 pairs of maxillipeds (for feeding)
Uropod
5 pairs of swimmerets (pleopod)
5 pairs of walking legs
2 long antennae
Telson
Uropod
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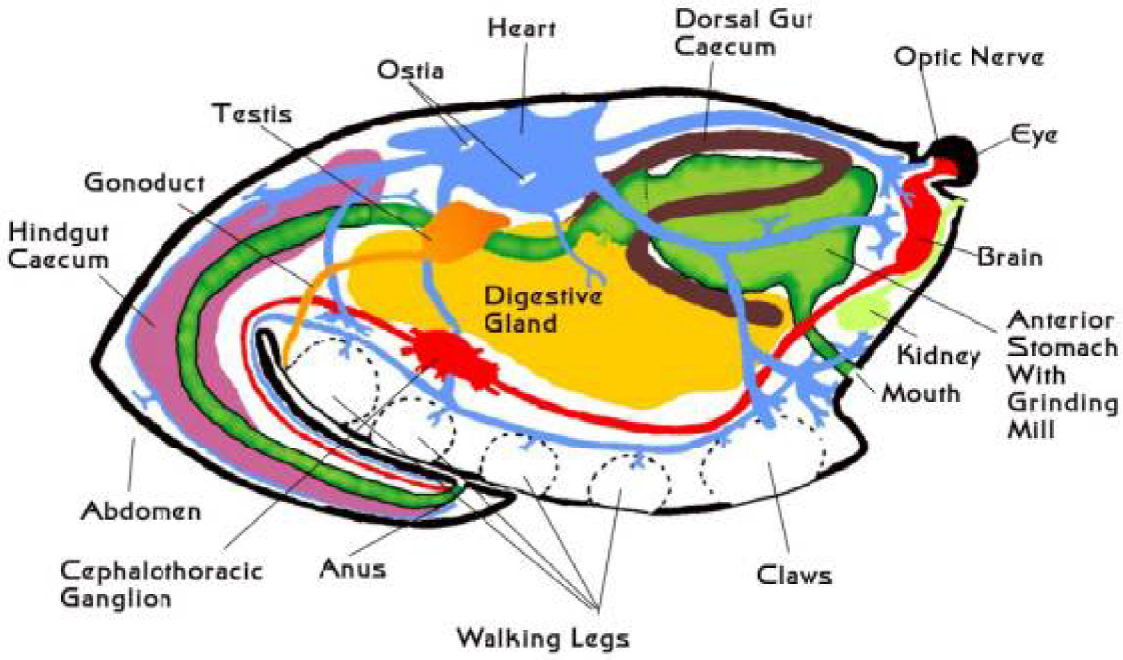
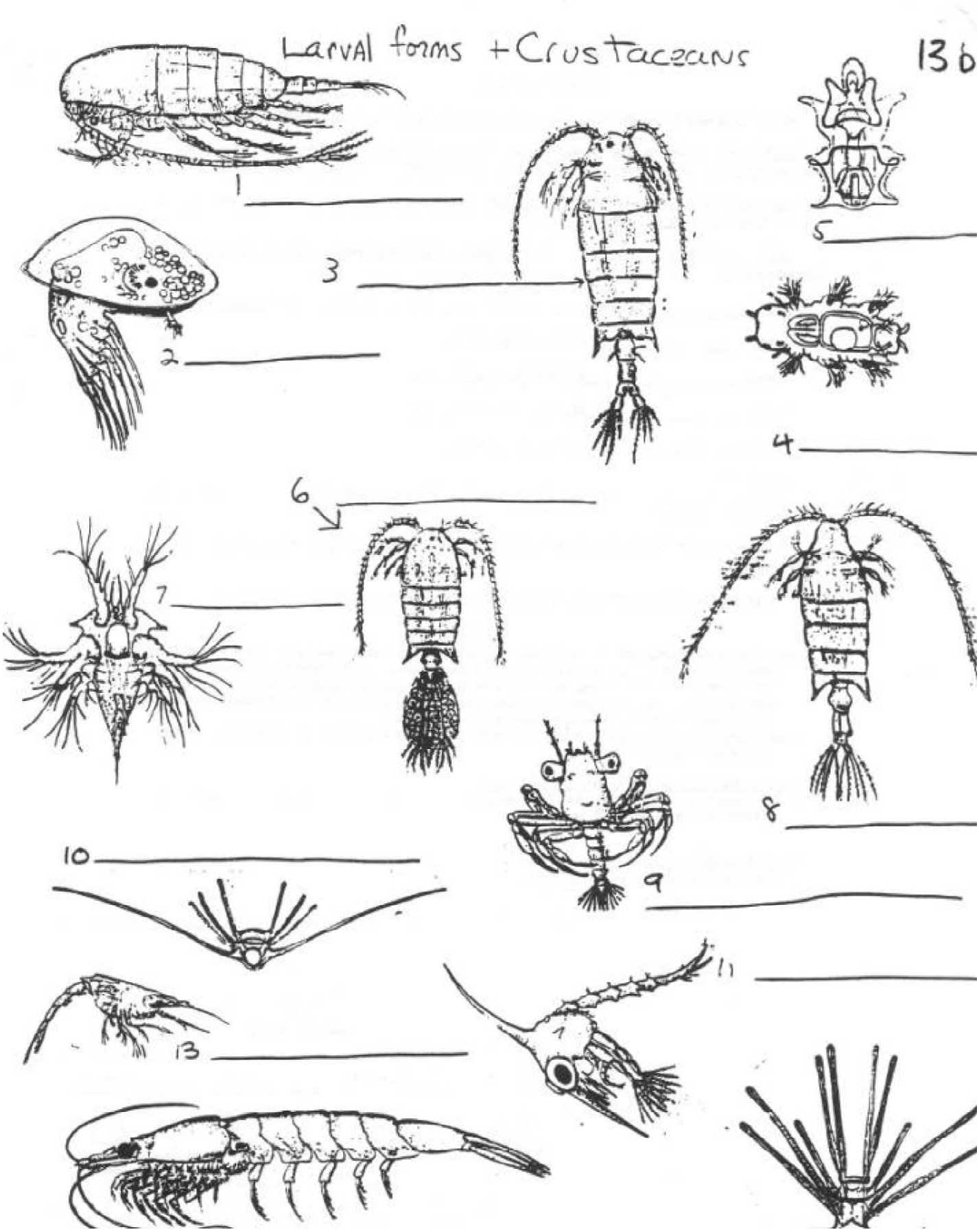

Heart
Dorsal Gut Caecum
Optic Nerve
Ostia
Testis
Eye
Gonoduct
Hindgut Caecum
Brain
Digestive Gland
Anterior Stomach With Grinding Mill
Kidney
Mouth
Abdomen
Cephalothoracic Ganglion
Anus
Claws
Walking Legs


Larval forms + Crustaceans
13b
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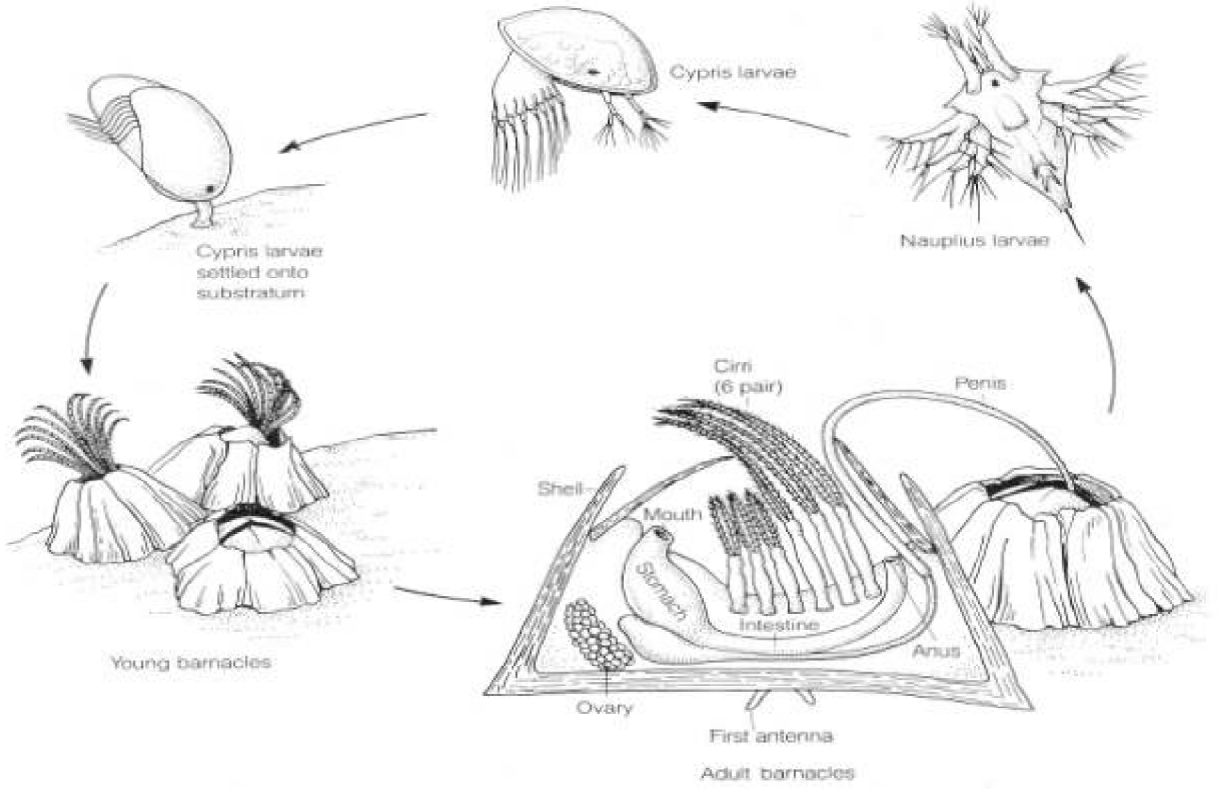
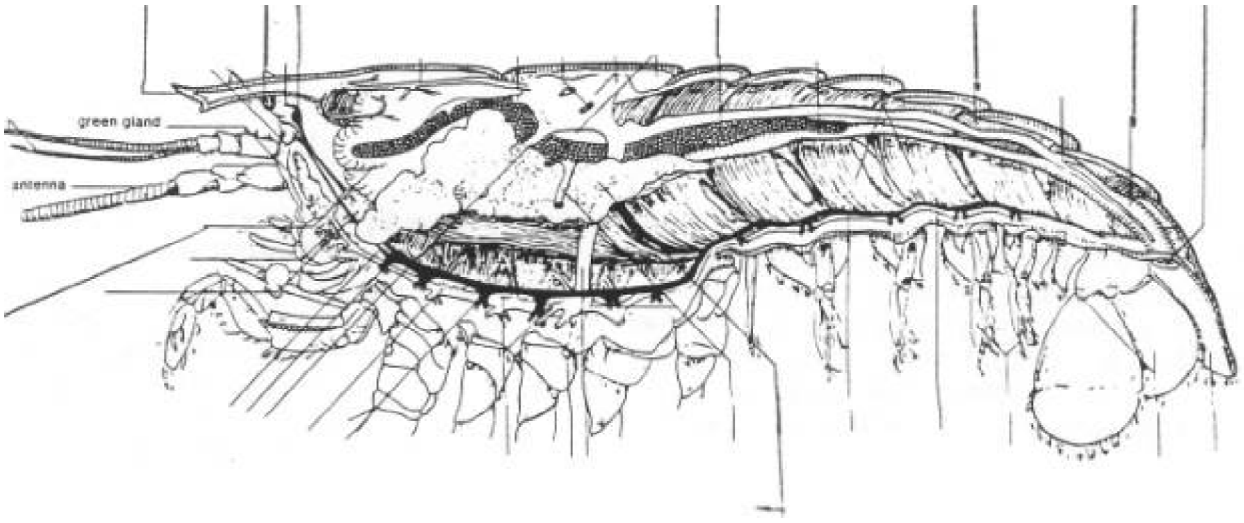
14 12


Cypris larvae
Nauplius larvae
Cypris larvae
settled onto
substratum
Young barnacles
Cirri
(6 pair)
Penis
Shell
Mouth
Stomach
Intestine
Anus
Ovary
First antenna
Adult barnacles


green gland
antenna

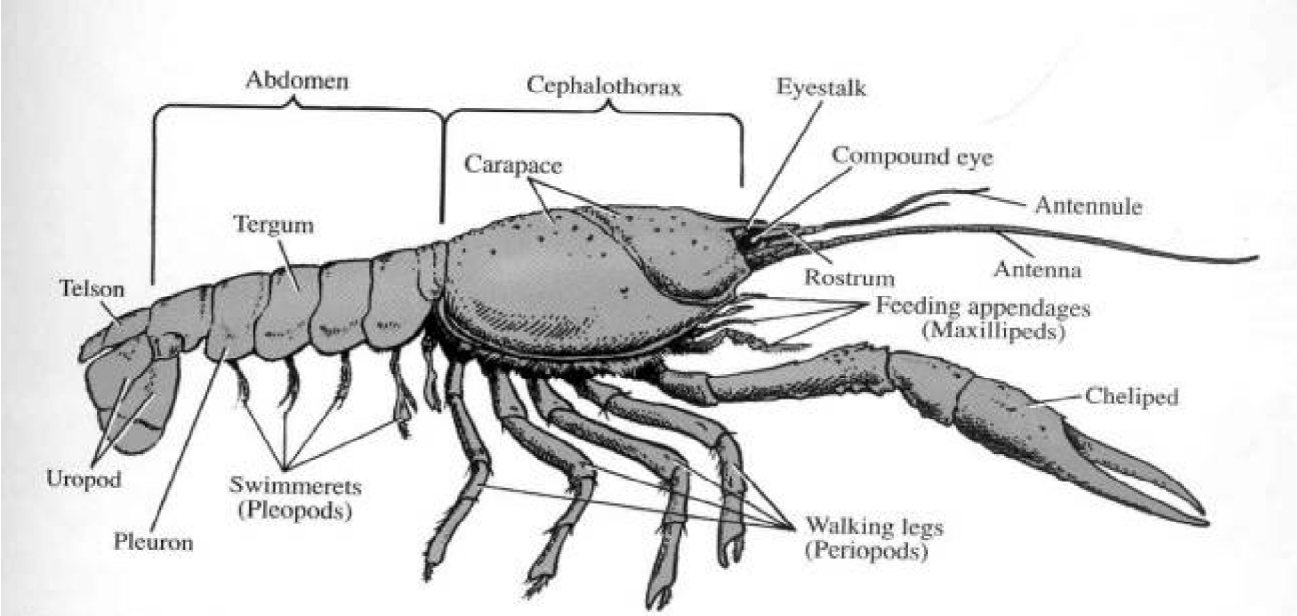


Figure 7.85 A diagram of the crayfish *Cambarus*

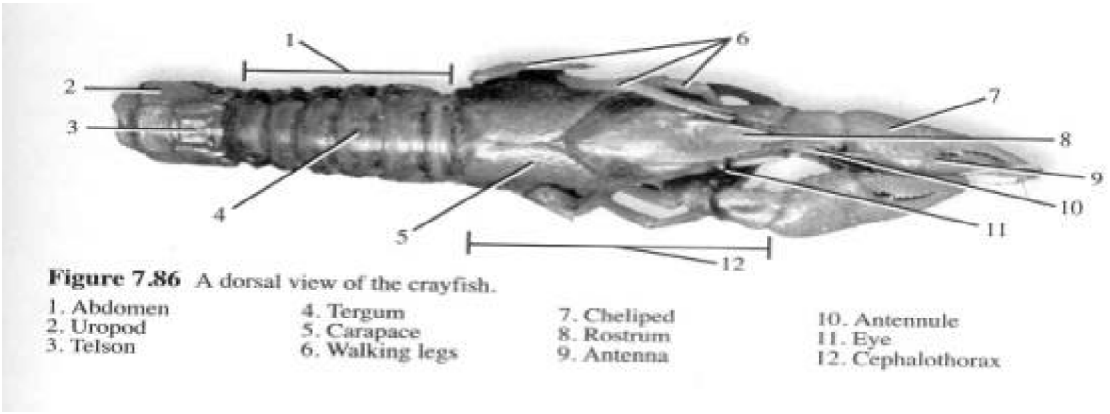


Figure 7.86 A dorsal view of the crayfish.

1. Abdomen
2. Uropod
3. Telson
4. Tergum
5. Carapace
6. Walking legs
7. Cheliped
8. Rostrum
9. Antenna
10. Antennule
11. Eye
12. Cephalothorax

A) UROPOD

B) DORSAL ABDOMINAL ARTERY

C) ABDOMINAL EXTENSOR

D) INTESTINE

E) VENTRAL NERVE CORD

F) OVARY

G) PERICARDIAL SINUS

H) HEART WITH OSTIA

I) ANTENNARY ARTERY

J) OPTHALMIC ARTERY

K) CEREBRAL GANGLIA

L) ROSTRUM

M) ANTENNULE

N) ANTENNA

O) GREEN GLAND

P) ESOPHAGUS

Q) CIRCUMESOPHAGEAL CONNECTIVE

R) CARDIAC STOMACH

S) PYLORIC STOMACH

T) DIGESTIVE GLAND

U) STERNAL ARTERY

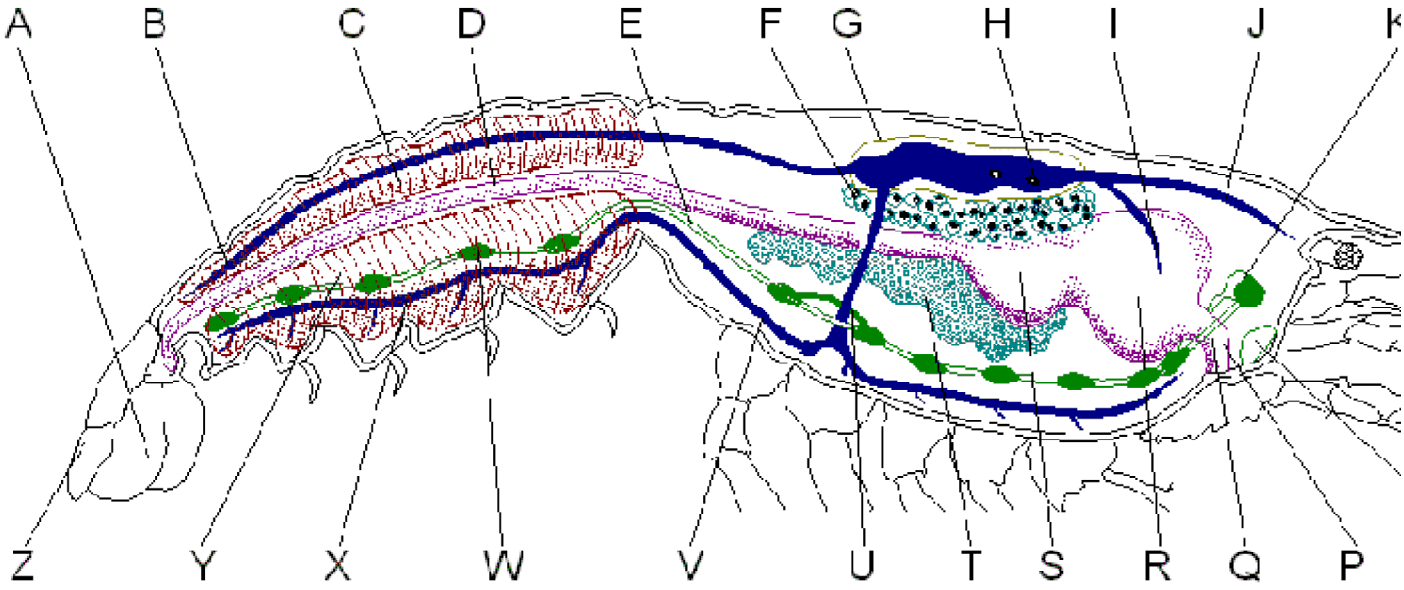
V) VENTRAL THORACIC AI

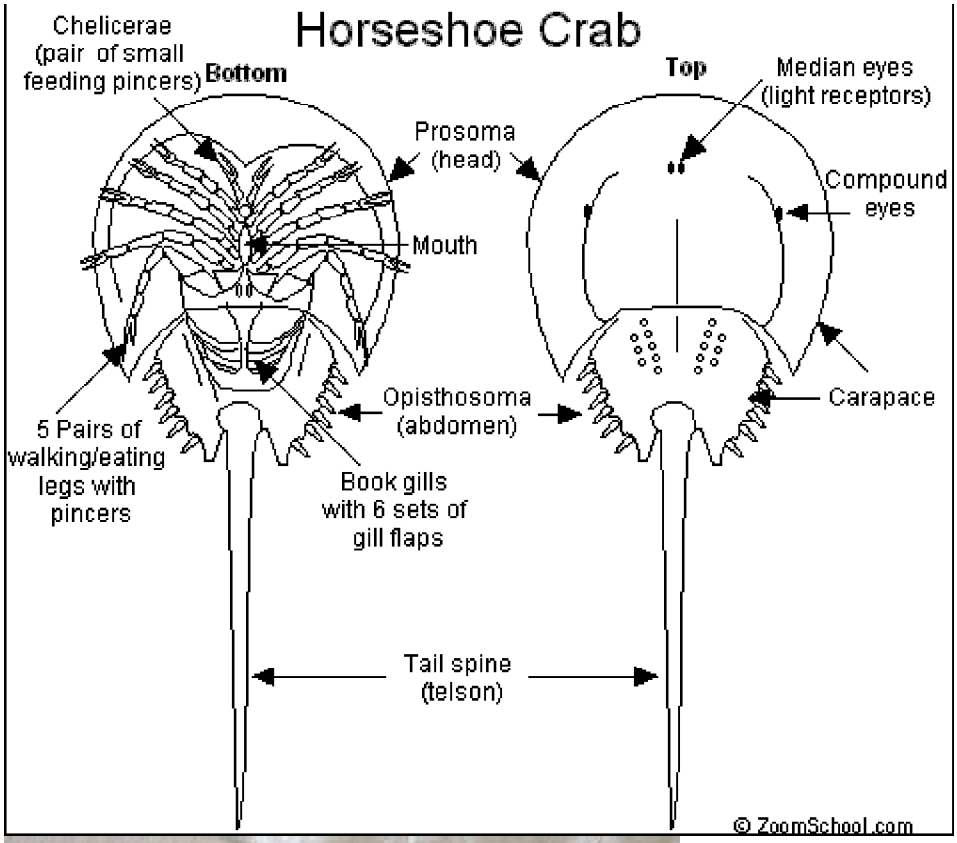
W) GANGLION

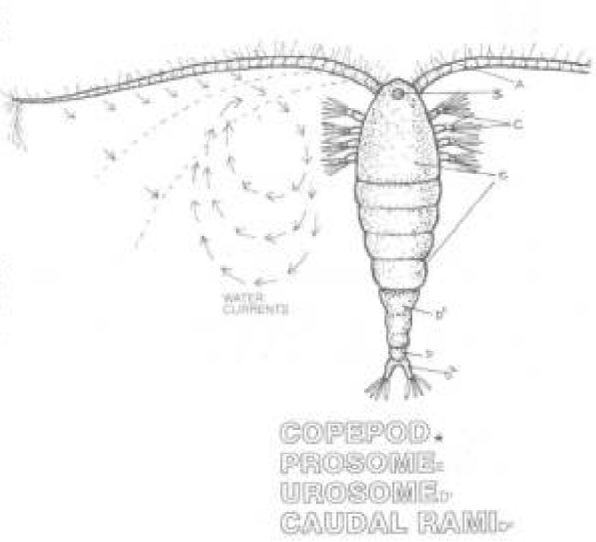
X) VENTRAL ABDOMINAL

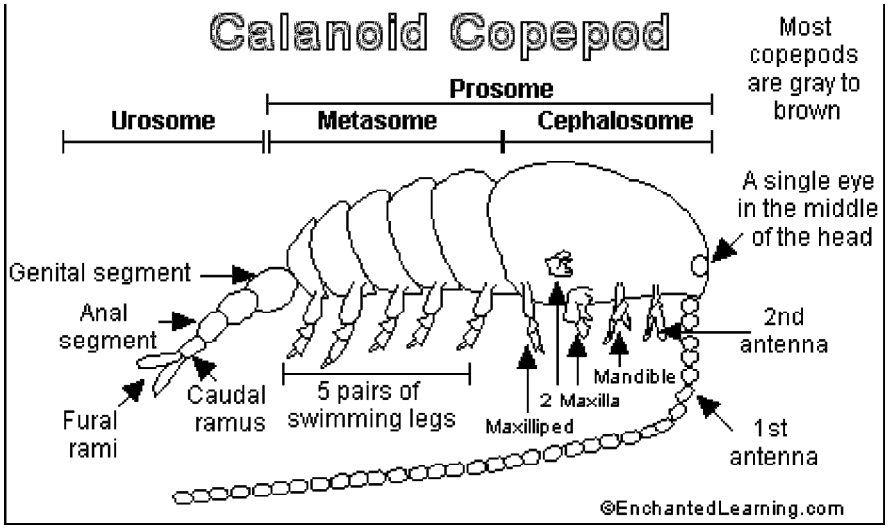
Y) ABDOMINAL FLEXOR

Z) TELSON



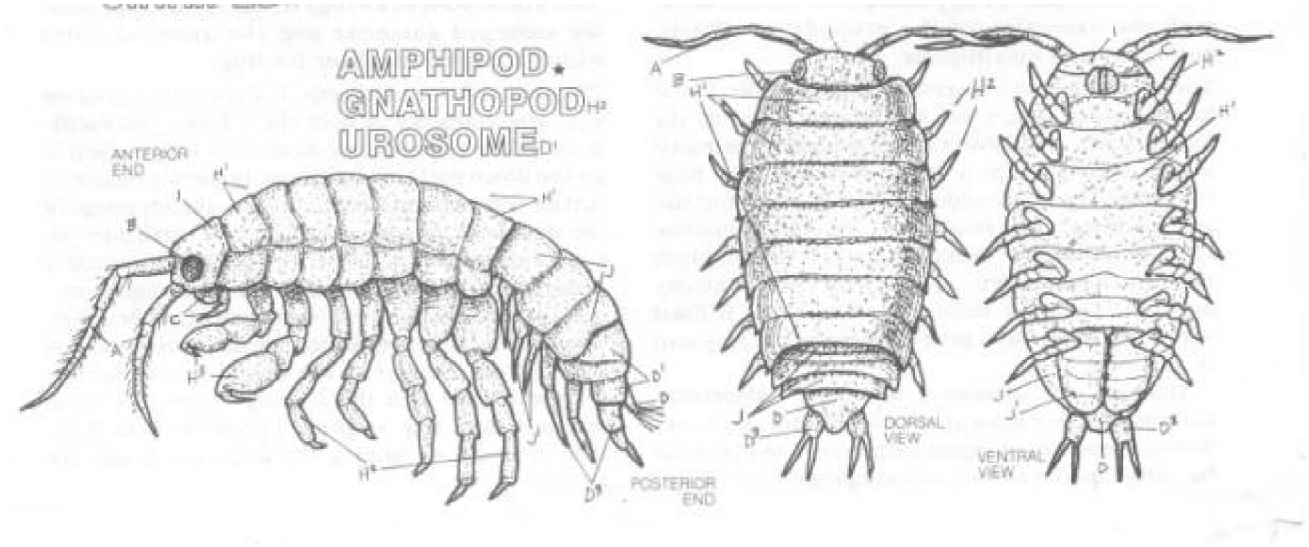

Horseshoe Crab
Chelicerae (pair of small feeding pincers)
Bottom
Top
Median eyes (light receptors)
Prosoma (head)
Compound eyes
Mouth
Opisthosoma (abdomen)
Carapace
5 Pairs of walking/eating legs with pincers
Book gills with 6 sets of gill flaps
Tail spine (telson)
© ZoomSchool.com


WATER CURRENTS
COPEPOD
PROSOME
UROSOME
CAUDAL RAMI

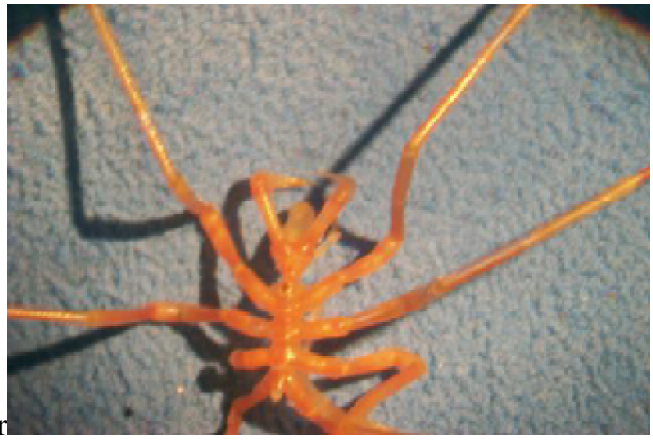


Common Isopod/Amphopod Structures

L Head H1 Peron H2 Pereopod J Pleon J1 Pleopod D3 Uropod



Amphipod Isopod

Sea Spider 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