

# CLASSIFICATION OF PHYLUM ARTHROPODA



ENTOMOLOGICAL

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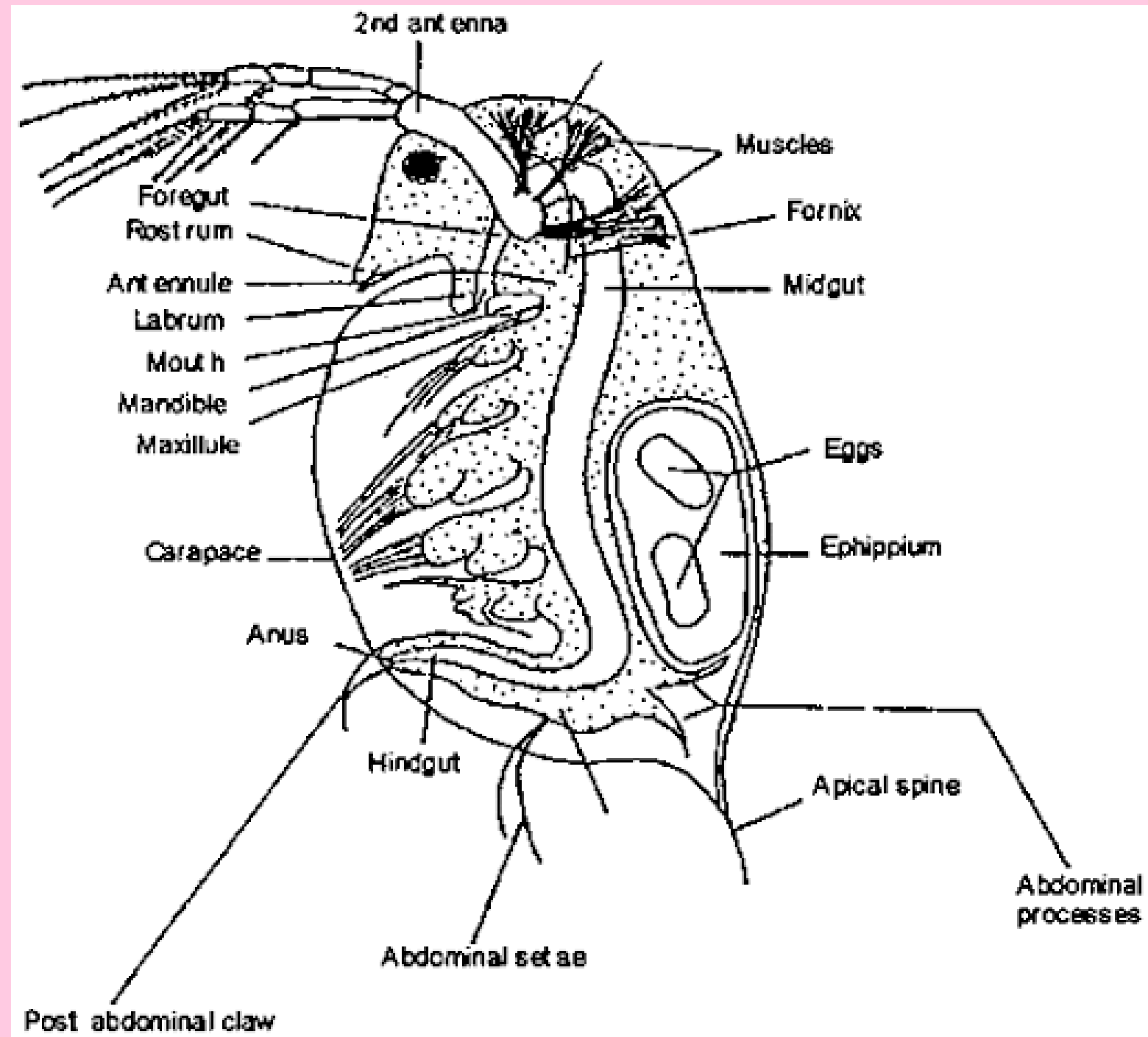
## Subphylum 3 :- Mandibulata

1. Body divide into head ,thorax and abdomen.
2. Head appendages are 1 or 2 pairs of antennae, 1 pairs of jaws or mandibles and 1 or 2 pairs of maxillae.
3. Compound eyes common

This sub-phylum divided into 3 classes -

# Class 1 :- Crustacea

1. Head often joined with thorax to form cephalothorax.
2. Exoskeleton chitinous, hard and limy.
3. Head 5- segmented, bearing 2 pairs of antennae, 1 pair of mandibles and 2 pairs of maxillae.
4. Respiration by gills or body surface.
5. Excretion by antennal glands.
6. Sexes usually separate,  
eg. artemia, Daphnia



## Class 2 :-Myriapoda

1. Exclusively terrestrial, air breathing mandibulate arthropods.
2. Body worm like ,made of head and elongated trunks with many similar leg bearing segments .
3. Antennae 1 pair ,jaws 3 pairs ,legs more than 11 pairs .
4. Respiration by trachea .spiracles arranged segmentally.
5. Excretion by 1 or 2 pairs of malpighian tubules.

eg. julus, scutigera,spirobolus





## Class 3 :- Insecta

1. Body made of head (6 fused segments), thorax (3 segments) and abdomen (upto 11 segments).
2. Head with compound eyes (1 pairs), antennae (1 pairs), mandibles (1 pairs) and maxillae (2 pairs).
3. Mouth parts modified for different feeding habits.
4. Thorax with 3 pairs of jointed legs and 1 or 2 pairs of wings which may be absent.
5. Respiration by tracheae. Spiracles lateral.
6. Excretion by malpighian tubules.
7. Unisexual. Fertilization internal. Development usually with metamorphosis.

# Class insecta divided into two sub-class

## Sub-class 1 :-Apterygota(Ametabola)

1. Primitively wingless insects.
2. Abdomen with cerci and style- like appendages.
3. Little or no metamorphosis.
- 4.

Order 1 :-Protura

eg. Acerentulus

Order 2 :-Collembola

eg.springtails, Achorutes





# Order 3 . Thysanura

eg. Lepisma (silver fish )



## Sub-class 2:-Pterygota(Metabola)

- 1.Wings present. Secondarily lost in some.
- 2.No abdominal appendages except cerci.
3. Metamorphosis complete or incomplete.

It is divided into two division:-

Division (a).Exopterygota(Heterometabola)

- 1.Wings develop externally as buds .
- 2.Metamorphosis gradual. Young stages are nymphs.

It is divided into several order :-

## Order 1.Orthoptera

eg.Grasshoppers,Locust,Cockrach,Cricket,Leaf insect,Stick insect

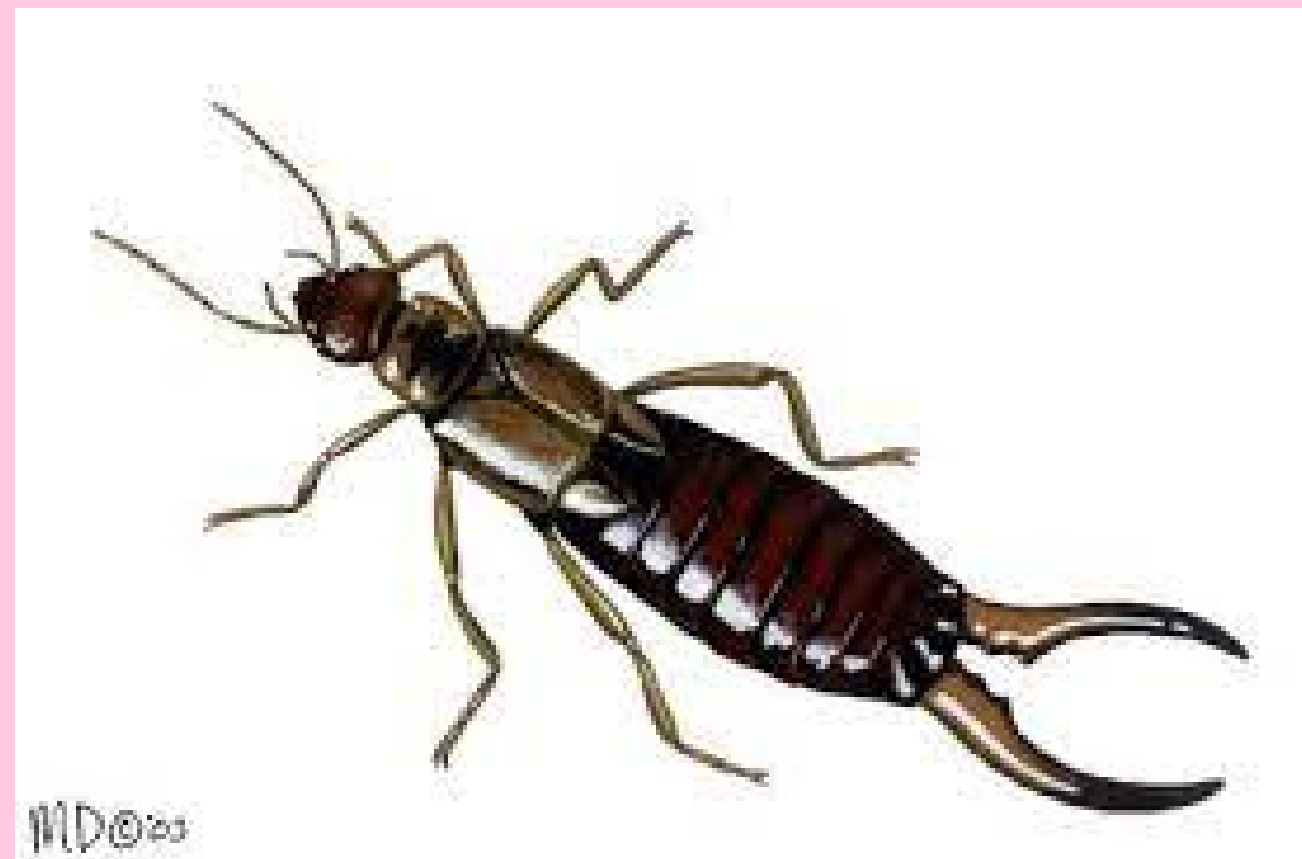
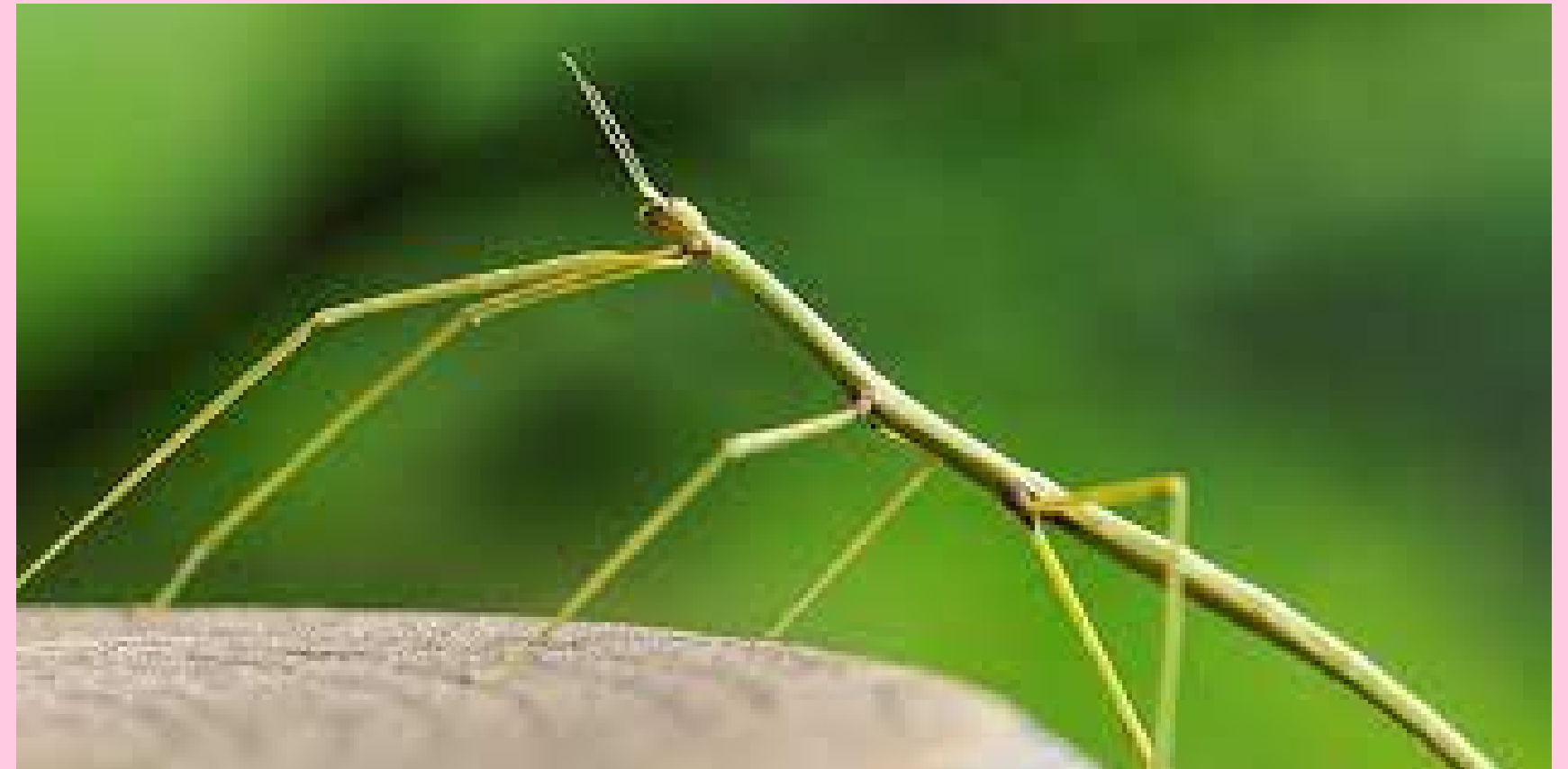
## Order 2.Isoptera

eg. Termites or white ants.

## order 3.Dermaptera

eg. forficula (Earwig)





## Order 4 :-Ephemeroptera

eg.Ephemera

## Order 5:-Odonata

eg.Dragon flies, Damselflies

## Order 6 :-Plecoptera

eg.Isoperla (stonefly)

## Order 7:-Psocoptera

eg.Book lice (wingless),Bark lice (winged)







## Order 8 :-Mallophaga

eg Bird lice, Biting lice

## Order 9:-Anoplura

eg.Human louse

## Order10. Thysanoptera

eg. Thrips

## Order 11.Hemiptera

eg.Bedbug ,Giant water bug ,Water scorpion

## Order 12:-Homoptera

eg.Cicadas,Aphids, Scale insects





# Division (b):-Endopterygota (Holometabola)

1.Wings develop internally in pupal case.

2.Metamorphosis complete with larval and pupal stages.

## Order 1 :-Neuroptera

eg. crysopa

## Order 2:-Coleoptera

eg. beetles

## Order 3:-Mecoptera

eg. Panorpa

## Order 4 :-Trichoptera

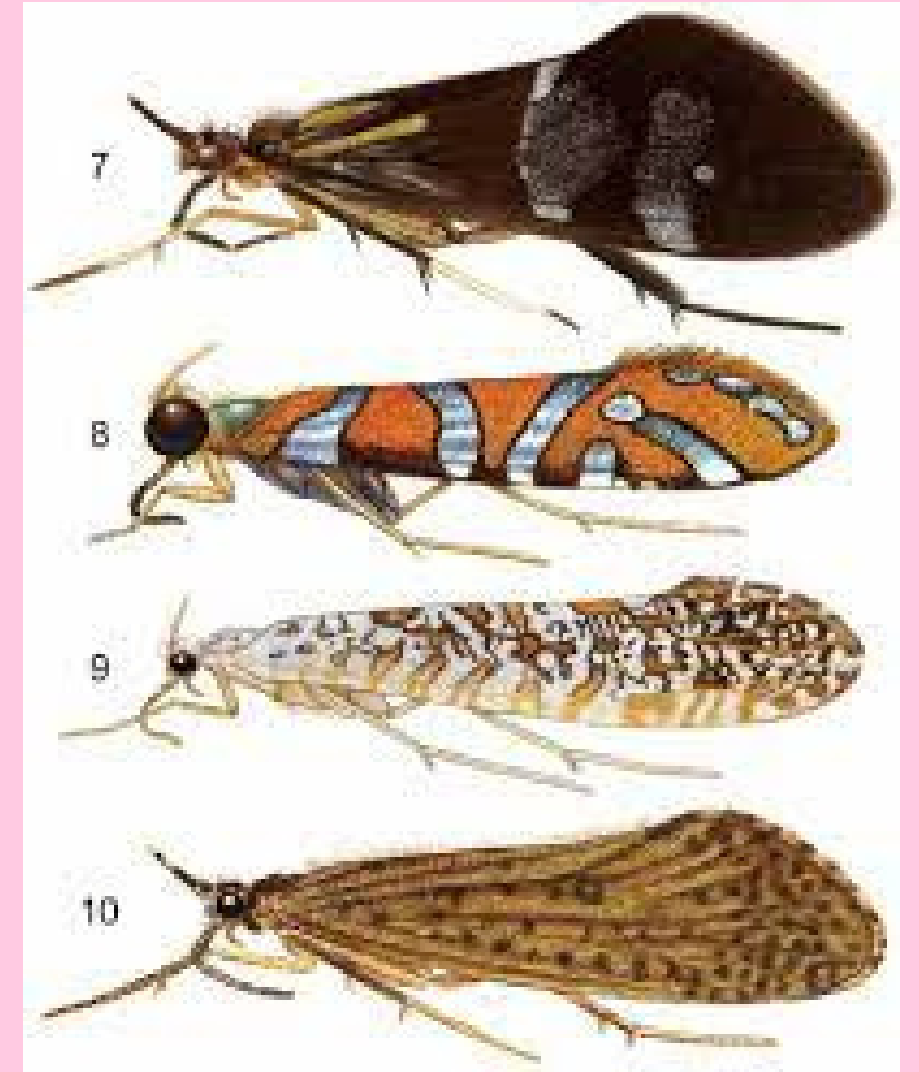
eg. Caddis flies.

## Order 5 :-Lepidoptera

eg. Butterflies, moths









## Order 6:- Diptera

eg. Musca (house flies), culex ( mosquitoes,) ,Drosophila (Fruit fly )

## Order 7:-Hymenoptera

eg. Apis (Honey bees) ,Ants

## Order 8 :-Siphonaptera

eg.pulex (fleas)







