

Subject	Insect Taxonomy
Lect. No.	4
Date	4 / 24/ 2024

Phylum Arthropods are classified into five classes;

Class:

A taxonomic category contains a single order or monophyletic group of order, which is separated from other classes by very decided characters.

The class is a major division within the animal Kingdom and forms the basis on which most fossil study is based.

For example, the phylum Arthropoda contains more than 5 classes: Insecta, Crustacea, Archnida , Chilopoda and Diplopoda .

1-Class: Crustacea

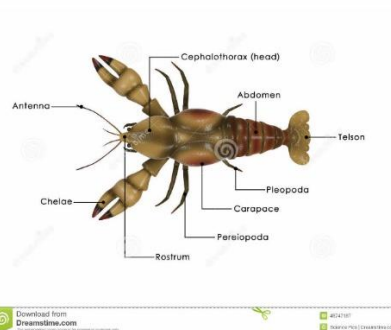
Class Crustacea. This is a very diverse class. There are about 30,000 species of Crustacean. Most are aquatic, the majority of which are marine. Most people will likely encounter only two orders,

1- Order: Decapods: Lobsters, crayfish, crabs, shrimp. Characters

1-Two tagmata (cephalothorax and abdomen)

2-Two pairs of antennae (it can be difficult to see both pairs)

3-Five pairs of legs on the cephalothorax, the first pair usually with a large claw



Astacus sp.

2-Order: Isopoda. Sow bugs, pillbugs, roly-polys.

1-Three tagmata (head, thorax and abdomen)

2-Two pairs of antennae: first pair is greatly reduced, seldom noticed

3-Seven pairs of legs, one pair on each thoracic segment



5-Abdomen small, more or less fused.

2-Class: Arachnida

This is a diverse class that belongs to a subphylum of the Arthropoda known as the Chelicerata. Common orders of Arachnida include:

1-Order Araneae: Spiders. characters

- 1-Two tagmata (cephalothorax and abdomen) -No antennae.
- 3-Four pairs of legs.
- 5-Mouthparts: One pair of chelicerae and one pair of pedipalps
- 6-Usually with eight simple ocelli.



2-Order: Scorpions: Scorpions characters

- 1-Two tagmata (cephalothorax and abdomen)
- 2-No antennae
- 3-No pedicel between cephalothorax and abdomen
- 4- Four pairs of legs on cephalothorax
- 5-One pair of chelicerae and one pair of long, pincher-like pedipalps.
- 6-Abdomen with seven broad segments anteriorly, followed by five narrower segments that end with a large stinger. Ex. *Buthus* sp. (Scorpion)



3- Order Acari, Mites, and Ticks.

1-Two tagmata (cephalothorax and abdomen)

2-No antennae.

3-Abdomen broadly joined to cephalothorax (no pedicel).

4-Four pairs of legs in adults; only three pairs at hatching.



Ex. Ixodes sp.

3-Class: Chilopoda: Centipedes. Characters

- 1-Two tagmata (head and trunk)
- 2-One pair of antennae with 14 or more segments
- 3-One pair of legs per trunk segment.
- 4-Mouthparts: one pair of mandibles and two pairs of maxillae
- 5-Appendages on the first trunk segment are claw like poison jaws or fangs with which centipedes paralyze their prey.
- 6-Eyes may be present or absent. **Ex .*Sclopendara* SP.**



4-Class: Diplopoda: Millipedes: characters

- 1-Two tagmata (head and trunk)
- 2-One pair of antennae, usually having seven segments
- 3-Two pairs of legs on most trunk segments (30 or more pairs total)
- 4-Mouthparts: one pair of mandibles, and one pair of maxillae
- 5-Eyes are usually present



5-Class: insect

Insects are the most abundant life form now known to science. Around 1,000,000 species have been described and named. That is more than all the other known animals put together.

Taxonomist A.D. Imms proposed a classification of insects.

Characters of class Insects:

1. The body is divided into three regions (head, thorax, and abdomen)
2. In the head a pair of antennae and a pair of compound eyes are usually present.
3. Thorax with, 3 pairs of legs and two pairs of wings. (some with one pair, others wingless)
4. Excretion is mainly through Malpighian tubules.
5. The tracheal system of respiration is well developed.
6. Development with several molts and indirect, the metamorphosis present with different form; or direct, the metamorphosis is absent (egg. young. adult)
7. sex separation, fertilization internal.

The class Insecta has two subclasses viz., Apterygota and Pterygota.

Apterygota	Pterygota
1. Primarily wingless-evolved	Winged or secondarily wingless- e.g. Flea, head louse, bed bug.
2. Metamorphosis is absent or slight.	Present.
3. Mandibular articulation in the head is monocondylic i.e., single	Dicondylic i.e., double.
4. Pleural sulcus in thorax is absent.	Present.
5. Pregenital abdominal appen- dages present.	Absent.
