

CLASSIFICATION OF CLASS INSECTA UPTO ORDERS

Insect is a six legged arthropod. Taxonomist **A.D. Imms** proposed a classification of insect.

Phylum : Arthropoda (with several classes)

Class: Insecta (Hexapoda)

Characters of class Insecta

1. Body is divided into three regions
2. In head a pair of antenna and a pair of compound eyes are usually present.
3. Thorax is the centre of locomotion with, 3 pairs of five jointed legs and two pairs of wings.
4. Excretion is mainly through malpighian tubules.
5. Tracheal system of respiration well developed.
6. Brain is divided into protocerebrum, deutocerebrum and tritocerebrum.

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

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

The subclass Apterygota has 4 orders namely

1. Thysanura - Silverfish (Thysan-fringed, Ura-tail)
2. Collembola- Springtail or snowflea (coll-glug; embol-peg)
3. Protura - Proturans or Telsontail (Pro-first, Ura-tail)
4. Diplura - Diplurans or Japygids (Di-two; Ura-tail)

The sub-class Pterygota has **two division**, namely **Exopterygota** and **Endopterygota** based on the wing development.

	Character	Exopterygota	Endopterygota
1.	Wing development	External	Internal
2.	Type of metamorphosis	Incomplete(Hemimetabola) or gradual (Pau-rametabola)	Complete (Holome- tabola)
3.	Pupal stage	Absent	Present
4.	Immature stage	Naiad or Nymph	Larva
5.	No. of orders	16	9

The class Insecta has 29 orders (4 in Apterygota and 25 in Pterygota)

EXOPTERYGOTA

GROUPS

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| <ol style="list-style-type: none"> 01. Ephemeroptera - Mayflies 02. Odonata-Dragonfly, Damselfly 03. Plecoptera - Stonefly 04. Grilloblatodia - Rock crawlers 05. Orthoptera-Grasshopper, locust, cricket, mole cricket 06. Phasmida-stick insect, leaf insect | <p>Group I. Paleopteran orders (1,2)</p>
<p>Group II. Orthopteroid orders(3-11)</p> |
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07. Dermaptera-Earwigs
08. Embioptera-Webspinners/Embids
09. Dictyoptera-cockroach, preying mantis
10. Isoptera - Termites
11. Zoraptera - Zorapterans
12. Psocoptera - Book lice
13. Mallophaga - Bird lice
14. Siphonculata - Head and body louse
15. Hemiptera - Bugs
16. Thysanoptera - Thrips

Group III. Hemipteroid orders(12-16)

ENDOPTERYGOTA

01. Neuroptera-Antilions, aphidlion, owl flies, mantispid flies.
02. Mecoptera - Scorpionflies.
03. Lepidoptera - Butterflies and moths.
04. Trichoptera - Caddisfly.
05. Diptera - True fly.
06. Siphonaptera - Fleas.
07. Hymenoptera - Bees, wasps, ants.
08. Coleoptera - Beetles and weevils.
09. Strepsiptera - Stylopids.

Group IV. Panorpid complex (1-6)