

The subphylum Vertebrata is divided into two groups -----

1. **Agnatha** – Jawless vertebrates
2. **Gnathostomata** – Jawed vertebrates

Differences between Agnatha and Gnathostomata

Agnatha	Gnathostomata
1 Mouth without jaws.	Mouth with jaws.
2 Paired appendages absent.	Paired appendages present (fins/limbs).
3 Notochord persistent throughout life.	Notochord usually replaced by vertebral column.
4 Vertebral column underdeveloped.	Vertebral column fully developed.
5 Stomach absent.	True stomach present.
6 No renal portal vein.	Renal portal vein present.
7 8–10 pairs of cranial nerves.	10–12 pairs of cranial nerves.
8 One median nostril and olfactory sac.	Paired nostrils and olfactory sacs.
9 Eyes lack intrinsic muscles.	Eyes have intrinsic muscles.
10 Internal ear has 1–2 semicircular canals.	Internal ear has 3 semicircular canals.
1 1 Nerve fibers lack myelin sheath.	Nerve fibers have myelin sheath.
1 2 Lateral line receptors in unconnected pits.	Lateral line receptors in canals.
1 3 Gonad single, without gonoduct.	Gonads paired, with gonoducts.

Agnatha

1 **4** Pancreas and spleen unorganised.

1 **5** Dorsal and ventral spinal roots may or may not unite.

1 **6** Poikilothermic (cold-blooded).

Gnathostomata

Pancreas and spleen distinct.

Dorsal and ventral spinal roots always unite.

Poikilothermic or homeothermic.
