STUDENT NOTEBOOK

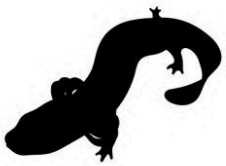
Section 1. How are the shark cranial nerves different or similar to one another?

Create a Venn diagram of the shark cranial nerves

Section 2. What cranial nerves and functions are ancestral versus derived in vertebrates?

Dogfish shark

- Mechanical and electrical sensation by lateral lines
- Protrusion of upper and lower jaws by CN V
- Retraction and elevation of upper and lower jaws by CN VII
- Vestibular sensation via CN VIII
- Transports food using suction and fluid transport, no muscular tongue

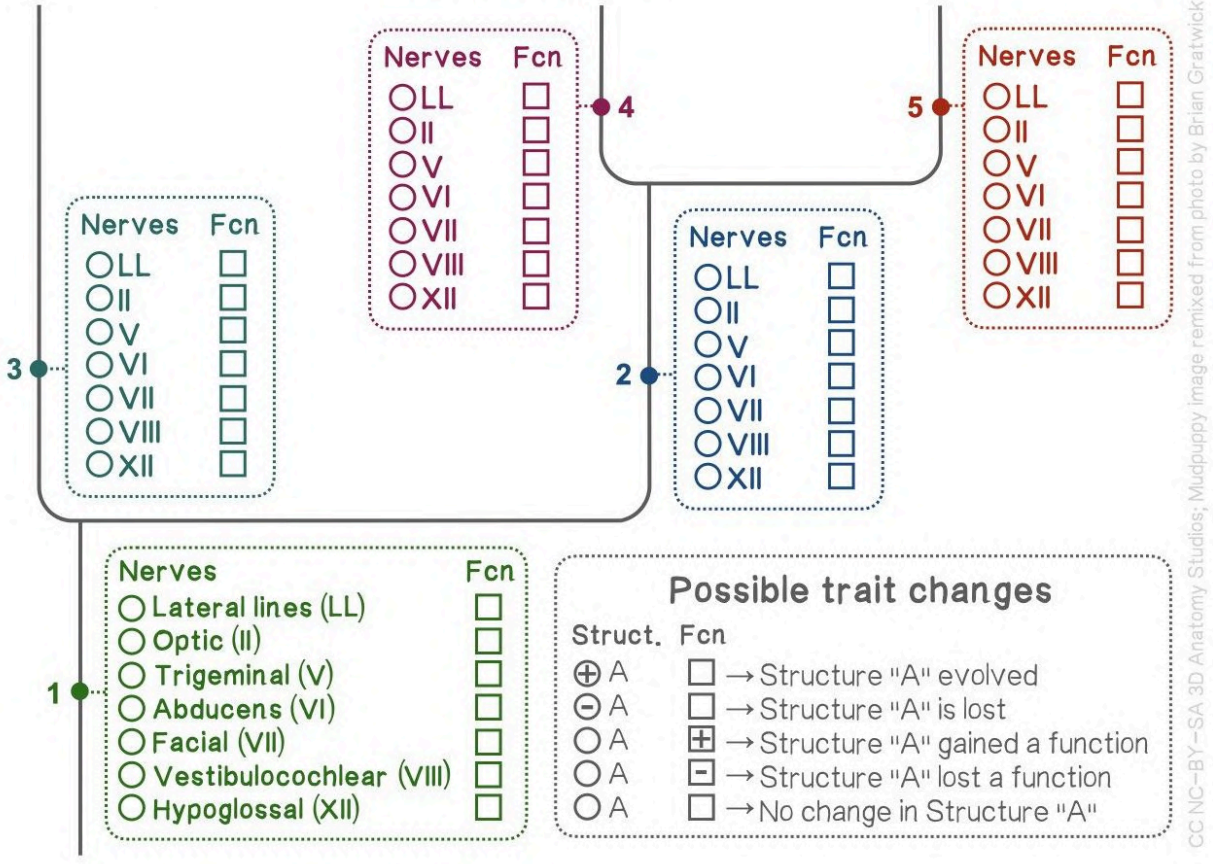


Common mudpuppy

- Mechanical and electrical sensation by lateral lines
- Depressor mandibulae m. innervated by CN VII
- Vestibular sensation and some aerial sound detection by CN VIII
- Retractor bulbi m. innervated by CN VI
- Partly muscular tongue with motor innervation by hypoglossal spinal nerve

Human

- No lateral lines
- Facial expression muscles innervated by CN VII
- Vestibular and cochlear sound sensation by CN VIII
- Muscular tongue with motor innervation from hypoglossal cranial nerve, taste and sensation from CNs V, VII, and IX



Your story of cranial nerve evolution in vertebrates

If you were to construct a narrative about your completed evolutionary tree on the previous page, what would be the main points around which you would construct that narrative? List at least three brief takeaways as bullet points below.