

Section 30–2 Fishes (pages 771–781)



TEKS FOCUS: 7B Diversity, adaptation; 10A Body systems; 12C Variations and tolerances of animals in different biomes; **TEKS SUPPORT:** 7A Fossils, anatomical similarities

This section describes the basic characteristics of fishes, their evolutionary history, and how they are adapted for a life in water. It also tells about the three main groups of fishes.

What Is a Fish? (page 771)

1. Write the function of each characteristic of fishes.
 - a. Paired fins _____
 - b. Scales _____
 - c. Gills _____
2. Is the following sentence true or false? The characteristics of living fishes are very uniform and almost no diversity exists among fishes. _____

Evolution of Fishes (pages 772–773)

3. Circle the letter of each sentence that is true about the evolution of fishes.
 - a. Fishes were the first vertebrates to evolve.
 - b. Fishes arose directly from tunicates and lancelets.
 - c. Fishes changed little during the course of their evolution.
 - d. Early fishes were jawless and covered with bony plates.
4. Which period is known as the Age of Fishes?
 - a. Cambrian
 - b. Ordovician
 - c. Silurian
 - d. Devonian
5. Jawless fishes with little armor of the Devonian Period were the ancestors of modern _____ and _____.
6. Why were jaws an extremely useful adaptation? _____

7. A strong tissue that supports the body and is more flexible than bone is _____.
8. Is the following sentence true or false? Paired fins gave fishes less control over their movement. _____

Form and Function in Fishes (pages 774–778)

9. Circle the letter of each mode of feeding found in fishes.
 - a. herbivore
 - b. carnivore
 - c. parasite
 - d. filter feeder

10. Is the following sentence true or false? A single fish may exhibit only one mode of feeding. _____

Match the internal organ with its function.

Internal Organ	Function
_____ 11. Pyloric ceca	a. Short tube connecting the fish's mouth to the stomach
_____ 12. Intestine	b. Where food is first partially broken down
_____ 13. Pancreas	c. Fingerlike pouches in which food is processed and nutrients absorbed
_____ 14. Esophagus	d. Adds digestive enzymes and other substances to food as it moves through the gut
_____ 15. Anus	e. Completes the process of digestion and nutrient absorption
_____ 16. Stomach	f. Opening through which undigested material is eliminated

17. What does the capillary network in each gill filament provide? _____

18. Describe how fishes with gills exchange gases. _____

19. The protective bony cover over the gill slit from which water is pumped out of a fish's body is called a(an) _____.

20. How do lungfishes survive in oxygen-poor water? _____

21. Is the following sentence true or false? Fishes have an open circulatory system.

Match each chamber of the heart in fishes with its function.

Heart Chamber	Function
_____ 22. Ventricle	a. Collects oxygen-poor blood from the veins
_____ 23. Sinus venosus	b. Large muscular cavity that serves as a one-way compartment for blood entering the ventricle
_____ 24. Bulbus arteriosus	c. Thick-walled, muscular chamber that is the actual pumping portion of the heart
_____ 25. Atrium	d. Large, muscular tube that connects to the ventricle and moves blood through the aorta toward the gills

26. Circle the letter of the form of nitrogenous waste that most fishes excrete.
- a. urea
 - b. lactic acid
 - c. ammonia
 - d. nitrate
27. How does the function of kidneys in saltwater fishes differ from their function in freshwater fishes? _____
- _____
- _____

Match the structures of the fish's brain with their functions.

Structure	Function
_____ 28. Olfactory bulb	a. Controls the functioning of many internal organs
_____ 29. Cerebrum	b. Primarily processes the sense of smell in fishes
_____ 30. Optic lobe	c. Coordinates body movements
_____ 31. Cerebellum	d. Involved with the sense of smell, or olfaction
_____ 32. Medulla oblongata	e. Processes information from the eyes

33. Circle the letter of each sentence that is true about the sense organs of fishes.
- a. Fishes have poorly developed sense organs.
 - b. Many fishes have chemoreceptors that sense tastes and smells.
 - c. Fishes have a lateral line system used for sensing sounds.
 - d. Some fishes can sense low levels of electric current.
34. What are two ways that fins help fish to move?
- a. _____
 - b. _____
35. The streamlined body shapes of most fishes help reduce the amount of _____ as they move through the water.
36. What is the function of the swim bladder? _____
- _____
- _____
37. In which mode of fish reproduction do the embryos develop inside the mother's body using the egg yolk for nourishment?
- a. oviparous
 - b. ovoviviparous
 - c. viviparous
 - d. herbivorous

Groups of Fishes (pages 778–780)

38. Fishes are divided into groups according to _____ structure.

39. Complete the compare-and-contrast table of groups of fishes.

GROUPS OF FISHES

Type	Description	Examples
	No true teeth; skeletons made of fibers and cartilage; keep their notochord as adults	
Cartilaginous fishes		Sharks, rays, skates
		Ray-finned fishes, such as flounder, angelfish, and flying fish and lobe-finned fishes, such as lungfishes and the coelacanth

40. Is the following sentence true or false? Hagfishes are filter feeders as larvae and parasites as adults. _____

41. Circle the letter of each characteristic of a shark.

- a. torpedo-shaped body
- b. secretes slime
- c. many teeth
- d. winglike fins

42. Is the following sentence true or false? Lobe-finned fishes have fleshy fins supported by bones that are sometimes jointed. _____

Ecology of Fishes (page 781)

43. Is the following sentence true or false? Anadromous fishes live in fresh water but migrate to the ocean to breed. _____