

7. Explain why the island nation of Palau designated its surrounding waters as a shark sanctuary.

Chapter 2: Sharks Across Time

1. Identify and describe one order of sharks that is extinct.

2. Explain why scientists don't find very many fossilized shark skeletons.

3. In what class will you find all sharks?

4. What is the largest known shark species?

5. Name the largest fish currently alive in the ocean.

6. Identify **five** facts about skates, rays, and sawfish.

1.

2.

3.

4.

5.

7. Complete the table of living elasmobranch orders.

Order	Species Example	Illustration
Pristiformes		
	Pacific angelshark (<i>Squatina californica</i>)	
	Reef manta ray (<i>Manta alfredi</i>)	
Squaliformes		

8. What is another name for the egg case of the oviparous skates?

Chapter 3: Sharks are Fish

1. Explain why the development of jaws considered “...perhaps the greatest of all advances in invertebrates...”

2. Identify two advantages to a cartilaginous skeleton over a bony skeleton.

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3. What type of scales do sharks have?

4. Why is it more common to find shark teeth rather than full shark skeletons?

5. Identify two species of sharks that do not use teeth for feeding, instead are filter feeders.

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6. Why do sharks consume less food than bony fish?

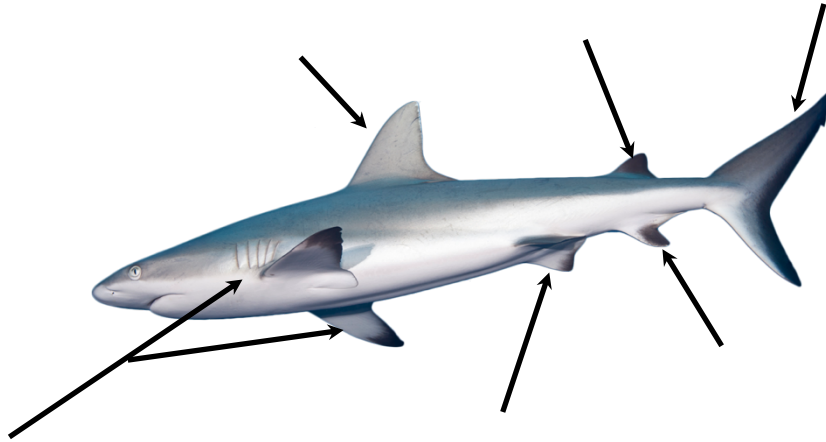
7. A wobegong shark is an ambush predator, able to lie motionless on the sea floor. What type of respiration system must the wobegong have?

Rem-Ventilation

Buccal Pharyngeal Pump

8. Identify one elasmobranch that is capable of surviving in fresh water.

9. Label the fins on the shark below.



10. The liver is the largest organ in a shark. Describe how the liver helps the shark to maintain buoyancy.

11. In the space below illustrate a shark tail that is homocercal and one that is heterocercal.

Homocercal Tail

Heterocercal Tail

12. Describe the swimming motion of a shark.

13. Provide two examples of sharks found in the different ranges identified below.

Range:	Short-Range	Coastal	Pelagic
Examples			

Chapter 4: Making More Sharks

1. Explain why sharks are described by scientists as K-selected animals.

2. Why do female sharks need to have thicker skin than male sharks?

3. What is parthenogenesis?

4. Match the terms with the correct description.

1. Placental viviparity

2. Oviparity

3. Aplacental viviparity

a. Embryonic development occurs externally, in an egg.

b. Embryonic development occurs internally with embryos nourished by yolk and eggs provided by the mother.

c. Embryonic development occurs internally with embryos nourished, initially by yolk, then directly from the mother through the yolk-sac placenta.

5. Embryo development varies among sharks. Put the species in order from longest (1) developmental time to least.

_____ Bonnethead Shark _____ Spiny Dogfish _____ Tiger Shark

Chapter 5: The Senses of Sharks

1. What sense do sharks use for short distances?
2. What are the nares of a shark used for? How are they different from mammalian nostrils?
3. Does sound travel faster or slower in water than in air?
4. What are the three organs that make up the ear of a shark?
5. What is the role of the tapetum lucidum?
6. Why is it suggested that to avoid sharks you not swim during dusk and dawn?
7. Explain why some sharks eyes process their surrounding more slowly than others.
8. What is the name of the organs that make up the lateral line?

9. Describe the scientific experiment that provided evidence that the lateral line is vital to schooling behavior.

10. What organ is used by sharks to detect the electric fields of other animals?

11. In addition to detecting prey, what else might the electrosensory system permit sharks to do?

12. What is gustation?

Chapter 6: Sharks and the Ecosystem

1. What does it mean to be an opportunistic feeder?

2. Describe the three feeding mechanisms of sharks.

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3. What does it mean that sharks have replacement dentition?

4. In the space below illustrate your own marine food web or food chain that includes at least one shark species.

5. In your own words describe the importance of sharks to the marine ecosystem.

Chapter 7: The Bizarre, The Awesome, and the Beautiful

1. What is your favorite shark species?

2. Why is it your favorite species of shark?

3. What can you do to help your favorite shark species continue to survive?

4. Match the shark on the left with the description on the right.

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|-------------------------------|---|
| 1. Frilled Shark | A. This shark glows in the dark due to the chemicals in its body that generate bioluminescence. |
| 2. Pyjama Shark | B. Until 1976 these sharks were thought to be extinct, but since there have been more than 66 sightings. |
| 3. Velvet Belly Lantern Shark | C. This shark has six gills, the first one circles the entire throat and resembles a collar. |
| 4. Megamouth Shark | D. This shark's head can be nearly half as wide as the shark is long. |
| 5. Pocket Shark | E. This shark curls its striped body up into a circle with its tail covering its head when threatened or touched. |
| 6. Winghead Shark | F. This diminutive shark has two very large pockets next to its pectoral fins. No one knows what they are for, yet! |
| 7. Goblin Shark | G. This shark can use its pectoral fins to walk across the sea floor or around the reef during low tide. |
| 8. Epaulette Shark | H. This shark has external teeth located along each side of its very long and narrow snout. |
| 9. Cookiecutter Shark | I. This shark has an extra long snout and jaws that can protrude out almost to the end of its snout. |
| 10. Longnose Shark | J. Although small, this shark can take a perfectly circular bite out of even the largest animals on Earth, whales. |