Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Your Inner Fish Questions: Vision (pages 148-157)**

Complete on another sheet of paper.

1. What makes salamander fossils so special? Why was the fossil at the mineral dealer so amazing?
2. Why is understanding organs important to understanding eyes?
3. Why is the history of our eyes like that of a car?
4. What is the role of the eye?
5. Summarize how the eye works.
6. Explain what each part of the eye does: cornea, diaphragm/iris, lens, len crystallins, retina, light receptors, and light-sensing cells.
7. How can we tell if animals are specialized for night or daylight?
8. Light-sensing cells make up what percent of the sensory cells in our body?
9. True/False: Every creature with a skull has a camera-like eye.
10. What could other eyes look like?
11. Using the figure on page 151 as eyes evolve what is changing about the image seen?
12. Where is the really important work in light-gathering cells happening?
13. What happens to the molecules when it absorbs light?
14. What does the opsin do?
15. What is the difference between those that see in color and those that see in black/white?
16. Explain why it is hard to transition from like to dark quickly.
17. Who uses opsins to see?
18. How can we trace major events in the history of our eyes by examining the opsins of different animals?
19. Why would a shift to color vision be good?
20. What did Arendt study? What is special about the structure of polychaetes?
21. Explain what Arendt discovered. Why was it important?
22. What did Hoge study? Why was it important?
23. What was the breakthrough that happened in the early 1990s? Why was it important?
24. What did Gehring work with? Explain his findings.
25. What does the eyeless, or Pax6, gene control?
26. True/False: The eyes make look different because the genetic switches that make them are different.