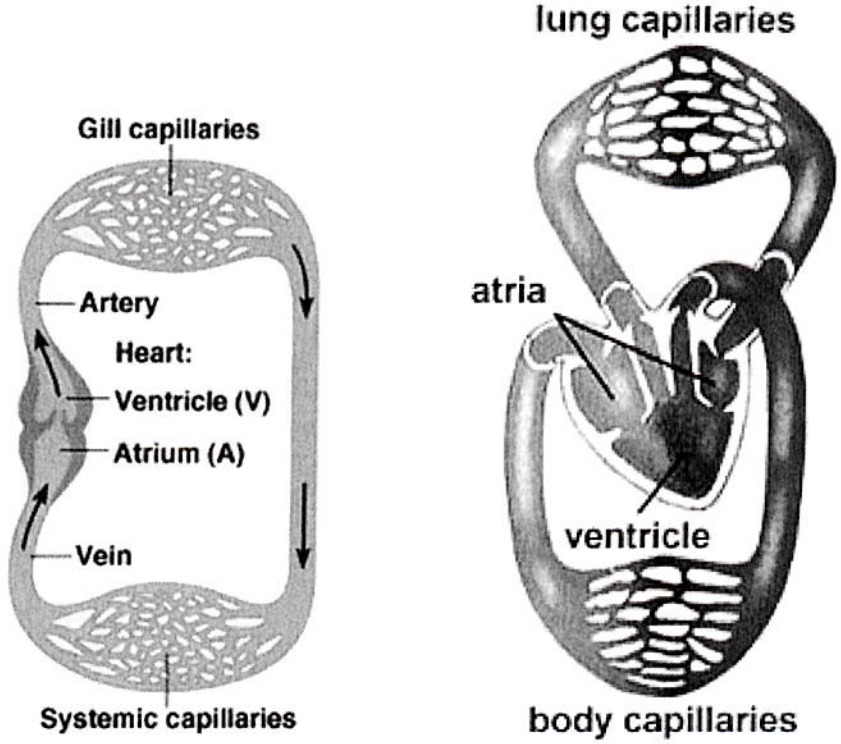
Biol 11

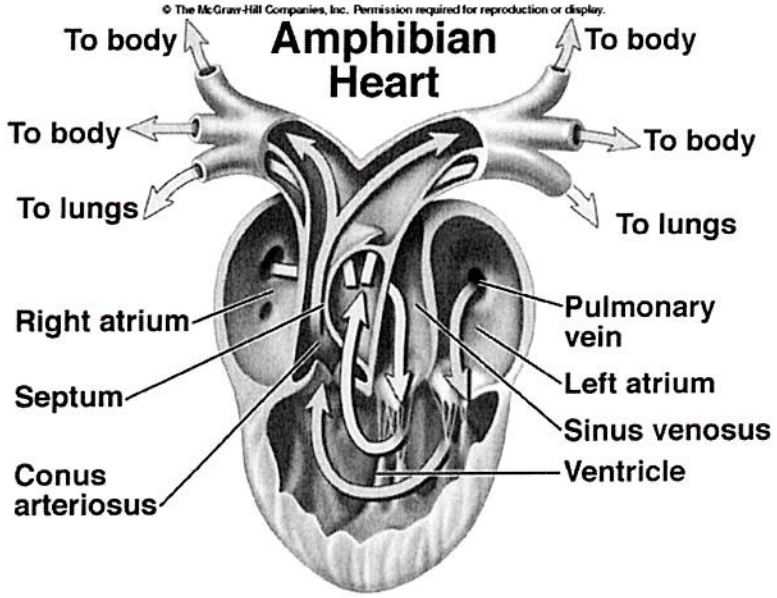
Ch 31 REVIEW: Fishes and Amphibians

1. What are the characteristics that unify Vertebrates? Fish? Amphibians?
2. List the three main groups of fishes and include some representative species for examples.
3. What did the first fishes look like? How did they eat?
4. What evolved characteristic revolutionized fish evolution? Why?
5. What structures on a fish evolved into hipbones, front and back limbs and shoulder bones?
6. How do fish (including lampreys and hagfish) eat? List a few adaptations.
7. Describe the digestive system of the fish, following the path of food as it travel through, and naming the structures as it passes.
8. Label the diagram of the fish. Be sure to know the function of all the structures!

9. How do fish breathe? How do they get water over their gills?
10. What adaptation allows some fish to survive in oxygen poor water?
11. What happens if a fish's gills dry out?
12. What are swim bladders for?
13. How do skates and rays breathe without getting mud into their systems?
14. Follow the path of blood through the hearts of the both the fish and the amphibian, naming the structures that the blood passes on it's way around the heart and the circulatory system.
15. How do fish get rid of their nitrogenous wastes?
16. What do kidneys control other than metabolic wastes in the body for fishes? How is this different in saltwater fish compared to fresh water fish?
17. How do "daylight fish" see differently from "darkness fish"?
18. What sense is present in fish but not very well developed?

19. What is the lateral line system?
20. What sense do many fish have that humans do not have?
21. What is the most developed sense organ for fish?
22. Label the diagram of the fish heart /circulatory system.





23. Label the diagram of the amphibian heart/circulatory system
24. How do most fish reproduce?
25. Describe the difference between oviparous, ovoviviparous and viviparous.
26. How do some fish communicate with their potential mates?
27. How are jawless fish different than most vertebrates?

28. What two classes of jawless fish are still around today?
29. How do lampreys eat? (describe the adult and the larvae)
30. How and what do hagfish eat?
31. What peculiar traits do hagfish have?
32. Label the diagram of the fish brain and the amphibian brain. What is the function of each part of the brain?

33. What fish are included in the cartilaginous fish?
34. What are they called cartilaginous fish?
35. How are the teeth arranged in sharks?
36. What two groups are included in the bony fish group? Which one is larger? Give examples of each.
37. How do lungfish and lobe-finned fish differ? How are they similar?
38. Why are the lungfish and the lobe-finned fish of interest to evolutionists?
39. What is the name of the only living lobe-finned fish today?
40. Describe the statement: "amphibians are to the animal kingdom what mosses and ferns are to the plant kingdom".
41. What does amphibian mean? Why is this an appropriate title for these creatures?
42. What are the characteristics that unify the amphibians?
43. What animals are the most likely ancestors to amphibians?
44. What difficulties did amphibians have to overcome in order to live out of the water? What adaptations evolved to deal with these difficulties?
45. What things keep the amphibians restricted to living very close to the water (or at least in very moist places)?
46. What/how do tadpoles eat? Compare this to the eating of the adult.
47. How do amphibian's digestive system and circulatory system have to change when they change from a tadpole to a frog?
48. Compare the frog's heart to a fish heart. Which is more efficient? Why?
49. Follow the path of food through the digestive system of an amphibian, listing the names of the structures as the food passes through, and what happens to the food as it passes.
50. How do frogs breathe? Tadpoles?

51. How do frogs get rid of nitrogenous wastes?
52. Compare the eyes of a frog with the eyes of a fish. What new structures have the frogs developed? What is not as good fin terms of a frog's sight?
53. Compare the ears of a fish with the ears of a frog. (also the lateral line system)
54. How do amphibians protect themselves against predators?
55. How do frogs reproduce?
56. How do some salamanders mate without ever coming close to one another?
57. What different ways do amphibians care for their young?
58. How do salamanders differ from frogs and toads?
59. What is interesting about the crimson-spotted newt?
60. How did the poison arrow frog get its name?
61. Label the internal structures of an amphibian. Describe the function of each of the structures that are different from the fishes.