

9 Vertebrates

In your textbook, read about fishes, amphibians, reptiles, birds, and mammals.

FISHES

Complete the chart by checking the correct column(s) for each characteristic of fishes.

Adaptation	Jawless	Cartilaginous	Bony
1. Jaws		✓	✓
2. Gills	✓	✓	✓
3. Lateral line system		✓	✓
4. Paired fins		✓	✓
5. Skeleton made of cartilage	✓	✓	
6. Swim bladder			✓

AMPHIBIANS

Complete the following sentences.

7. Amphibians are ectothermic, which means that their body temperature depends upon the temperature of their surroundings. These vertebrates also carry out gas exchange through their skin. Amphibians live on land but reproduce in water. Almost all amphibians go through metamorphosis, a radical change between the form of the young and the form of the adult.

REPTILES

Complete the table by describing the advantages that reptiles have because of certain adaptations. List one advantage for each adaptation.

Adaptation	Advantage
8. Scaly skin	prevent water loss
9. Amniotic egg	protects embryo + contains nutrients

BIRDS

Flight affects almost every system in birds. Explain the flight adaptations in each system listed here.

System	Adaptation
10. Bones	porous + hollow = lighter
11. Respiration	air sacs = more O ₂ ; allows for higher altitude
12. Body covering	feathers = increase surface area to glide
* 13. Legs	reversed knee = accelerator for flight
14. Wings	modified forelimbs for flapping

MAMMALS

Various adaptations of mammals serve certain functions. In the space provided, write the letter of the adaptations that perform the function. Any letter may be used more than once.

Function	Adaptation
15. protection from low temperatures (a, h, j) g <u>hair, fat, hibernation,</u>	a. hair
16. protection from high temperatures (h, b, k) g <u>fat, sweat glands, estivation</u>	b. sweat glands
17. feeding young (f) <u>mammary glands</u>	c. four-chambered heart
18. stabbing or holding food (e) <u>canine teeth</u>	d. diaphragm
19. grinding or chewing food (i) <u>molars & premolars</u>	e. canine teeth
20. providing large amounts of oxygen (d, c) <u>diaphragm & 4-chambered heart</u>	f. mammary glands
	g. small ears
	h. body fat
	i. molars and premolars
	j. hibernation
	k. estivation = dormant during the day