

# Exercises

## Invertebrates Exercises

1. What is the difference between invertebrates and vertebrates?
2. Are sponges colonies of cells? If so, are all the cells the same type?
3. What are sessile filter feeders?
4. Would you want to touch an organism with nematocysts? Why or why not?
5. What is the difference between a polyp and a medusa?
6. What are two differences between sponges and Cnidarians?
7. Name two examples of Cnidarian colonies.
8. What are some of the differences between flatworms, roundworms, and segmented worms?
9. What is an incomplete digestive system?
10. Which part of a segmented worm serves as its hydroskeleton?
11. Which invertebrate has a radula, and what is it used for?
12. Do Echinoderms have exoskeletons?
13. Give two examples of Echinoderms.
14. What role do nerve nets play in Echinoderms?
15. Which phylum molts its exoskeleton in order to grow?
16. What are three examples of arthropods?
17. Do arthropods only use book lungs to breathe?
18. What are the two major groups of insects?
19. How do most insects reproduce?

# Exercises

## Fishes, Amphibians & Reptiles Exercises

1. What trait do all vertebrates share?
2. How is a phylum related to a kingdom?
3. What is agnatha more commonly known as?
4. What are sharks bodies made of instead of bone?
5. What does the swim bladder do in bony fish?
6. What happens if an object is less dense than the fluid around it?
7. How do amphibians breathe in the larval stage?
8. What is a metamorphosis?
9. What effect does the loose connective tissue of toads have on their appearance?
10. Why were salamanders associated with fire?
11. Why do snakes need very flexible jaws?
12. How are the kidneys of snakes different than other animals?
13. How are the ears of snakes different than lizards?
14. How are the hearts of crocodiles different than the hearts of other reptiles?
15. What is the purpose of gaping in crocodiles?
16. How are crocodiles able to stay submerged in water for a long time?
17. What is the shell made from in turtles?
18. Describe the vision of turtles.
19. How do turtles stay in water to avoid predators?
20. What are two ways reptiles are helpful to people?

# Exercises

## Birds & Mammals Exercises

1. What does it mean when we say an animal is endothermic?
2. What are three things about birds' bodies that make them well-designed for flight?
3. Why doesn't an eagle need to flap its wings as much as a sparrow?
4. How do the color of bird eggs help them avoid being eaten by predators?
5. Why is it beneficial for a brood parasite to have a shorter incubation time than its host?
6. How does incubation differ in monogamous and polygamous species?
7. What is the significance of fledging for the parental care of most species of birds?
8. What explains the differences in beaks amongst different types of birds?
9. Describe the feet of birds living in the wetlands.
10. How do birds keep the same migration pattern every year?
11. How can chickens be early predictors of West Nile Virus?
12. What is the purpose of mammary glands in mammals?
13. What group of mammals lay eggs?
14. What does the placenta do?
15. What is true of all the animals in the ungulate group?
16. How are the teeth of carnivores different than herbivores?
17. What is meant by the idea "form follows function?"
18. What are two ways that mammals help people?
19. What does it mean to have an opposable thumb?
20. What is the main method of communication in primates?

# Answers to Exercises

## Answers to Invertebrates Exercises

1. What is the difference between invertebrates and vertebrates?  
Vertebrates are animals with backbones while invertebrates do not have a backbone.
2. Are sponges colonies of cells? If so, are all the cells the same type? Yes, sponges are colonies of cells. No, they are not all the same type—they are specialized to perform different functions such as filter food, and attach the sponge to the ocean bottom.
3. What are sessile filter feeders? Organisms, such as sponges, which filter their food out of the water, and are attached to the substrate beneath them—they do not move.
4. Would you want to touch an organism with nematocysts? Why or why not? No way! Nematocysts are the stinging cells found on Cnidarians!
5. What is the difference between a polyp and a medusa? A polyp has an upward facing mouth while medusa's mouths face downward.
6. What are two differences between sponges and Cnidarians? Cnidarians have real tissue, and have a body cavity.
7. Name two examples of Cnidarian colonies. Coral reefs and Portuguese Men-O-War.
8. What are some of the differences between flatworms, roundworms, and segmented worms? Flatworms have neither a body cavity nor segments. Roundworms only have a body cavity, and segmented worms have both a body cavity and segments.
9. What is an incomplete digestive system? It is a digestive system with only one opening—a mouth.
10. Which part of a segmented worm serves as its hydroskeleton? Its body cavity.
11. Which invertebrate has a radula, and what is it used for? Mollusks have radula, and it is used for feeding.
12. Do Echinoderms have exoskeletons? No, they have endoskeletons.
13. Give two examples of Echinoderms. Starfish, sea urchin, sea cucumber, etc.
14. What role do nerve nets play in Echinoderms? They act as a type of brain—receiving and processing information.

15. Which phylum molts its exoskeleton in order to grow? **Arthropoda.**
16. What are three examples of arthropods? **Crabs, lobsters, scorpions, spiders, mites, ticks, etc.**
17. Do arthropods only use book lungs to breath? **No, aquatic arthropods use gills and some terrestrial arthropods use tracheal systems.**
18. What are the two major groups of insects? **Winged insects, and wingless insects.**
19. How do insects breathe? **Through structures called spirals.**
20. How do most insects reproduce? **Through sexual reproduction that results in eggs (oviparous).**

# Answers to Exercises

## Answers to Fishes, Amphibians & Reptiles Exercises

1. What trait do all vertebrates share? **The presence of a spinal cord or column**
2. How is a phylum related to a kingdom? **A phylum is a group of living things within a kingdom that have something in common**
3. What is agnatha more commonly known as? **The jawless fish**
4. What are sharks bodies made of instead of bone? **Cartilage**
5. What does the swim bladder do in bony fish? **Allow the fish to control its density**
6. What happens if an object is less dense than the fluid around it? **It will float up**
7. How do amphibians breathe in the larval stage? **Through gills while living underwater**
8. What is a metamorphosis? **A major change in body structure and appearance**
9. What effect does the loose connective tissue of toads have on their appearance? **It makes them appear leathery and warty**
10. Why were salamanders associated with fire? **They live inside logs and would come out if there was a fire**
11. Why do snakes need very flexible jaws? **They have no limbs to grasp prey, so they have to use their flexible jaw to swallow things whole**
12. How are the kidneys of snakes different than other animals? **They are one in front of the other instead of side by side**
13. How are the ears of snakes different than lizards? **They have an external ear present**
14. How are the hearts of crocodiles different than the hearts of other reptiles? **It has four chambers**
15. What is the purpose of gaping in crocodiles? **To cool off**
16. How are crocodiles able to stay submerged in water for a long time? **They are able to close off their nostrils**
17. What is the shell made from in turtles? **Its ribs**

18. Describe the vision of turtles. They have excellent night vision and can see in color
19. How do turtles stay in water to avoid predators? They can stay submerged except for the nostrils and eyes
20. What are two ways reptiles are helpful to people? They eat pests, make good pets, and are used in the making of medicines

# Answers to Exercises

## Answers to Birds & Mammals Exercises

1. What does it mean when we say an animal is endothermic? **The animal maintains the same body temperature inside regardless on the temperature outside.**
2. What are three things about birds' bodies that make them well-designed for flight? **They have lightweight bones, have cavities filled with air, and have wings**
3. Why doesn't an eagle need to flap its wings as much as a sparrow? **The longer wingspan of the eagle allows it to glide.**
4. How do the color of bird eggs help them avoid being eaten by predators? **When eggs are camouflaged, predators are less likely to see them.**
5. Why is it beneficial for a brood parasite to have a shorter incubation time than its host? **If the parasite is born first, the host will care for it at the expense of its own offspring.**
6. How does incubation differ in monogamous and polygamous species? **In polygamous species, one sex usually does the incubation alone. In monogamous species, the responsibility is shared.**
7. What is the significance of fledging for the parental care of most species of birds? **Parental care usually ends once the bird has fledged**
8. What explains the differences in beaks amongst different types of birds? **Different beaks are designed for eating different types of foods.**
9. Describe the feet of birds living in the wetlands. **These feet tend to be long with space between the toes.**
10. How do birds keep the same migration pattern every year? **Birds remember key natural landmarks or follow the path of the sun.**
11. How can chickens be early predictors of West Nile Virus? **Chickens tend to get the disease before humans, so they can let officials know that a human outbreak is coming.**
12. What is the purpose of mammary glands in mammals? **To provide milk for offspring.**
13. What group of mammals lay eggs? **The monotremes**
14. What does the placenta do? **Provides nourishment for the fetus and eliminates toxins and the fetus develops**



15. What is true of all the animals in the ungulate group? **They have hooved feet**
16. How are the teeth of carnivores different than herbivores? **Carnivore teeth tend to be sharp, while herbivore teeth have flat tops.**
17. What is meant by the idea "form follows function?" **Parts of an animal look a certain way base on what they are used for.**
18. What are two ways that mammals help people? **Possible answers include bomb and drug-sniffing dogs, guide dogs, dolphins assisting divers and locating mines, or animals used for food and transportation.**
19. What does it mean to have an opposable thumb? **Opposable thumbs can touch the other four fingers.**
20. What is the main method of communication in primates? **Primates communicate mainly visually.**