Adaptations

Teacher's Guide

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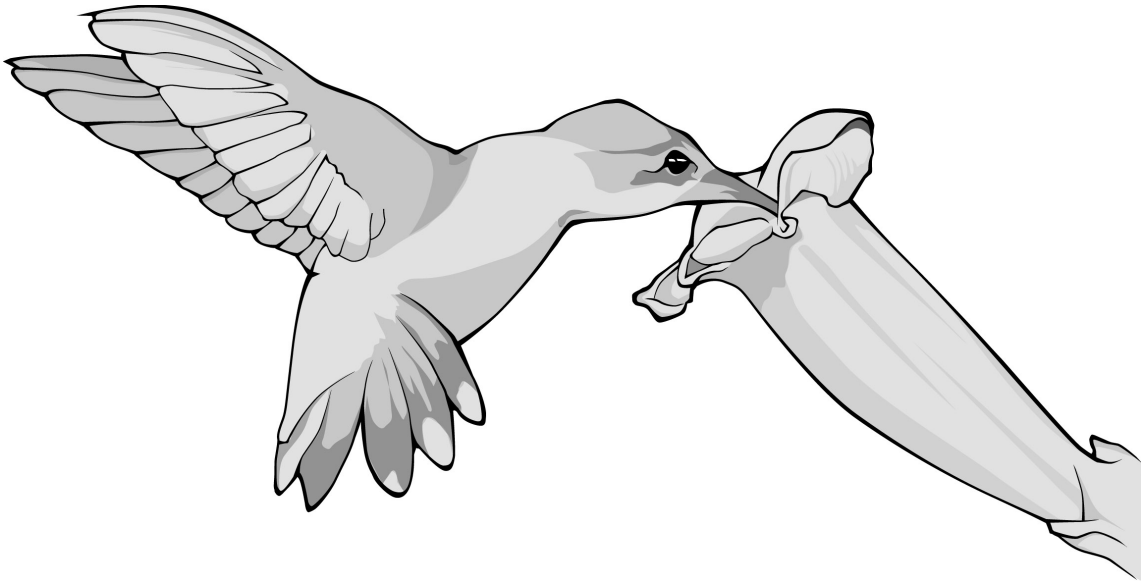

Elementary Science

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Table of Contents

National Standards Correlations

Benchmarks for Science Literacy
(Project 2061 – AAAS) Grades 3–5

The Living Environment - Diversity of Life (5A)
By the end of the fifth grade, students should know that:

• Animals and plants have a great variety of body plans and internal structures that contribute to their being able to make or find food and reproduce.

The Living Environment - Evolution of Life (5F)
By the end of the fifth grade, students should know that:

• Individuals of the same kind differ in their characteristics, and sometimes the differences give individuals an advantage in surviving and reproducing.

National Science Education Standards
(Content Standards: K–4, National Academy of Sciences)

Life Science - Content Standard C
As a result of activities in grades K-4, all students should develop an understanding of:

The Characteristics of Organisms
• Each plant or animal has different structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing, and talking.

Student Learning Objectives

Upon viewing the video and completing the enclosed student activities, students will be able to do the following:

- Define adaptations as the characteristics of living things that help them survive and reproduce in their environment.
- Understand that adaptations are passed down from parents to their offspring.
- Provide examples of adaptations that help living things obtain food.
- Differentiate between and provide examples of herbivores and carnivores.
- Define camouflage as the ability of a living thing to blend in with its environment to avoid being seen by predators.
- Cite examples of adaptations that help organisms avoid or escape predators.
- Define structural adaptations as physical characteristics that help organisms survive and reproduce in their environment. Give examples of structural adaptations.
- Explain that competition occurs when living things try to use the same resources. Organisms have adaptations to make them better competitors.
- Define behavioral adaptations as actions organisms take to survive and reproduce. Give examples of behavioral adaptations.
- Explain that organisms possess adaptations to help them survive in the climate in which they life. Some animals migrate to other climates in response to seasonal changes.

Assessment

Preliminary Test (p. 14–15):

The Preliminary Test is an assessment tool designed to gain an understanding of students' preexisting knowledge. It can also be used as a benchmark upon which to assess student progress based on the objectives stated on the previous pages.

Post–Test (p. 16–17):

The Post-Test can be utilized as an assessment tool following student completion of the program and student activities. The results of the Post-Test can be compared against the results of the Preliminary Test to assess student progress.

Video Review (p. 18):

The Video Review can be used as an assessment tool or as a student activity. There are two sections. The first part contains questions displayed during the program. The second part consists of a five-question video quiz to be answered at the end of the video.

Introducing the Program

Before showing the video program, ask students if they know why the necks of giraffes are so long. Encourage them to think about how long necks help giraffes survive. Ask the same questions about a polar bear's thick fur, a turtle's hard shell, and the thorns on a rose. These characteristics help organisms to survive by enabling them to protect themselves from predators, obtain food, or stay warm.

Explain to students that these are all different examples of adaptations. Ask students if they know what an adaptation is. Define adaptations as characteristics living things possess that help them survive or reproduce in an environment. Next, ask students to think of a time they have had to adapt to an environment. Have a few students share their responses with the class. An example may be a student who has moved from a hot climate to a cold climate and needed to buy new clothing to accommodate the temperature. Tell students to pay close attention to the video to learn more about adaptations.

Program Viewing Suggestions

The student master "Video Review" is provided (p. 18) for distribution to students. You may choose to have your students complete this Master while viewing the program or do so upon its conclusion.

The program is approximately 14 minutes in length and includes a five-question video quiz. Answers are not provided to the Video Quiz in the video, but are included in this guide on page 12. You may choose to grade student quizzes as an assessment tool or to review the answers in class.

The video is content-rich with numerous vocabulary words. For this reason you may want to periodically stop the video to review and discuss new terminology and concepts.

Video Script

1. Notice how this fish, called a trout, blends in so well with the bottom of the stream.
2. See how the slender legs, long beak, and quick movement of this heron enables it to capture food.
3. The color, shape, and smell of this flower attract pollinators such as bees and hummingbirds, which, in turn, help the flower in the process of reproduction.
4. And the speed of this deer enables it to escape predators.
5. These are all examples of adaptations of living things.
6. Adaptations are extremely important to the survival of living things.
7. During the next few minutes, we are going to see why they're important…
8. … and take a look at some of the many fascinating examples of adaptations.
9. **Graphic Transition – What are Adaptations?**
10. This alligator, which lives in the wetlands and waterways of Florida, …
11. … would have a hard time surviving here in the wetlands of the northeastern United States.
12. Alligators are large, cold-blooded animals which need to live in a warm climate.
13. **You Decide!** Could this saguaro cactus plant, which lives in southern Arizona, survive here in the Rocky Mountains of Colorado?
14. This cactus probably could not survive in the Rockies, which are often buried deep in snow for several months a year. It is not adapted to live in this environment.
15. Most living things possess adaptations which enable them to survive in the places where they live.
16. So, what exactly are adaptations?
17. Adaptations are characteristics that living things possess which help them survive and reproduce in their environment.
18. Adaptations are passed down from parents to their offspring.
19. Birds possess adaptations, such as wings, feathers, and a light skeleton, which enable them to fly.
20. Plants possess adaptations as well, which enable them to produce food energy from the sun.
21. And alligators possess adaptations which enable them to be strong swimmers…
22. … to catch prey.
23. It is remarkable and fun to think about all the different adaptations living things possess.
24. **Graphic Transition – Adaptations for Obtaining Food**
25. The elk eating grass in this meadow get their food in a much different way…
26. … than this falcon, which captures birds for food.
27. Every living thing has specific adaptations for obtaining food.
28. Let's take a look at herbivores. They're animals that eat only plants.
29. Cows, deer, and bison are herbivores.
30. These animals have adaptations such as hard, flat teeth and body shapes which enable them to bend over and eat plants.

Video Script

31. Carnivores, on the other hand, are animals that eat only other animals for their food.
32. Owls, hawks, rattlesnakes, and tigers are examples of carnivores.
33. Many carnivores possess adaptations such as sharp claws, sharp teeth, and strong jaws for catching and killing prey.
34. Plants are also living things which have specific adaptations for obtaining food.
35. In temperate climates, trees and other plants have broad leaves designed to capture the sun's energy, which is used to make food for the plant.
36. And, some plants, such as this Venus Flytrap, possess adaptations enabling them to trap and digest insects.
37. These are just a few examples of the millions of different adaptations living things use to obtain food.
38. **Graphic Transition – Adaptations for Avoiding Predators**
39. **You Observe!** Locate the fish in this image.
40. It is right here. But, you and most predators have a hard time seeing it.
41. This is a great example of an adaptation called camouflage.
42. Camouflage is the ability of a living thing to blend in to its environment to avoid being seen by predators.
43. Many living things have adaptations to help them avoid being captured or killed by predators.
44. Turtles, for example, have a hard outer shell which protects them from predators.
45. Bees and wasps can sting potential predators.
46. And sea urchins possess sharp spines to protect their body.
47. These are all examples of physical adaptations, also called structural adaptations.
48. A structural adaptation is a characteristic relating to the form of a living thing that helps it to survive and reproduce.
49. Different types of coloring, teeth, claws, and body shapes are just a few examples of structural adaptations.
50. Plants can exhibit structural adaptations as well. For example, some plants possess sharp thorns, needles, or spines to protect them from being eaten by animals.
51. It is not uncommon for living things to have many structural adaptations which help them function and reproduce in their environment.
52. **Graphic Transition – Adaptations for Competition**
53. The environment seen here is a coral reef. It is made up of hundreds of different kinds of living things.
54. Things that live here need to compete for food, space, and mates.
55. Competition involves living things trying to use the same resources.
56. Living things possess adaptations which help them compete for resources.
57. Here, in the Eastern Deciduous forest, plants compete for sunlight.

Video Script

58. Many plants possess adaptations to help them compete, such as different shaped leaves.
59. In some cases, plants on the forest floor grow leaves early in the spring before the leaves of overhanging trees emerge. This allows them to capture light before the forest floor becomes shadowed.
60. In some cases, animals of the same kind compete against each other.
61. These male frigate birds in the Galapagos Islands look bizarre as…
62. … they puff out tissue on their chest and make a strange call.
63. This unusual display is designed to attract a female mate.
64. As a female flies overhead, she chooses a mate from the flock of competitors.
65. In a different part of the world, battling male elk compete for mates by locking horns with each other. The strongest male will reproduce.
66. These are two examples of behavioral adaptations.
67. A behavioral adaptation enables a living thing to better survive through the way it acts.
68. Bird songs are behavioral adaptations used for a variety of purposes, including attracting a mate or warding off competitors.
69. **Graphic Transition – Adaptations for Different Climates**
70. This bear in the Sierra Nevada mountains of California hibernates in winter.
71. These arctic plants grow close to the ground and flower quickly, taking advantage of the short growing season.
72. These are examples of adaptations to climate.
73. **You Observe!** What adaptations do moose have to survive in cold climates?
74. This moose has thick fur to keep it warm....
75. …and long legs to walk in deep snow, to name just a couple of cold climate adaptations.
76. In some cases, animals actually change locations in response to seasonal changes.
77. Many birds, such as geese, seasonally fly to warm places when the weather gets cold. They then return when the weather warms. This process is called migration.
78. Migration enables many animals to move to places where it is easier for them to survive.
79. These are just a few examples of ways living things adapt to climate and changes in climate.
80. **Graphic Transition – Summing Up**
81. During the past few minutes, we have explored adaptations of living things.
82. Adaptations are characteristics which help living things survive and reproduce.
83. We saw that there are a wide variety of adaptations, including….
84. … adaptations for obtaining food…
85. … and adaptations for avoiding predators.

Video Script

86. We discussed some examples of adaptations that living things use to cope with competition.
87. Finally, we explored some adaptations that living things possess to survive in different climates.
88. During the program we also discussed types of structural adaptations…
89. … and behavioral adaptations.
90. So, the next time you enjoy watching an animal eat,…
91. …or wonder how plants survive in the winter,…
92. ...think about some of the things we've discussed during the past few minutes.
93. You just might think about the way living things act and adapt a little differently.
94. Graphic Transition – Video Assessment

Fill in the correct word to complete the sentence. Good luck and let's get started.

1. _____ are characteristics living things possess to help them survive and reproduce.
2. Strong jaws and sharp claws are adaptations used for obtaining _____.
3. Body shape and coloring are examples of _____ adaptations.
4. Living things often possess adaptations enabling them to _____ for the same resource.
5. _____ is an adaptation in which living things move to a place where it's easier for them to survive.

Answers can be found on page 12

Answer Key to Student Assessments

Pre-Test (p. 14-15)

1. b - adaptations
2. a - herbivore
3. b - obtaining food
4. c - camouflage
5. d - avoiding predators
6. c - carnivore
7. a - structural
8. a - competition
9. a - behavioral
10. c - migration
11. false
12. true
13. false
14. true
15. false
16. Adaptations are characteristics living things possess to help them survive and reproduce in their environment.
17. Moose have thick fur to keep them warm and long legs to help them walk in snow.
18. Herbivores only eat plants. Carnivores eat animals.
19. A structural adaptation is a physical characteristic that enables an organism to survive and reproduce. Plants have leaves that enable them to capture the sun's light.
20. Turtles have hard shells protecting their bodies.

Post-Test (p. 16-17)

1. c - migration
2. c - carnivore
3. a - behavioral
4. d - avoiding predators
5. a - competition
6. c - camouflage
7. b - adaptations
8. b - obtaining food
9. a - structural
10. a - herbivore
11. false
12. false
13. false
14. true
15. true
16. Herbivores only eat plants. Carnivores eat animals.
17. Adaptations are characteristics living this possess to help them survive and reproduce.
18. Turtles have hard shells protecting their bodies.
19. Moose have thick fur to keep them warm and long legs to help them walk in snow.
20. A structural adaptation is a physical characteristic that enables an organism to survive and reproduce. Plants have leaves that enable them to capture the sun's light.

Video Review (p. 18)

1. No, the saguaro cactus plant could not survive in Colorado's snow and cold weather.
2. It is hard to see the fish because it is camouflaged.
3. Moose have thick fur to keep them warm and long legs for walking in snow.

1. adaptations
2. food
3. structural
4. compete
5. migration

Vocabulary (p. 19)

1. adaptations
2. herbivores
3. carnivores
4. camouflage
5. structural adaptations
6. competition
7. behavioral adaptations
8. migration
9. adaptations for obtaining food
10. adaptations for climate

Answer Key to Student Activities

Writing Activity (p. 20)

Adaptations are characteristics of living organisms that allow them to survive and **reproduce** in their environment. Plants and animals possess different types of adaptations. Organisms have adaptations that enable them to obtain **food**. For example, many **herbivores**, such as cows and deer, have bodies that enable them to bend over to eat plants. **Carnivores** are animals that eat other animals and have adaptations that help them catch and kill prey. **Camouflage** is an example of an adaptation that helps organisms protect themselves from predators. There are also adaptations that help organisms survive by **competing** with other organisms for the same resources, such as food. Many animals also possess adaptations for climate. **Migration** is one way organisms adapt to seasonal changes in their environment. **Structural** adaptations are physical characteristics that help living things survive and reproduce. **Behavioral** adaptations are actions animals take to survive and reproduce.

In Your Own Words (p. 20)

1. Structural adaptations are physical characteristics that help organisms survive and reproduce, such as a giraffe's long neck. Behavioral adaptations are things animals do to survive and reproduce. Birds migrating to another climate is an example of a behavioral adaptation.
2. Camouflage is an organism's ability to blend in with its environment to avoid being seen by predators.
3. Animals migrate in response to changes in seasons. Migration enables them to move to places where it is easier to survive.

Name That Adaptation (p. 24)

1. The bird has a hard beak that allows it to crack open seeds (adaptation for obtaining food). Its wings enable it fly to find food, avoid predators, and adapt to climate by migrating.
2. Giraffe's long necks enable them to eat leaves and vegetation on tall trees that other animals cannot reach (adaptations for obtaining food and competition).
3. The leaves of venus flytraps have hair-like triggers at the end. When insects touch these, the leaves snap shut and the plant begins digesting the insect (adaptation for obtaining food).
4. The turtle has a hard shell that protects its body when being attacked by predators. Turtles' necks can fold to the side or into their spine to protect them (adaptations for avoiding predators).
5. Owls have large eyes that enable them to hunt their prey at night and see far distances (adaptation for obtaining food). They make a variety of sounds to call mates and let competitors know they are present (adaptation for competition).
6. Frogs have long back legs, enabling them to jump far. This can help them escape predators and obtain food.

How Do They Survive? (p. 21)

*These organisms have many adaptations. A few adaptations are discussed below, but students may discover others.

Hammerhead sharks have wide extensions on either side of their heads, making them look like hammers. The eyes and nostrils are on either end of these extensions. This wide spacing enables hammerheads to better detect prey (physical adaptation for obtaining food).

Cuttlefish are able to change color quickly to camouflage themselves (structural adaptation for avoiding predators). They have eight arms and two tentacles for catching prey (structural adaptation for obtaining food).

Penguins' wings act like flippers by helping them swim in water, where they hunt for prey (structural adaptation for obtaining food). Their white bellies help them camouflage themselves from predators swimming below them in the ocean (structural adaptation for avoiding predators). In cold months, the males stay with the eggs while the females look for food. Once the female returns, they switch roles (behavioral adaptation).

Red-eyed tree frogs are mostly green with red eyes and bright blue markings on their sides. They hide this color during the day to blend in with their surroundings. When a predator approaches, they flash their bright colors, which distracts predators (structural adaptations for avoiding predators). Their red eyes enable them to see at night, when they hunt for prey (structural adaptations for obtaining food).

Skunk cabbage has a foul order, which is mild when it remains intact but becomes offensive when leaves are removed. The odor attracts pollinators, which help it to reproduce. The odor also discourages predators from destroying it (structural adaptation for avoiding predators).

The **walking stick** is an insect whose body structure resembles a stick or leaf, allowing it to blend in with its environment (structural adaptation for avoiding predators). It can also secrete a substance that causes burning and temporary blindness in predators' eyes (behavioral adaptation for avoiding predators).

Blowfish are able to puff up their skin to almost twice their size, which can alarm predators and give the blowfish time to swim away (behavioral adaptation for avoiding predators). They are highly toxic to humans and other organisms (structural adaptation for avoiding predators).

Elephants have long trunks, which they use to pick up and place food in their mouths (adaptation for obtaining food). Elephants use their trunks to remove leaves and branches from trees that other animals cannot reach (adaptation for competition). The trunk can be used to scare predators by swinging it around (adaptation for avoiding predators). The trunk is a structural adaptation.

Pre-Test

Name _____

Circle the best answer for each of the following questions.

1. These are characteristics that help living things survive and reproduce in their environment.

   a. mandibles b. adaptations c. genes d. transformations

2. Bison and cows are examples of this type of animal, which only eats plants.

   a. herbivores b. omnivores c. carnivores d. insectivores

3. The venus flytrap has special characteristics that allow it to eat insects. This is an example of an adaptation for:

   a. competition b. obtaining food c. climate d. avoiding predators

4. This characteristic allows organisms to blend in with their environment.

   a. body chemistry b. skin c. camouflage d. symmetry

5. Bees and wasps have the ability to sting people and animals. This is an example of an adaptation for:

   a. competition b. obtaining food c. climate d. avoiding predators

6. This type of animal possesses adaptations that allow it to catch and kill prey.

   a. herbivore b. cold-blooded c. carnivore d. warm-blooded

7. This type of adaptation refers to the physical characteristics that help an animal survive and reproduce in its environment.

   a. structural b. climate c. competition d. behavioral

8. Many living things possess adaptations that enable them to survive when trying to use the same resources as other organisms. These are adaptations for:

   a. competition b. obtaining food c. climate d. avoiding predators

9. This type of adaptation refers to the actions animals take to survive and reproduce.

   a. behavioral b. competition c. climate d. structural

10. The process of animals relocating to different environments in response to seasonal changes is called:

    a. competition b. obtaining food c. migration d. avoiding predators

Pre-Test

Name _____

Write true or false next to each statement.

11. _____ Alligators are warm-blooded animals that live in cold climates.

12. _____ Adaptations are passed down from parents to their offspring.

13. _____ A bee stinging a potential predator is an example of an adaptation for climate.

14. _____ Many animals that rely on the same food source as other animals have adaptations to help them compete.

15. _____ Carnivores only eat plants.

Write a short answer for each of the following.

16. Define adaptation.

_____

_____

17. Give examples of adaptations that enable moose to survive in cold climates.

_____

_____

18. What is the difference between herbivores and carnivores?

_____

_____

19. Define structural adaptation. Give an example of a structural adaptation of a plant.

_____

_____

20. Give an example of an adaptation that helps turtles protect themselves from predators.

_____

_____

Post-Test

Name _____

Circle the best answer for each of the following questions.

1. The process of animals relocating to different environments in response to seasonal changes is called:

   a. competition b. obtaining food c. migration d. avoiding predators

2. This type of animal possesses adaptations that allow it to catch and kill prey.

   a. herbivore b. cold-blooded c. carnivore d. warm-blooded

3. This type of adaptation refers to the actions animals take to survive and reproduce.

   a. behavioral b. competition c. climate d. structural

4. Bees and wasps have the ability to sting people and animals. This is an example of an adaptation for:

   a. competition b. obtaining food c. climate d. avoiding predators

5. Many living things possess adaptations that enable them to survive when trying to use the same resources as other organisms. These are adaptations for:

   a. competition b. obtaining food c. climate d. avoiding predators

6. This characteristic allows organisms to blend in with their environment.

   a. body chemistry b. skin c. camouflage d. symmetry

7. These are characteristics that help living things survive and reproduce in their environment.

   a. mandibles b. adaptations c. genes d. transformations

8. The venus flytrap has special characteristics that allow it to eat insects. This is an example of an adaptation for:

   a. competition b. obtaining food c. climate d. avoiding predators

9. This type of adaptation refers to the physical characteristics that help an animal survive and reproduce in its environment.

   a. structural b. climate c. competition d. behavioral

10. Bison and cows are examples of this type of animal, which only eats plants.

    a. herbivores b. omnivores c. carnivores d. insectivores

Post-Test

Name _____

Write true or false next to each statement.

11. _____ A bee stinging a potential predator is an example of an adaptation for climate.

12. _____ Alligators are warm-blooded animals that live in cold climates.

13. _____ Carnivores only eat plants.

14. _____ Adaptations are passed down from parents to their offspring.

15. _____ Many animals that rely on the same food source as other animals have adaptations to help them compete.

Write a short answer for each of the following.

16. What is the difference between herbivores and carnivores?

_____

_____

17. Define adaptation.

_____

_____

18. Give an example of an adaptation that helps turtles protect themselves from predators.

_____

_____

19. Give examples of adaptations that enable moose to survive in cold climates.

_____

_____

20. Define structural adaptation. Give an example of a structural adaptation of a plant.

_____

_____

Video Review

Name _____

While you watch the video, answer these questions:

You Decide!

1. Could this saguaro cactus plant, which lives in southern Arizona, survive here in the Rocky Mountains of Colorado?

_____

_____

_____

You Observe!

2. Locate the fish in this image.

_____

_____

_____

You Observe!

3. What adaptations do moose have to survive in cold climates?

_____

_____

_____

After you watch the video, test your knowledge with these questions.

1. _____ are characteristics living things possess to help them survive.

2. Strong jaws and sharp claws are adaptations used for obtaining _____.

3. Body shape and coloring are examples of _____ adaptations.

4. Living things often possess adaptations enabling them to _____ for food.

5. _____ is an adaptation in which living things move to a place where it is easier for them to survive.

Vocabulary

Name _____

Use these words to fill in the blanks next to the sentences below.

Words

competition | adaptation for climate | adaptations | herbivores
behavioral adaptations | camouflage | carnivores
adaptation for obtaining food | migration | structural adaptations

1. _____ Characteristics that help living things survive and reproduce in their environment.

2. _____ Animals that only eat plants.

3. _____ Animals that eat other animals.

4. _____ An organism's ability to blend in with its environment to avoid being seen by predators.

5. _____ Physical characteristics that help an animal survive in its environment.

6. _____ This occurs when living things try to use the same resources.

7. _____ The actions living things take to survive and reproduce.

8. _____ The journey animals take to change location in response to seasonal changes.

9. _____ The hard, flat teeth and body shapes of herbivores are an example of this type of adaptation.

10. _____ The process of birds migrating to another climate in an example of this type of adaptation.

Writing Activity

Name _____

migration herbivores camouflage competing adaptations
behavioral food reproduce carnivores structural

Use the correct word from above to complete the sentences in the following paragraph.

_____ are characteristics of living organisms that allow them to survive and _____ in their environment. Plants and animals possess different types of adaptations. Organisms have adaptations that enable them to obtain _____. For example, many _____, such as cows and deer, have bodies that enable them to bend over to eat plants. _____ are animals that eat other animals and have adaptations that help them catch and kill prey. _____ is an example of an adaptation that helps organisms protect themselves from predators. There are also adaptations that help organisms survive by _____ with other organisms for the same resources, such as food. Many animals also possess adaptations for climate. _____ is one way organisms adapt to seasonal changes in their environment. _____ adaptations are physical characteristics that help living things survive and reproduce. _____ adaptations are actions animals take to survive and reproduce.

In Your Own Words

1. Differentiate between structural and behavioral adaptations. Give examples of each.

_____

_____

_____

2. Define camouflage and explain how it helps animals survive.

_____

_____

_____

3. Explain why some animals migrate.

_____

_____

_____

How Do They Survive?

Name _____

Background: Nature can be a hard place for organisms to live. Living things have to struggle and often compete to find food, to reproduce, and to protect themselves from predators and the climates in which the live. In order to survive and reproduce, organisms must possess adaptations. There are two primary types of adaptations: behavioral adaptations and structural adaptations. **Behavioral adaptations** are actions animals take to survive and reproduce. An example of a behavioral adaptation occurs when birds migrate south in the winter to avoid cold temperatures. **Structural adaptations** are physical characteristics that help living things survive and reproduce. An example of a structural adaptation is the long neck of a giraffe, which allows it to eat foliage in very tall trees. Most organisms have both structural and behavioral adaptations. Living things possess adaptations to help them do many things, such as obtain food, adjust to their climate, protect themselves from predators, and compete for limited resources. In this activity, you will learn about the adaptations of some unique organisms.

Activity:
1. In small groups (2-4 students), pick one of the organisms listed below. Make sure each group chooses a different organism.
2. Research your organism to learn about its adaptations. You can use a variety of resources for your research, such as the internet, encyclopedias, and other books. Your teacher can help you find a resource.
3. Answer the questions below about each adaptation. Remember, most animals have several different adaptations, so try to find as many as possible.

List of Organisms

hammerhead shark	red-eyed tree frog
cuttlefish	skunk cabbage
penguin	walking stick (insect)
elephant	blowfish

Questions:
1. List the different adaptations that the organism possesses.

2. Explain how each adaptation helps the animal survive.

3. Identify whether each adaptation is structural or physical.

Create Your Own Animal

Name _____

Background: Unicorns are a legendary and make-believe creature that were created thousands of years ago and continue to be featured in children's stories today. For hundreds of years, people believed that they existed and visited every corner of the world in search of them. Have you ever wondered who created the legend of the unicorn? Now is your chance to invent a fictitious animal. In this activity, you're going to write about and draw a picture of a fictitious animal. You can make this animal look like and do whatever you want it to. You will need to describe its environment and determine several adaptations that help it survive and reproduce in that environment. Remember to include structural adaptations, which are physical characteristics that animals have to help them survive, and behavioral adaptations, which are things animals do to thrive in their environment. To get started, think about the following questions:

1. Where does the animal live? What is it like there? Describe the climate. What is the temperature? Are there seasons? How does your animal adapt to this climate?
2. What other animals live in the area that your animal will have to compete with and/or protect itself from?
3. What does your animal eat? It is an herbivore or carnivore? How does it obtain this food?
4. Who are your animal's predators? How does it protect itself from these predators?
5. Does your animal have a name?

Activity: Write about your animal in the space below and continue onto the back. Make sure you describe the environment in which it lives and its adaptations. Identify which adaptations are structural and which are behavioral. Draw a picture of your animal on a separate piece of paper.

Camouflage Adventure

Name _____

Background: Many animals that live in nature have to protect themselves from predators, including other animals and people. Organisms have adaptations that help them do this. Some animals do this by camouflaging themselves. **Camouflage** is the ability of a living thing to blend in with its environment to avoid being seen by predators. One example is a snowshoe hare's white fur, which helps it blend in with the snowy landscape in which it lives. Like snowshoe hares, most organisms are able to camouflage themselves because of their color, but organisms' body shape and surface can also help them blend in with their environment. In this activity, you are going to help an animal use its camouflage to hide from your classmates.

Materials:
- Blank pieces of white paper
- Scissors
- Crayons, markers, and coloring pencils
- Tape

Activity:
1. The class will be split into two groups. **Your group is going to hide your animal from your classmates, so don't let them see what you are doing!**
2. In your group, choose an animal that lives in nature near your school.
3. Choose someone to draw an outline of the animal on a white piece of paper. Cut out the drawing.
4. Decide where you want your animal to be camouflaged. Think about the different surfaces outside your school building. Examples include grass, cement, the bricks of the school building, and trees. You might want to look out the window to get a few ideas.
4. Color your drawing so that it matches the color of the surface you have selected.
5. Once the animals are colored, one group will go outside to tape their drawing to the surface that it blends in with.
6. After the drawing has been put in place, the other group will go outside to try to find the drawing.
7. Repeat steps 5 and 6 for the second group's drawing.

Name That Adaptation

Name _____

Background: Organisms possess adaptations that help them survive and reproduce in their environment. Adaptations help animals do this in several ways. Organisms possess adaptations that help them obtain food, such as a hummingbird's needle-size beak, which enables it to drink nectar from a flower. Organisms also have adaptations that help protect them from predators, such as the tan fur of a deer, which enables it to blend in, or camouflage, with its environment. Organisms also have adaptations to help them compete for resources with other organisms. Competition can occur between the same kind of animals or different types of animals. Living things possess adaptations that help them survive in changing climates. An example is when birds migrate to a warmer climate when temperatures start to get cold. Most animals possess adaptations that help with all of the activities discussed.

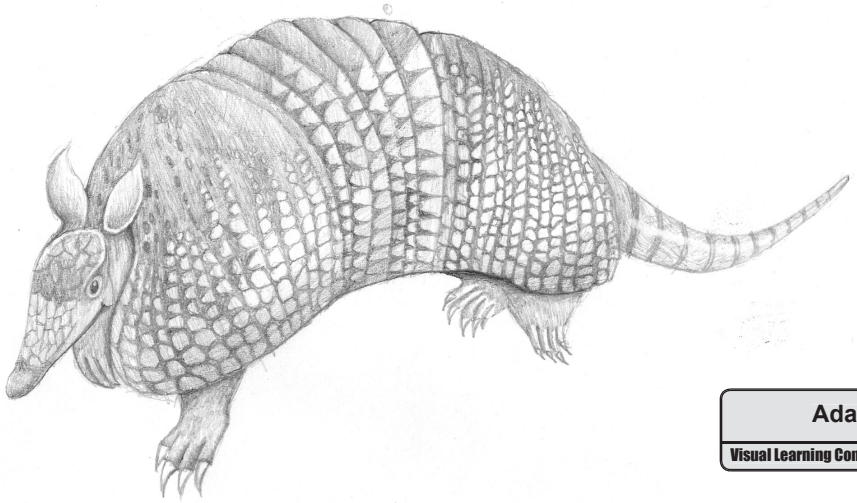
Activity: There are six drawings of organisms on the next page. For each drawing, answer the following questions on a separate piece of paper.

A. List some of the adaptations the animal possesses.
B. Write at least one sentence about how each adaptation helps the animal survive.
C. For each adaptation, identify whether it helps the organism obtain food, protect itself from predators, adjust to climate, or compete for resources.

*Remember, organisms can have many adaptations, so identify as many as possible. See the example below.

Armadillo

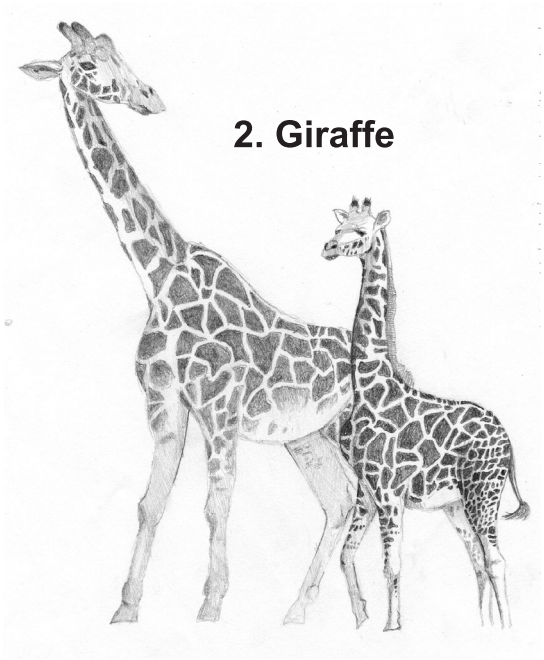
A. Armadillos have two important adaptations: bony skin and sharp claws.
B. Their armor-like skin protects them during attacks from other animals. They also have sharp claws, which they use for digging. They dig to find food, build a home, and escape from predators.
C. Their armor-like skin is an adaptation for protection from predators. Their claws are adaptations for obtaining food and protecting themselves from predators.



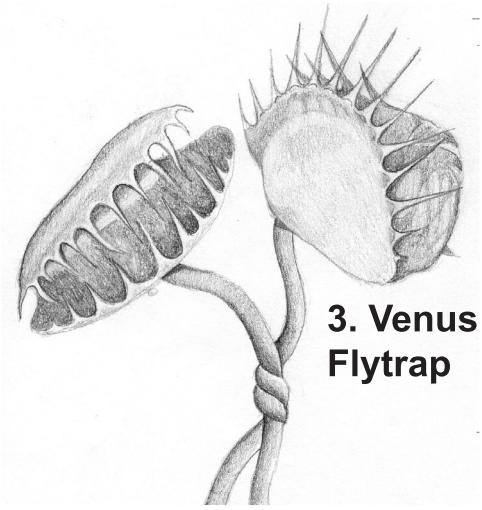
Name That Adaptation

Name _____

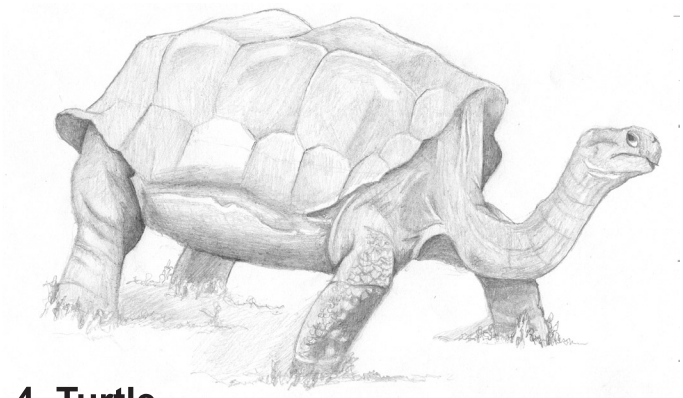
1. Bird



2. Giraffe

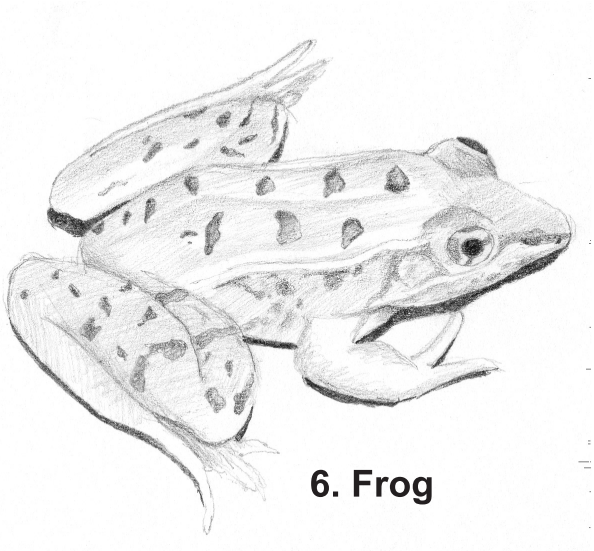


3. Venus Flytrap



4. Turtle

5. Owl



6. Frog