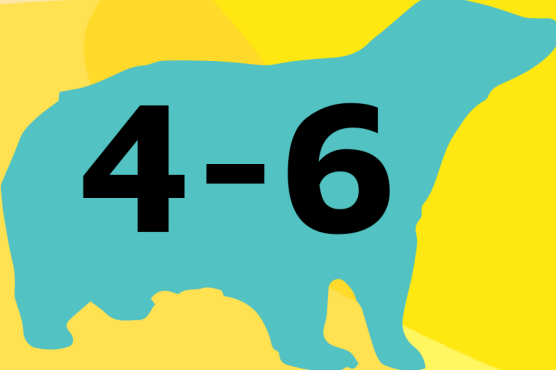


# Amazing Adaptations



4-6

# Amazing Adaptations

## NGSS Alignment

4-LS1-1  
MS-LS1-4

## Core Concept

Animals have adaptations. Adaptations are characteristics or traits that help them survive and reproduce in their environment.

## Curriculum Objective

Students will be able to identify examples of adaptations, and design adaptations suited to a particular environment.

## Materials

- Enough copies of worksheets for each student or small group of students
- Stencils
- Glue Sticks
- Research materials
- Pencils

## At the Zoo:

Have students examine each species for unique traits and features. As they travel in groups, have chaperones encourage them to theorize on how those traits help the animals survive in their native habitats.

## Curriculum Outline

<b>Instructor Guide</b>	<b>2</b>
<b>Background Info sheet</b>	<b>3</b>
Information sheet for instructor regarding adaptations and how they develop.	
<b>Vocab Sheet</b>	<b>4</b>
Vocabulary words and definitions.	
<b>Amazing Adaptations Matching</b>	<b>5-7</b>
Students match animals to their adaptations and determine how those adaptations help the animal survive.	
<b>Trait Creation</b>	<b>8-9</b>
Students will design their own traits to help a canine survive an extreme environment.	
<b>Adaptations in Action</b>	<b>10</b>
In this post-visit activity, students will research an animal to learn about behavioral adaptations.	

# Instructor Guide

## Pre-Lesson Preparation

**Step 1:** Read over the Background Info Sheet.

**Step 2:** Go over the Vocab Words with the students. Either display them via projector or write them on the board.

**Step 3:** As a group discuss the concept of adaptations, using bird beaks as an example.

## Activity 1: Amazing Adaptations Matching

**This activity is designed to be done individually or in small groups.**

**Step 1:** Give each student (or small group) a copy of pages 6 and 7, glue or tape, and scissors.

**Step 2:** Students will cut out the puzzle pieces from page 7, then glue them onto page 6. Students will match the species to their adaptation, as well as the benefit of the adaptation to the animal's survival.

**Step 3:** As a group, discuss your results. Ask students if they can think of any other adaptations the given species have. (You can use the answer key to check results for accuracy).

## Activity 2: Adaptation Creation

**Step 1:** Provide students with pages 8 or 9.

**Step 2:** Students will come up with adaptations a canine might have for living in a cold, mountainous habitat or a hot, arid habitat. Ex: Large feet for walking on snow, low water requirements, strong legs for climbing up rocks, etc.

**Step 3:** Have students present or draw their adapted Canine species. (Page 10 can be distributed and used for drawing their species.)

## Activity 3: Adaptations in Action

**Step 1:** After your visit to the zoo, distribute research materials and page 11.

**Step 2:** Have students break up into groups of three and designate each member of the group a different animal to research. Students may research using internet sources or animal encyclopedias. Make sure they record their findings.

**Step 3:** Have the students discuss their results in their groups of three.

**Alternate Step 3:** Have students get together with all others who researched the same species and have them design a presentation on that species adaptations.

**Encourage creativity!**  
**If students are struggling, give them the following prompts to think about:**

**-How will the animal eat?**

**-How will the animal avoid being eaten?**

**-What challenges will the animal face?**

# All about Adaptations

## Background Information Sheet

**Adaptations:** Characteristics or traits that help an animal survive and reproduce in their environment.

Adaptations start as genetic mutations in individuals.

- If the trait caused by the mutation is beneficial, then that individual is more likely to successfully reproduce.
- The trait may then be passed down to the animal's offspring, benefiting them in turn.
- Over time the occurrence of these traits in the population will increase.

An easy-to-understand example of adaptations in action are bird beaks.

Different species of birds have adapted different beak shapes that are advantageous for eating their preferred food.

**Some adaptations help a species meet a specific challenge of their environment, such as the long necks of giraffes that help them reach leaves high off the ground.**



Generalist



Insect catching



Grain eating



Coniferous-seed eating



Nectar feeding



Fruit eating



Chiseling



Dip netting



Surface skimming



Scything



Probing



Filter feeding



Aerial fishing



Pursuit fishing



Scavenging



Raptorial

# Vocab Words

## **Adaptation**

Characteristic or trait that helps an animal survive and reproduce in its environment.

## **Arid**

Excessively dry, especially from lack of rainfall.

## **Beneficial**

Producing good or helpful effects.

## **Canine**

Dog species, including wolves, coyotes, foxes, and jackals.

## **Habitat**

The natural home of an animal or plant species where they can find everything they need to survive, grow, and reproduce.

## **Trait**

Physical characteristics, such as your hair or eye color.

# ANSWER KEY

## Amazing Adaptations

**Adaptation:** Trait of a living thing that helps it survive in its environment.

Species

Adaptation

How it helps

Cheetah

Highly flexible spine

Allows for long rapid strides to catch prey

Giraffe

Long, flexible tongue

Helps animal pull branches down and strip tree leaves to eat

Turkey Vulture

Bald head

Keeps animal clean and prevents infections while scavenging inside carcasses

Badger

Long, powerful claws

Assists in digging burrows for shelter and raising young

Tortoise

Hard shell

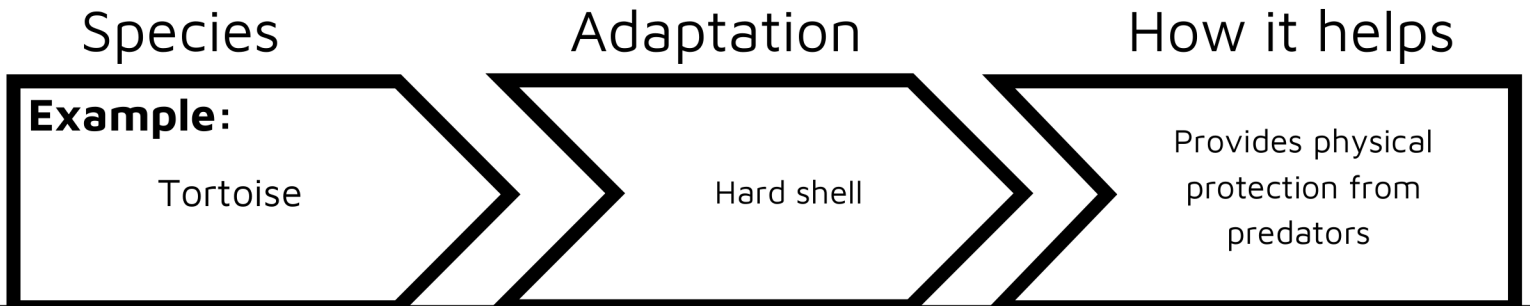
Provides physical protection from predators

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

# Amazing Adaptations

**Adaptation:** Trait of a living thing that helps it survive in its environment.

Cut out the puzzle pieces from page 7 and match each species with its adaptation, and how that helps it survive.



Cheetah

Turkey Vulture

Highly Flexible Spine

Assists in digging  
burrows for shelter  
and raising young

Helps animal pull  
branches down and  
strip tree leaves to eat

Allows for long rapid  
strides to catch prey

Keeps head clean and  
prevents infections  
while scavenging  
inside carcasses

Long flexible tongue

Giraffe

Badger

Bald head

Long, powerful claws



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

# Amazing Adaptations

Given the following environment, come up with three traits a canine species could develop that would help it survive. Explain how each trait would benefit the animal and increase its odds of reproducing.

## Snowy Mountain Habitat

Trait 1:

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Trait 2:

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Trait 3:

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**Given time, would you expect the number of animals exhibiting those traits in the population to increase or decrease? Why?**

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

# Amazing Adaptations

Given the following environment, come up with three traits a canine species could develop that would help it survive. Explain how each trait would benefit the animal and increase its odds of reproducing.

## Arid Desert Habitat

Trait 1:

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Trait 2:

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Trait 3:

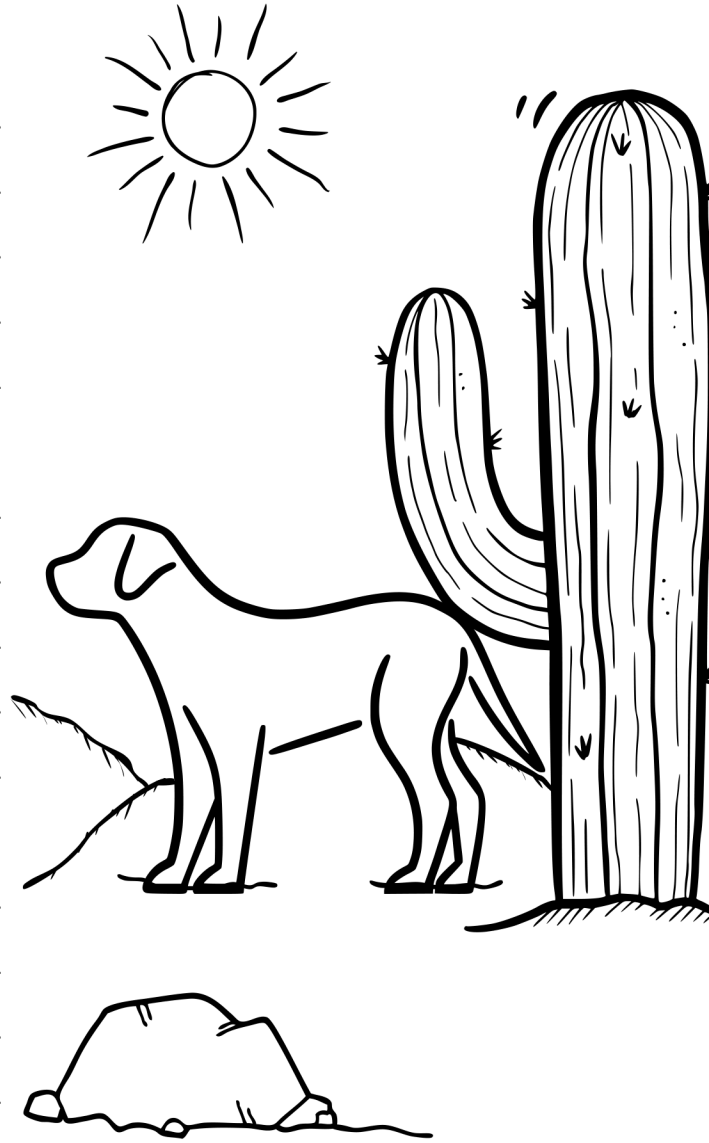
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**Given time, would you expect the number of animals exhibiting those traits in the population to increase or decrease? Why?**

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

# Amazing Adaptations

Draw a sketch of your new canine species.  
Emphasize those special adaptations that help it survive.  
Make sure to show it's environment in the background!

