🐾 Lesson Plan: Animal Diversity and Adaptations

Grade Level: 5
Subject: Life Science
Duration: 45–60
NGSS 5-LS2-1: Develop a model to describe that matter is made of particles too small to be seen.

🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the major groups of vertebrates and invertebrates and describe their key characteristics.
- **Explain** how structural, behavioral, and physiological adaptations help animals survive in

use camouflage to hide from predators or to sneak up on prey.
- **Migration:** The movement of animals from one area to another for a certain period of time or season. Animals migrate to find food, escape harsh weather, or reproduce.
- **Hibernation:** A state of deep sleep in which an animal's body temperature drops and its breathing and heartbeat slow down. Animals hibernate to conserve energy when food is scarce.
- **Behavior Adaptations:** Activities that animals do which help them survive in their environment. Behavior adaptations can be learned from a parent or other animals, or they can be inherited.

- **Structural Adaptations:** Physical features of an organism that help it survive in its environment. Examples include beaks, claws, fur, feathers, scales, and body shape.

💼 Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-animal-diversity-and-adaptations.pdf)
- Vocabulary matching worksheet (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-1.pdf)
- Animal classification worksheet (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-animal-diversity-and-adaptations-0.pdf)
- Animal adaptations worksheet

called adaptations that help them survive.

Step 2: Direct Instruction (15 minutes)

- Use the Study Guide to explain the classification of animals into vertebrates and invertebrates, highlighting the five main vertebrate groups. (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-animal-diversity-and-adaptations.pdf)
- Discuss the three types of adaptations: structural (physical features like beaks and claws), behavioral (actions like migration and hibernation), and physiological (internal processes like

temperature regulation). (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-animal-diversity-and-adaptations.pdf)

- Demonstrate camouflage by showing images of animals that blend into their environments, such as chameleons, stick insects, and arctic foxes.

Step 3: Guided Practice (15 minutes)

- Distribute the vocabulary matching worksheet and work through it as a class, reinforcing key terms such as adaptation, vertebrate, invertebrate, camouflage, migration, and hibernation. (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-1.pdf)
- Show examples of animal organ systems from the Study Guide and discuss how the circulatory, respiratory, and digestive systems help animals survive. (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-animal-diversity-and-adaptations.pdf)
- Guide students through classifying animals on the board: create two columns labeled 'Vertebrate' and 'Invertebrate' and have students place animal names in the correct column.

- Review completed worksheets for accuracy, checking that students correctly classified animals and identified adaptations. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-animal-diversity-and-adaptations-2.pdf)
- Have students classify real-world examples: show images of a polar bear, desert lizard, and migrating bird, and ask students to identify one adaptation each animal uses to survive in its environment.

Differentiation Strategies

For advanced learners:

- Challenge advanced learners to research and present on a specific animal adaptation not covered in class, such as echolocation in bats or bioluminescence in deep-sea creatures.
- Have students compare and contrast adaptations across different animal groups, creating a Venn diagram to show similarities and differences between mammals and birds.

For learners needing support:

- Provide pre-labeled diagrams of vertebrate and invertebrate animals with key features highlighted for students who need visual support.
- Offer one-on-one assistance during the classification activity, using physical animal models or picture cards to help students sort vertebrates from invertebrates.

animal-diversity-and-adaptations.pdf)

- Worksheet PDF 0 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-animal-diversity-and-adaptations-0.pdf)
- Worksheet PDF 1 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-animal-diversity-and-adaptations-1.pdf)
- Worksheet PDF 2 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-animal-diversity-and-adaptations-2.pdf)
- Vocabulary PDF 1 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-1.pdf)

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- Vocabulary PDF 3 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-3.pdf)
- Vocabulary PDF 4 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-4.pdf)
- Vocabulary PDF 5 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-animal-diversity-and-adaptations-5.pdf)

PREVIEW

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ANIMAL DIVERSITY AND ADAPTATION

Organ Systems of Vertebrates

Animals have organ systems just like you do! Here are some examples of the **systems that animals and humans have in common:**

Integumentary system - Integumentary is just a fancy word for skin! Animals do not have skin quite like humans do. Instead they have tougher skin, feathers, fur, or scales. This outer coat helps protect the animal's insides and keeps the animal protected from weather and environmental conditions, such as very cold temperatures or very dry air.

Muscular system - The muscular system allows animals to move!

Respiratory system - The respiratory system allows animals to take in oxygen (which they need to survive) and breath out carbon dioxide.

Digestive system - The digestive system breaks down the food animals eat so that animals can break their food down into energy! Animals need energy to move around and carry out their life processes.

Excretory System – This system allows animals to rid their body of waste.

Reproductive system – This is an easy to figure out…it enables animals to produce offspring.

Immune system - The immune system protects animals against sicknesses, infections, and diseases.

Skeletal System - The skeletal system consists of the bones and cartilage that supports an animal's body parts.

Lesson Checkpoint:
What is one organ system you have in common with an animal and what is the function of that system?

Animals Can Move

- do NOT have backbones
- much smaller than vertebrates
- move much slower than vertebrates

Lesson Checkpoint: What is the difference between a vertebrate and an invertebrate?

Animal Adaptations

Adaptations are traits that animals have that help them survive in their environments.

Adaptations can be physical or behavioral. Examples of a **physical** trait are the thickness of an animal's fur in the winter (which helps the animal survive cold winters), the shape of a bird's beak (which helps them get food and build nests), and even the shape of an animal's ears (bats have large ears to hear well since they rely on their hearing to fly). Animals depend on their physical features to help them find and eat food, to build shelters, to attract mates, and to protect themselves.

Behavior adaptations are activities that animals DO, which help them survive in their environment. Behavior adaptations can be learned from a parent or other animals or they can be inherited (a

certain period of time or season. Animals migrate in order to get to a place where the temperature allows for the animal to survive and find food.

Hibernation is also an adaptation! When an animal goes into a deep sleep, it is hibernating. During this time the animal's body temperature drops significantly. The animal's breathing and heartbeat slow down.

What is THAT animal?

It is a tigon, which is a **cross-breed** between a tiger and a lion.

Crossbreeding is when two animals (or plants) of different breeds and species reproduce and create an offspring. Cross-breeding does not happen in wild, it only occurs with human intervention.

Hybrids are the animals that are produced as a result of cross-breeding. A mule is a hybrid. It is a cross-breed of a donkey and a horse.

Lesson Checkpoint: What is a hybrid?

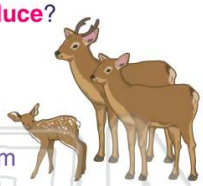
Animal Diversity

Animal Diversity and Adaptations

Sci E

Name_____ Class_____ Date_____

1 Which **organ system** enables vertebrates to **reproduce**?



A endocrine system
B nervous system
C circulatory system
D reproductive system

2 The _____ system of a vertebrate animal enables it to **send, receive, and process signals** from the body to the brain and from the brain to the body.

A nervous
B circulatory
C endocrine
D muscular

3 What is the role of the **circulatory system** in an animal's body?

A to send carbon dioxide to cells
B to transport blood

4 How are humans and other animals **similar** in regards to their **respiratory systems**?

A both breath out nitrogen

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5

B oxygen
C flavor
D energy

C supplies the animal with oxygen
D takes in nitrogen for the animal

7

9 The illustration shows that **animals** have the ability to _____ in their environment, an ability that plants do not have.

A move
B grow
C dig
D take in air

10 What would be a **benefit** of an animal being able to run quickly?

A to reduce heart rate
B to take in oxygen slowly
C to escape predators
D to use up energy

Animal Diversity and Adaptations

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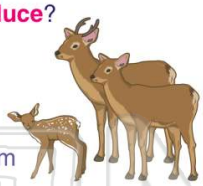

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Animal Diversity and Adaptations

Sci E

Name_____ Class_____ Date_____

1 A mouse's ability to hide helps it **survive** because it enables it to _____.

A find food
B capture prey
C use up energy
D escape predators

2 A rhinoceros's horns are an **adaptation**. How would a rhinoceros **use** its horns?

A for running
B for eating
C for protecting itself
D for mating

3 I have a **backbone**. I am bigger than most invertebrates. I also move faster than most invertebrates. What am I?

A a spider
B a vertebrate

4 I do not have a **backbone**. I am smaller than most vertebrates. I move slower than most vertebrates. What am I?

A an invertebrate
B a reptile

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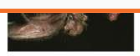
C white fur
D short fur

C bats depend on sight instead of hearing
D bats hear better during the day



9 Which popular expression best explains why some animals often **travel in large groups**?

A The early bird gets the worm.
B A picture is worth a thousand words.
C A leopard cannot change its spots.
D There is safety in numbers.

10 What **behavioral adaptation** tactic do opossums use when predators are around?

A They play dead.
B They run.
C They hide in a shell.
D They burrow underground.

Animal Diversity and Adaptations

Sci E

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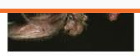

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Animal Diversity and Adaptations

Sci E

Name_____ Class_____ Date_____

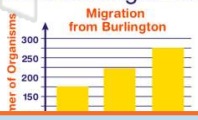
1 Which **adaptation** allows an animal to trick its predators by **looking or acting** poisonous or dangerous when it is really not?

A camouflage
B mimicry
C hibernation
D migration

2 What adaptation does this chameleon use to **hunt for food or to hide** from predators?

A prickly spikes
B plays dead
C camouflage
D mimicry

3 According to the graph below, **how many geese** were estimated to have migrated from the Burlington area last year?



A 275
B 225

4 _____ is the **movement of animals** from one area to another for a certain period of time. Animals do this to get to a place where the temperature allows them to survive and find food.

A Camouflage

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D donse

A true
B false

7

9 Birds are the most diverse of the animals that live on or near land. Birds **differ** from each other in which of the following ways?

A shapes of beaks
B types of food they eat
C types of homes
D all of the above

10 Millions of different animal species live on earth today. There are herbivores, carnivores, and omnivores. Animals range in size, shape, and color. Some animals have backbones while others do not.

What's the **best title** for this paragraph?

A Animal Unification
B Animal Diversity
C Animal Unity
D Animal Similarities

Animal Diversity and Adaptations

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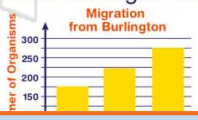

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D donse

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B false

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B Animal Diversity
C Animal Unity
D Animal Similarities

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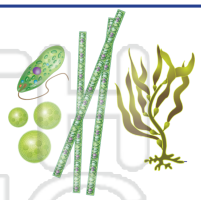
Animal Diversity and Adaptations

Name_____ Class_____ Date_____

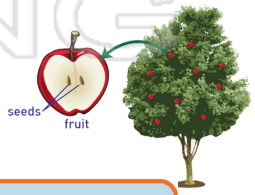
Match each of the following terms to its definition:

Algae	Autotroph	Circulatory system	Archaebacteria
Animal	Angiosperm	Behavior adaptations	Camouflage

1. - a large and diverse group of simple, plant-like protists ranging from unicellular to multicellular organisms; plant-like protists that contain chloroplasts and are autotrophic



2. - a plant that produces flowers and develops fruit around its seeds



3. multic

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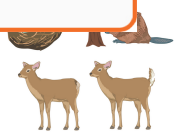
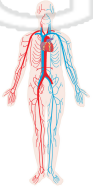


7. - an adaptation that allows animals to blend in with their surroundings; animals use this adaptation to hide from predators and to sneak up on prey

8. - a system in the body made up of the heart, blood vessels, and blood; system that moves food and oxygen, and rids the body of wastes, such as carbon dioxide, through the blood



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Animal Diversity and Adaptations

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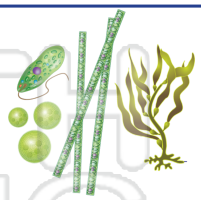

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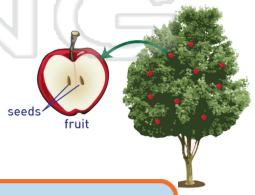

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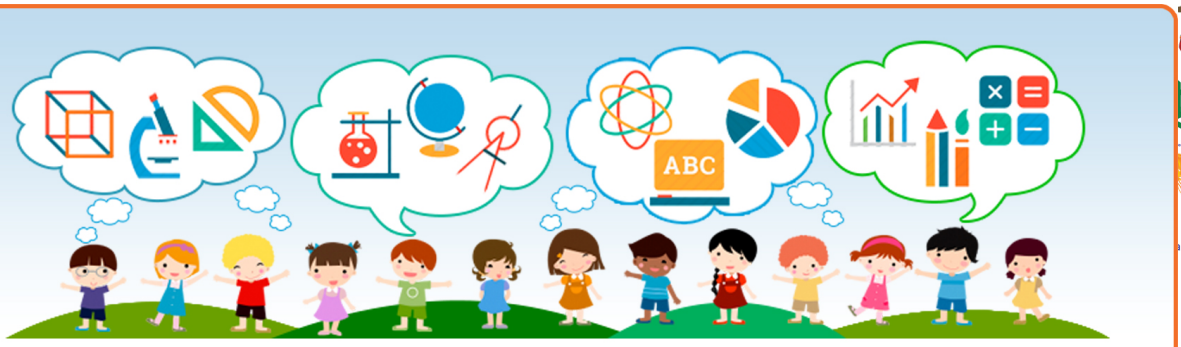

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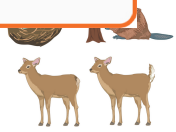

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