

Animal Adaptations

Grade Level: K – 2nd

Duration: 45 minutes

Lesson Overview:

This lesson will introduce camouflage and adaptations, enabling students to be able to identify the importance of animals adapting in a changing climate.

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Disciplinary Area:

**Biological
Evolution**

Key Concepts:

- Adaptation
- Predator
- Prey
- Climate Change
- Camouflage

Key Lesson Information

Materials List

This lesson requires the materials listed below. If you are a teacher in the Spokane Public School District, a pre-assembled kit may be available for use. Please check the list of Spokane Public Schools that have communal kits on our website: [Link Here](#).

If you are not a teacher or educator with Spokane Public Schools, below is a complete materials list for the lesson. The links to purchase each item are included, but most of the items can be purchased from a variety of stores.

Material	Units needed	URL for Purchasing
Construction paper pack	1	Link here
Kids scissors pack	1	Link here
Scotch tape	4	Link here
Colored pencil packs	20	Link here

NGSS Performance Standards Addressed

NGSS Disciplinary Core Idea	3-LS4-3 Biological Evolution: Unity and Diversity.
Disciplinary Core Ideas	LS4.C: Adaptation.
Performance Expectations	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Big Question: Why and how do animals need to adapt to climate-caused changes?

Key Vocabulary List:

- **Adaptation:** the adjustment of an organism to make it more fit for its environmental conditions.
- **Predator:** an animal that hunts and kills other animals.
- **Prey:** an animal that is hunted and killed by another animal for food.
- **Climate change:** long-term shifts in temperature and weather patterns on Earth.
- **Camouflage:** the use of any combination of materials, colors, or lighting to make animals or objects hard to see.

5E model part 1: Engage (10 minutes)

Introduction and Background

To begin this lesson, we will use a short question survey to determine where the students are with their learning and understanding of adaptations. We can start with a broad term like “change” and move to more specific terms.

Ask: What is an example of a change in our Earth? How do these changes affect animals and humans?

After collecting answers from students, move through slide 3 of the PowerPoint, referring to changes in seasons and changes in weather as ways our Earth changes. Explain that as seasons and weather change, humans need to make changes such as changing the type of clothes we wear or the activities we do.

Emphasize: Just like we change when the world changes around us, animals change too!

Climate Change

Explain that climate change is a change too, similar to weather and seasons. Climate change is when there are long-term changes in temperature or weather in certain places on Earth. A big reason why climate change is happening right now is because humans are putting too much pollution (CO₂) into the air. This can cause areas of the Earth to get warmer than they're supposed to be, so animals need to change along with the climate to survive better in their habitats.

- What are some changes that could happen to Earth if it gets too warm?
- What are some ways animals could change when their habitat warms up?

Refer to slide 4 of the PowerPoint to explain how pollution could warm up the Earth.

Adaptations

What are adaptations?

Explain that an adaptation is when an animal, plant, or human changes its' behavior to better fit the environment it is in.

- What are some examples of adaptations?
- Why might adaptations be important?

Some examples of adaptations are chameleons changing their skin to blend in, a giraffe's long neck, or woodpecker's beaks. All these animals had to change to live better in their environments, so they could hide from predators and find food to eat.

- What is a predator?
- What is prey?

Adaptations are super important for prey to be able to hide from predators, and for predators to be able to hunt their prey. One big reason why animals need to adapt is because of climate change. Animals have learned to change their behavior to be able to survive better in our changing climate, especially so they can hunt their prey and hide from predators. One example of an adaptation is camouflage.

Play the National Geographic video that explains why adaptations are important and then review the following below:

<https://www.youtube.com/watch?app=desktop&v=s-CG1RS0Qg0>

What adaptations did we observe in this video? How do these adaptations help the owl catch its' prey? What would happen if the owl couldn't hear as well or made too much noise?

When the climate changes, it makes it hard for animals, like this owl, to camouflage in with their surroundings. For examples, if the snow melted, the snowy owl wouldn't be able to blend in.

5E model part 2: Explore (25 minutes)

How do Animals Camouflage?

Today, we are going to look at how animals can use their color and texture to blend in with their surroundings. There will be materials at each table group for students to share.

Activity: Classroom Camouflage

Students will be split up into groups of 4 to create their own animals to hide around the classroom. Each group will get 4 pieces of construction paper, 2-3 colored pencil packs, and 2 pairs of scissors. Students should focus on the Big Question: Why and how do animals need to adapt to climate-caused changes?

Essential Concepts

This activity helps introduce students to how animals' color, texture, and size can help them hide from predators, or sneak up on prey to survive, and how these techniques could be hindered in a changing climate.

When using these kits, the students should be guided through the steps below, together as a class, and then be given time to work through the activity on their own.

Activity Procedure

1. Students create their own animals using the construction paper, scissors, and colored pencils to blend in with a part of the classroom of their choosing.
2. Split the classroom in two.
3. One half of the class will be the "hiders" and the other half will be the "seekers". Give the "hiders" one minute to hide their animals around the classroom while the "seekers" close their eyes.
4. Give the "seekers" 2 minutes to find as many animals as possible.
5. Switch the "hiders" and the "seekers" and repeat steps 3-4.

5E model part 3: Explain (5 minutes)

Time to check in and recap!

Different colors, textures, and shapes of animals helped them blend in with certain areas in the classroom! When the animals were well camouflaged in their surroundings, they were much harder to find.

Continue through slides 9-12 on the PowerPoint to play a short game where students can try to spot the camouflaged owls in their habitats.

Challenge students to think about how it would be difficult for these animals if the habitat around them changed, and they could no longer camouflage. Encourage students to compare their animals to others and discover why some camouflage techniques work better than others.

Question Session:

Let students ask clarifying questions from the activity.

Question for reflection as students conclude: What would happen if these habitats changed? How would these animals change to keep camouflaging with their surroundings?

Important Concept Check in: Vocabulary/Big Question

Big Question: Why and how do animals need to adapt to climate-caused changes?

Key Vocabulary List:

- **Adaptation:** the adjustment of an organism to make it more fit for its' environmental conditions.
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5E model part 4: Elaborate (5 minutes)

Why do animals need to adapt in a changing climate?

Activity/Discussion for Elaborate:

Question: After the activity we just did, why might it be important for snowy owls to have snow? They need snow to hide so they can hunt their prey! If the snow melts, snowy owls must adapt to camouflage into new surroundings without snow.

This adaptation is happening in real life! Since snow in the Arctic is melting due to climate change, we are seeing more snowy owls growing brown feathers instead of white to blend in with their new surroundings.

Expand

Humans have been using too many pollutants that put carbon dioxide into their air. Carbon dioxide is also what we breathe out, but when we use things like coal, oil, and gas, we put too much carbon dioxide into our air. This makes our earth warm up when it's not supposed to and can cause things like the snow melting in the Arctic where our friend the snowy owl lives. So, if we want to keep snowy owls in the snow where they belong, we need to change our habits!

Examples: walking to school, taking the bus/carpooling, turning lights off when you leave a room.

By doing these simple things, scientists like you can help keep our Earth at the temperature it's supposed to be at and keep our snowy owls in the snow!

5E model part 5: Evaluate

Give students the end of lesson survey.

By the end of this Lesson

Concepts Learned:

- Identify what an adaptation is and why it is important.
- Understand predator-prey relationships.
- Define camouflage and understand how this helps animals hide from predators, or stalk prey.
- Identify ways to limit carbon dioxide output.

Connection/Evidence Gathered:

- Connect between the concepts of adaptation, camouflage, and climate change.
- Students can see why a changing climate forces animals to adapt.

Resources:

1. Animal Adaptations PowerPoint Slides

ANIMAL ADAPTATIONS!



Center for Climate, Society,
and the Environment

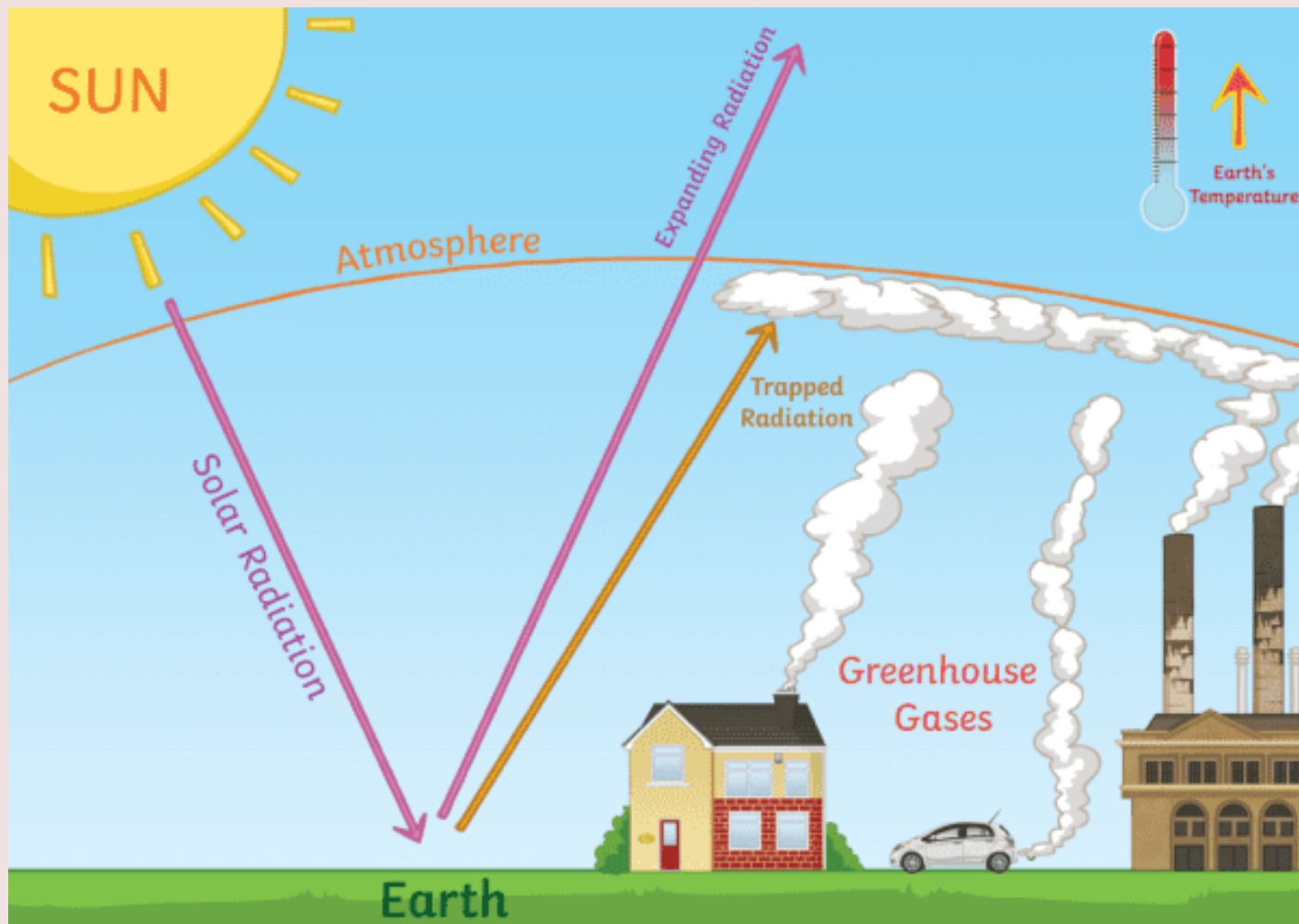
WHAT ARE WE LEARNING TODAY?

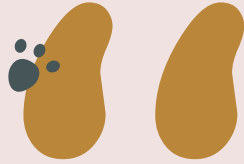
1. What is a change?
2. What is climate change?
3. What is an animal adaptation?
4. What is camouflage and why is it important?





WHAT IS A
CHANGE? 🐾





What is an adaptation?

What is a predator?

What is prey?









LET'S
EXPLORE!





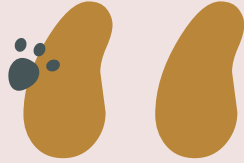






WHY DO
SNOWY
OWLS NEED
SNOW?

What did we learn today?



1. An adaptation is a change an animal makes to make it more fitting for its' habitat.
2. Predator and prey relationships
3. Why animals need camouflage

We need scientists like you to help us protect owls and other animals from climate change!