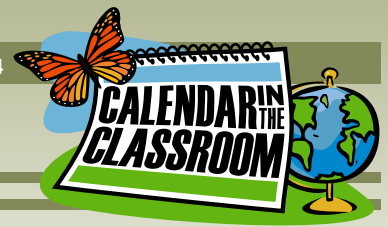




Land and Water Adaptations



Overview

What physical attributes do animals need to live on land and in the water? Students will compare the physical traits of animals using a Venn diagram. Students will identify adaptations of animals that live on the land and in the water.

Background

Animals live in a habitat, where they can utilize their surroundings to survive and reproduce. Many are adapted to live in very specialized habitats. For example, some invertebrates live only underground in caves, never coming to the surface. Many animals and especially people are capable of living in a broad range of habitats from the extreme cold of the Arctic Circle to the hot and humid areas around the equator. Most of the Earth is covered by water, so many creatures are adapted to life in water, but not out of water. Likewise, creatures adapted for living on land or in the air are normally not capable of living in or on the water.

There is a special subset of different kinds of creatures that have specialized adaptations for living on land or water and the interface where they meet, wetlands. Amphibians such as frogs and salamanders should immediately come to mind—they are named for being amphibious or living a “double life,” and their adaptations truly reflect living in mixed habitats. Many snakes forage in the water or along water's edge and almost all snakes can swim considerable distances. Some mammals that frequent Minnesota wetlands and streams are river otters, beavers and muskrats. Many birds are adapted to living on water and land, but they also have the ability to fly so technically they can live in all three realms. This could become another part of your Venn diagram.

The Activity

Warm Up

1. Look through the Minnesota Weatherguide Environment™ Calendar for pictures of animals. Start a list on chart paper of the animals found in the calendar. Use previous editions of the Minnesota Weatherguide Environment™ Calendar to provide a larger selection with more variety. (Calendars dating back to 2024 can be found on the Calendar in the Classroom page at jeffersfoundation.org)
2. Discuss where the animals live. Explain that this is called a habitat. Next to the animal, write the habitat that the animal lives in. Animals include birds, fish, reptiles, amphibians, mammals, insects and spiders.

Activity

1. Introduce a Venn diagram by making an example on chart paper. Review that it's a graphic organizer to compare different things. It shows the differences in the outer sections and also shows the similarities in the intersecting space. Show a Venn diagram.

Time:

60 minutes

Skills:

Critical thinking
Observing
Interpreting
Drawing conclusions
Writing
Drawing

Vocabulary:

adaptations
habitat
Venn diagram

Materials Needed:

- chart paper
- *Minnesota Weatherguide Environment™ Calendar*
- paper
- markers/colored pencils
- pencil

2. Label the two sections of the Venn diagram Water and Land. As a class, place the animals from the list in the correct sections. Encourage the students to share any examples of animals that were not on the list that they can accurately place in the Venn diagram.
3. Focus on the section of the Venn diagram that shares qualities of living in water and on land. Discuss the attributes that help these animals live on land and in the water. If needed, look at the pictures to encourage possible answers.
4. Generate a list of answers such as webbed feet, feathers, wings, long bills, etc.

Wrap Up & Assessment

1. Have the students select one of the animals in the center of the Venn diagram to draw and label the attributes that help it live in a water habitat and also on land.
2. Encourage the students to color accurately using the picture from the calendar or from other resources.
3. Students should write a paragraph describing the animal's physical characteristics that allow it to live in water and on land.
4. Display the student pictures on a bulletin board.

Questions for Discussion

- What allows different animals to live on land and in the water? Physical adaptations such as webbed feet.
- Can all animals live in both water and land habitats? Only if they have physical characteristics that help them survive in both habitats.

Extensions

- If possible, go outside to a pond or river and observe animals using their adaptations to live in a water habitat.
- Have the students create their own animal that has a variety of adaptations that allow it to live on land and in the water. Students can draw a picture and write about their creation.

Resources

Minnesota Weatherguide Environment™ Calendar

online: <https://jeffersfoundation.org/programs/calendar-in-the-classroom/>

Minnesota Academic Standards

3-D Science Standards

Science Practices:

2. Developing and using Models
4. Analyzing and Interpreting Data
7. Engaging in Argument from Evidence
8. Obtaining, Evaluating and Communicating Information

Crosscutting Concepts:

1. Patterns
2. Cause and Effect: Mechanism and Explanation
6. Structure and Function

Disciplinary Core Ideas:

LS1: From Molecules to Organisms: Structures and processes

1st Grade: Animals use their external parts to help them survive, grow, and meet their needs

3rd Grade: Animals have internal and external structures that function to support survival

3rd Grade: Organisms have unique and diverse life cycles

LS2: Ecosystems: Interactions, energy, and dynamics

3rd Grade: Strategies animals use to survive

LS3: Heredity: Inheritance and variation of traits

4th Grade: Traits can be influenced by different environments

LS4: Biological Evolution: Unity and diversity

2nd Grade: Some organisms survive better in particular habitats

ELA Standards and Benchmarks

Grade	Benchmark with Anchor Standard/Code
1	Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation). (W1: 1.2.1.1) Write routinely, through a combination of writing, drawing and speaking. (W2: 1.2.2.1)
2	Use correct punctuation (end punctuation), spelling (high frequency words), and capitalization (first word in sentence and proper nouns) authentically in writing. (W1: 2.2.1.1) Write routinely, including illustration, for a range of tasks, purposes and audiences (e.g. personal interest, enjoyment, academic tasks). (W2: 2.2.2.1)
3	Write routinely for a range of tasks, purposes and audiences. (W2: 3.2.2.1) Write to inform or explain, selecting and organizing relevant details to show understanding of the topic, building on skills from previous years. (W5: 3.2.5.1)
4	Write routinely for a range of tasks, purposes and audiences. (W2: 4.2.2.1) Use words, phrases and punctuation to convey ideas precisely in formal and informal writing contexts. (W3: 4.2.3.2)

Art Standards

Grade	Strand	Anchor Standard	Benchmarks
1	Create	Generate and develop original artistic ideas	2. Use observation and investigation in preparation for making a work of art.
2	Create	Create original artistic work	1. Create art that represents natural and constructed environments. For example: Landscapes versus architecture.
3	Create	Create original artistic work	1. Create visual representations of places or systems that are part of everyday life using artistic foundations.
4	Create	Create original artistic work	1. Create art that is representational and non-representational using artistic foundations. For example: Naturalism and abstraction.