

Habitats and Adaptations

What is a habitat?

Why is it important to protect rhinos and their habitat?



Age Level:

Primary 6

Subject Area:

Science

Duration:

30 minutes

Setting:

School Classroom

Skills:

General knowledge of habitats and animal adaptations

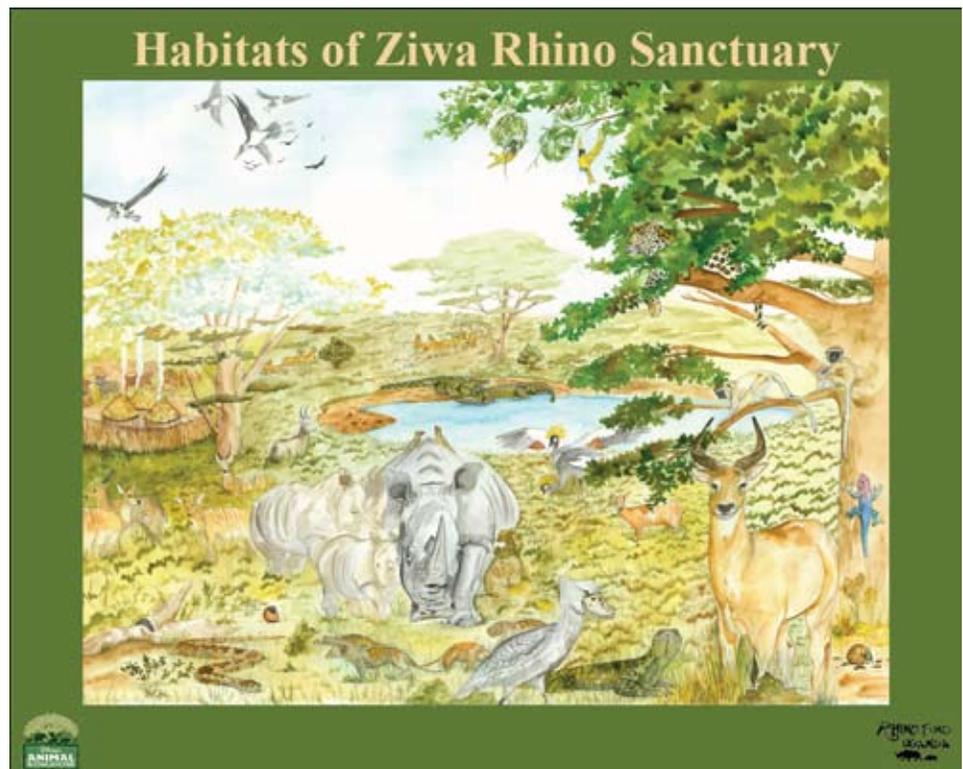
Summary: Identify the essential elements in a habitat and discover the special adaptations of the animals that live in a particular type of habitat.

Objectives:

- To name 3 adaptations rhinos have to live in their habitat.
- To recognise the importance of protecting rhinos and their habitats.
- To identify different types of wildlife habitats surrounding the Ziwa Rhino Sanctuary.

Materials:

- Habitat poster
- Rhino footprint
- Rhino puppet
- Rhino horn



Key Terms

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| Adaptation: | Special characteristics that animals rely on to survive. |
| Biodiversity: | The variety of life on earth and their interactions with each other. |
| Carnivore: | An animal that feeds on other animals. |
| Decomposer: | An organism that feeds on rotting plants and animals. |
| Habitat: | The place where an organism lives that provides all of its needs for survival including food, water, shelter and nesting sites. |
| Herbivore: | An animal that feeds on plant material. |

Procedure

1. Introduce the term Habitat

Animals, just like humans, need very specific things to survive. Can anyone name something that both animals and humans need to survive? *Responses may include: food, water, air and shelter.*

A habitat is a place where an animal lives that provides all of its needs for survival including food, water, shelter and a place to raise its young. Today we are going to talk about the different types of habitats found at Ziwa Rhino Sanctuary.

2. Types of Habitats

Lets begin by taking a look at the different habitats portrayed in this poster. (Use Habitat poster) Can anyone identify the different types of habitat?

- Wetlands - Some of the area in Ziwa is very wet and swampy for most of the year. These areas are called wetlands. Wetlands are home to a variety of animals such as crocodiles and many birds that depend on these areas to find food. Many other species of animals also visit the wetland habitats to obtain water.
- Savannah/Grasslands - A portion of the habitat is mainly covered by grasses and a few trees. These areas are called savannah grasslands. Grasslands are home to a large variety of animals including many species of hoofed animals such as reedbuck, bushbuck and oribi. These animals depend on this specific habitat to provide the abundance of grasses that make up their diet.
- Scrub Woodlands - Scrub Woodlands are areas of land that are covered by bushes and shrubs as well as larger trees. Woodland habitats provide much needed spaces for hiding from predators as well as nesting sites for a variety of animals. Many animals that feed in wetland and grassland habitats will often retreat to scrub woodlands for cover.

Now that we have identified different types of habitats in this poster, can anyone come up and show me some food, water and shelter in these habitats? *(The instructor may need to assist with this by asking questions about what specific animals eat or where they live/hide.)*

Food - trees, grasses and other animals

Water - water hole

Shelter/Space - trees, bushes, grasses and under rocks

If an animal's habitat is changed, and it can't find the food, water, and shelter it needs, it may become endangered. Wildlife habitat is changed or lost when forests are cleared, roads are built through wetlands, or when rivers are dammed. Habitat loss is one of the biggest problems for wildlife today.

Explain to the pupils that in order for an animal to live in a certain area, it must have access to all of the elements listed above. To demonstrate this point, play the Food, Water and Shelter game.

Food, Water and Shelter Activity

Before starting the game, discuss the requirements that all animals need to survive: food, water, shelter and space. These are “habitat components”, necessities supplied by the place where the animals live. For the purposes of this simplified game, just food, water and shelter/cover will be used.

Procedure

One-fourth of the students assume the roles of rhinos. The rest assume the role of one of the three necessities food, water or shelter/cover.

Have students count off by four. The “ones” start the game as rhinos. The rest start as food, water or shelter. Have the pupils playing the role of the rhinos line up on one side of the play area and the remaining pupils on the other side.

During the game, each rhino needs to find food, water and shelter to survive:

- When looking for food, a Rhino will hold hands over its stomach.
- When looking for water, a Rhino will hold hands over its mouth.
- When looking for shelter/cover, a Rhino will hold hands over its head.

During each round, a rhino chooses to search for one of the necessities, and may select the same or different necessity for each round. But once a rhino selects which necessity they are going to search for, they must stay with their choice for that round.

The pupils playing the roles of the necessities (Groups # 2, 3, and 4) represent food, water and shelter. At the beginning of each round, each student in these groups picks which necessity they will represent. They show which necessity they represent using the same signs as the rhinos (above).

The game begins with all players lined up in their respective lines (Rhinos on one side and necessities on the other), with their backs to each other.

The facilitator begins the first round by asking all “necessity pupils” to choose their component, then asks the “rhino pupils” to choose what they are going to look for. All must declare their

choice using the hand signals outlined.

Once students have made their choices and placed hands in appropriate places (mouth, stomach, above head) they're not to change their choice until the next round. First, have the necessities group turn and face the rhino group and then have the rhino group face the necessities group.

Tell the rhinos they may now find the necessity they've indicated. The rhino group runs to the necessity they need and must keep their signal in place until they make contact.

Once contact is made, the rhino group may take that necessity back to the rhino line. This represents the rhino successfully meeting its needs and successfully reproducing.

Each necessity taken by a rhino now becomes a rhino too. Any rhinos that fail to find the necessity they need, becomes part of the habitat and stays with the necessity group. In other words, the rhinos that died are habitat components and are available as necessities -- food, water, or shelter -- to the rhinos that are still alive.

Note: If more than one rhino reaches a single necessity, the rhino who gets there first survives. Necessities always stay in place on their line until a rhino picks them. If no rhino chooses a particular necessity during a round, that necessity just stays there until the next round. The necessities can change their selection from one round to the next.

The facilitator keeps track of how many rhinos there are at the beginning of the game, and records the number at the end of each round. Continue the game for approximately 5 rounds, moving at a brisk pace.

Conclusion

At the end of the rounds, gather the students together to discuss what has been happening. Encourage them to share what they've experienced. For example, they saw a small number of rhinos begin by finding adequate food, water, and shelter. As the population grew, over a couple of rounds, there were not enough necessities to support the larger population. At that point, rhinos died and became part of the habitat, just like the real cycle in nature.

3. Adaptations

(Using the Habitat poster) What else do you notice about the habitat? Is there only one type of animal that lives here or are there many?

There are many species of animals that live together in the same area. Each animal is equipped with special adaptations to help it survive in its habitat. For example, the crocodile has thick skin for protection as well as to conserve water. Dung beetles use the dung from rhinos to lay their eggs. When the small dung beetles hatch, the dung is their first source of food. Leopards have very strong claws and teeth that they use to capture their prey. Crowned cranes use their sharp, pointed beaks to catch insects on the ground. Monkeys have hands with thumbs to hold onto branches as they climb high into the treetops keeping them safe from predators.

What are some of the special adaptations that the rhinoceros has to help it survive in its environment?

Lip - The white rhino has a very wide, square lip that it uses to eat large amounts of grass. This adaptation helps the rhino get plenty of food in its habitat.

Horn - A rhino also has two very large horns on the front of its face. These horns help the rhino defend itself from possible predators.

Skin - Rhinos have thick skin to protect them from the thick underbrush in their habitat and from predators.

Ears - Rhinos have large ears that they can move independently to help locate sounds.

Nose - Rhinos depend mainly on their acute sense of smell to sense their environment.

Feet – The large feet on a rhino helps it move quickly while carrying the weight of its heavy body.

4. Roles in Nature

Not only does every animal have very special adaptations to help it survive, but they also play a special role in their habitat. Some help replant the forest, decompose rotting plants, control species of animals and even pollinate plants. Without the variety of animals in each habitat, the environment would not be the same!

(Using the Habitat poster) Once again, let's take a look at the animals in this poster to discuss their roles in this habitat.

Rhinoceros - Rhinos are natural gardeners of the grassland. They feed on a large amount of vegetation opening spaces for new plants to grow. They also help to fertilize the soil and deposit seeds with their dung.

Leopard - Leopards are top predators in their environment. They are beneficial in controlling the population of many other animals such as duiker and bushbuck.

Crocodile - Crocodiles feed on a variety of animals and help to control populations.

Bushbuck/Oribi - Herds of antelope feed on vegetation while depositing seeds and fertilizing the soil with their droppings. They are also food for other animals.

Python - Snakes feed on small animals such as rodents. Snakes help control rodent populations as well as reduce the spread of some diseases carried by rodents.

Vervet monkey - Vervet monkeys feed on a variety of fruits and vegetation. They also help spread seeds in their droppings.

Marabou stork - Marabou storks work as scavengers. They feed on dead and decaying animals which helps to clean the environment.

Millipede - Millipedes are great decomposers. They feed on dead and decaying plant material. They process this material and return some of the nutrients to the soil in their dung. This process helps prepare the soil for new plants to grow.

Dung beetle - Dung beetles use the dung of larger animals to lay their eggs. Once the eggs hatch, the dung serves as a meal for the newly hatched dung beetles. This process helps rid the environment of some of the animal waste and helps recycle nutrients back into the soil.

5. What You Can Do to Help Protect Wildlife

Remember: All animals, large and small, play an important role in their habitat. We must do our part to help protect these animals and the habitats that they depend on for survival. Here are some actions each of you could do to help.

- Always dispose of your rubbish in the proper place.
- Report poaching to the proper authorities.
- Discourage your family from eating bushmeat.
- Tell your friends and family about the importance of conserving wildlife and their habitats.
- Plant trees or medicinal plants in your home or school gardens.
- Talk to your friends and family about the dangers of bush fires.
- Collect only dry wood for cooking.

Closing

The next time that we all see each other, we will be visiting the Ziwa Rhino Sanctuary. I hope that the lessons that we shared today will provide you with a great introduction to the amazing rhino we hope to see there, as well as the importance of protecting rhinos and their precious habitats.

Background Information

A habitat is a place where an organism lives that provides all of its needs for survival including food, water, cover and a place to raise young. It can also be thought of as the environment or surroundings of a species. Living things have different needs for food, water and cover, so each animal and plant has a specific type of habitat. Different combinations of light, air, water and soil in an area, together with variations in climate and topography, create different habitats. A shady area supports different species of trees and shrubs than an area with bright sunlight. Clean air helps plant growth, but polluted air may hinder it. A very small amount of rainfall creates an arid environment with sparse vegetation, while more rainfall promotes greater plant growth.

For an animal, a habitat must also include all the land the animal needs to hunt, hide from predators, gather food, find a mate, and raise its young. Most animals are very specialized and able to survive in only a very specific habitat, where conditions are suited to them. For example, earthworms - which live in the moist soil - often have delicate, moist skin. Organisms found in drier habitats may have thick, hard, outer shells (e.g. beetles) to help them conserve body fluids. Many natural habitats support a great variety of species. However, species in a habitat occupies an ecological niche. Once the resources supporting the species run out the animals may have to move to a more suitable habitat.

Wetlands – A wetland habitat, also called a swamp, is an area that is wet for most of the year. Because of the amount of water in the area, wetlands often have fresh grasses and vegetation long into the dry season. Wetland habitats are important homes for a variety of animals including crocodiles and many birds that depend on this area for food. Other species of animals also visit the wetlands to obtain water.

Savannah – A savannah habitat is an area covered mainly by grasses. These areas receive less rainfall than forests therefore have only a small number of trees. The plants and animals that depend on savannah habitats are well adapted to both wet and dry seasons. Savannahs are home to a large variety of hooved animals that depend on this habitat to provide the abundance of grasses that make up their diets.

Scrub woodlands – Scrub woodlands are areas of land that are covered by bushes and shrubs as well as larger trees. These habitats provide much needed hiding places from predators as well as nesting sites for a variety of animals. Many animals that feed in grassland and wetland habitats will often retreat to scrub woodlands for cover.