National Park Service
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Zion National Park
Utah

Home Sweet Home
Third Grade Pre- and Post-Visit Activity Guide

NPS/JAIME LI

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Zion National Park
Springdale, Utah 84767

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A lizard, tarantula, and desert tortoise need to have water, shelter, food, and space in their habitats.

Core Connections

Utah Core Curriculum
Third Grade Science

Standard 2: Students will understand that organisms depend on living and nonliving things within their environment.

Objective 1: Classify living and nonliving things in an environment.

Objective 2: Describe the interactions between living and nonliving things in a small environment.

Introduction

Theme
All living things, whether plant or animal, have their needs met by their habitats, which come in many different shapes, sizes, and types.

Focus
The relationship between living and non-living things in a habitat.

Pre-Visit Activities
1. *Everybody Needs a Home* – After creating drawings of their own homes and habitats, students will be able to identify key habitat requirements for all living things.

2. *Find the Habitat* – Using images of six different habitats, groups of students will discuss habitat characteristics, living and non-living components, and specific animals from each habitat.

3. *Everything Is Connected* – By taking on the roles of producers, herbivores, carnivores, omnivores and non-living things in a habitat, students will create a food web to improve their understanding of habitat connections. Also, students will participate in a scavenger hunt activity and related discussions to gain a better understanding of the role of non-living things in a habitat.

Post-Visit Activities
1. *Hurry for a Habitat* - Using a relay race, students will become familiar with different habitats of southwestern Utah and their associated plants and animals.

2. *Habitat Hold-Up* - As actors mimicking plants and animals, students learn about Zion's species and their habitat roles.

3. *Living or Non-living Lapsit* - Students form an interconnected circle to demonstrate habitat components and the impacts of change to the habitat by non-living things.

Background

Life thrives on Earth as plants, animals, and other living things such as bacteria and fungi in a variety of natural habitats on land and in water. The natural world supplies habitats, or homes, for living things. A natural habitat is the place where a population (e.g., human, animal, plant, microorganism) lives and its surroundings, both living and non-living.

Understanding a species' habitat requires that we study interactions between living and non-living components in that habitat. Non-living things are inanimate objects or forces with the ability to influence, shape, alter a habitat, and impact its life. Some examples of non-living things include rocks, water, weather, climate, and natural events such as rockfalls or earthquakes.

For a species to survive, its habitat must consist of five components: food, water, shelter, space, and a successful arrangement of those components. The removal of one of these five components will result in the breakdown of the habitat to the point that it may no longer be able to support life.

Food
Food is a vital nourishing substance taken into the body to sustain life.

Water
Water is a liquid that all life needs to survive. It is absorbed by plants, drunk by animals, or sometimes even metabolized out of solid food eaten by animals.

Shelter
Shelter is a place, form, or structure that protects life forms from weather or other adverse conditions, such as being eaten by predators. Shelter provides refuge for life.

Space
Space is a three-dimensional expanse or area. It makes a place available for life and plays a role in the amount of food, water, shelter, space, and competition available.

Arrangement
The arrangement and availability of food, water, shelter, and space in a habitat determines if that area is a successful habitat for a species. For example, if all habitat components are located close together, except for water which might not be found openly in the desert, the distance between the other components and the water might make

the area a poor habitat. The arrangement of food, water, shelter, and space in a habitat determines what species can live there. For example, different plants and animals have different needs for water (i.e., fish need a lot of it while lizards only need a little bit), food (i.e., some animals only eat certain plants), space (i.e., coyotes need more than mice), and shelter (i.e., most bats prefer caves and rock crevices while most birds like trees).

Pre-Visit Activities

1. Everybody Needs a Home

Duration: 30 Minutes
Location: Indoors
Key Vocabulary: arrangement, food, habitat, shelter, space, water

Objectives

Students will be able to: a) name the five components of a successful habitat, b) understand that the arrangement of these five components is equally important to making a habitat fully useful, and c) make a connection between their own habitat needs and the habitat needs of plants and animals.

Method

By creating drawings of their own homes and habitats, students will be able to identify key components of habitats for all living things.

Background

The main purpose of this activity is for students to generalize that animals need a home. Homes are not just houses. A house may be considered shelter. People build houses, apartments, trailers, houseboats, and other kinds of shelter in which to live. Animals also need some kind of shelter. The shelter might be underground, in a bush, in the bark of a tree, or under some rocks.

Materials

- Drawing paper
- Crayons or colored pencils
- Digital images of the homes of birds, ants, beavers, and mountain lions. Print or view the images at http://www.nps.gov/zion/forteachers/loader.cfm?csModule=security/getfile&PageID=524382

Suggested Procedures

1. Ask each student to draw a picture of where he or she lives. Ask the students to include the things they need to survive, such as a place to cook and keep food and a place to sleep.

NPS/RENDALL SEELY

Pioneer cabin in the Kolob Canyons area of Zion National Park.

2. Once the drawings are finished, have a discussion with the students about what they drew. Ask the students to point out the things they need to live.

3. Make a "gallery of homes" out of the drawings. Point out to the students that everyone has a home.

4. Ask the students to close their eyes and imagine a bird's home, an ant's home, a beaver's home, and a mountain lion's home. Show the students images of these animal homes.

5. Discuss the differences and similarities among different homes with the students. Talk about things every animal needs in its home: food, water, shelter, space, arranged in a way that works for that animal.

Evaluation
Discuss with the students what will happen in their homes if some part of the habitat arrangement was taken away. What would happen if there was no water?

2. Find the Habitat

Duration: 20 to 30 minutes
Location: Indoors
Key Vocabulary: desert, elevation, habitat,micro-habitat (seep), mountain, pinon-juniper woodland, riparian (riverside), wetland (swamp)

Objectives
After this activity, students will be able to a) identify key habitats found in Zion National Park, b) describe differences between these habitats, c) identify living and non-living things in each habitat, and d) identify an animal that would live in each habitat.

Method
Using images of six different habitats, groups of students will discuss habitat characteristics, living and non-living components, and specific animals in each habitat.

Background
Zion National Park is home to many different places where species live called habitats. The six different habitats used in this activity are: riparian (riverside), wetland (swamp), desert, pinon-juniper woodland, mountain, and micro-habitat (seep).

A riparian area is found along a river. In Zion, the Virgin River provides life-sustaining water allowing cottonwoods, willows, and ashes to grow. These plants in turn create food and shelter for animals such as beaver, mule deer, and wild turkey. Native fish and birds such as the Virgin River spinedace and the American dipper live within the river system. Wetlands are found alongside the river and support species such as cattail, bulrush, and sedges.

Desert habitat is located in the open, dry slickrock at lower elevations. Here small shrubs thrive and a variety of animal species live.

In the pinon-juniper woodland two tree species, the Utah juniper and the single-leaf pinon pine dominate the landscape. Many small rodents, other mammals, and birds rely on seeds and shelter from these trees for survival.

In the park's higher elevations, atop the plateaus, sub-alpine/mountain habitat exists where quaking aspen, ponderosa pine, and elk live.

Zion is also home to micro-habitats, unique small-scale areas like seeps. Micro-habitats are often found along the Virgin River and are home to unique species like the Zion snail that lives on the canyon's wet rock walls.

Materials:
- Paper and pencils for students
- Digital images of six habitats and six animals. Print or view the images on an electronic whiteboard from http://www.nps.gov/zion/forteachers/loader.cfm?csModule=security/getfile&PageID=524384

"In Zion, the Virgin River provides life-sustaining water allowing cottonwoods, willows, and ashes to grow."

Suggested Procedures

1. Break the class into six small groups. Display the six digital images of Zion habitats on the digital whiteboard for the class to see.

2. Have the groups discuss differences or similarities between the habitats. List words for students to think about in relation to the habitats on the whiteboard. For example: water, rock, hot, cold, dry, wet, or plants. Have them write their thoughts on a sheet of paper as a group.

3. Ask the students to identify which habitat they think is the wettest, the driest, the hottest, and the coldest.

4. Have the students name and list living and non-living things in each picture.

5. Now display the six animal images alongside the habitat images. Ask the students to match the animals with the most appropriate habitat. Note that some of the animals could live in more than one habitat (i.e., fish live in both the swamp and the river; ringtails live in the desert, pinon-juniper woodland, or in the riparian area; and lizards live in both desert and pinon-juniper woodlands).

6. Tell the students the names of each of the six habitat types: riparian, wetland, desert, pinon-juniper woodland, mountain, micro-habitat (seep). Assign each group one of the six habitats to present to the class.

   Have each group present:
   - two words to describe the habitat (e.g., wet, dry, hot, cold, etc.),
   - living and non-living things in the habitat, and
   - animal(s) that might live there and why.

Remind the students to think about the five components of a habitat in their findings: food, water, shelter, space, and arrangement.

Evaluation

Explain that in a place like Zion National Park it is possible to find all these habitats. Because of unique habitats, different types of plants and animals are able to live in Zion. Ask the students if they think that having more habitats will mean there will be more or less different types of species living in an area.

NPS/AMY GAIENNIE

Waterfalls at Lower Emerald Pools.

NPS/LETITIA LUSSIER

NPS/CAITLIN CECI

NPS/CAITLIN CECI

Flowers of prickly pear cactus, golden columbine, and shooting star.

3. Everything Is Connected

Duration: 30 to 45 minutes
Location: Indoors or outdoors in an area with enough space for the students to stand in a semi-circle
Key Vocabulary: carnivore, food chain, habitat, herbivore, living, non-living, omnivore, producer

Objectives

After this activity, students will be able to a) describe a simple food chain, b) name at least one producer, one herbivore, one omnivore, and one carnivore, and c) name one non–living thing and discuss how it affects its habitat.

Method

By taking on the roles of producers, herbivores, carnivores, omnivores, and non-living things in a habitat, students will create a food chain to better understand habitat connections. Then, using a scavenger hunt activity and discussion, students will learn to identify living versus non-living things and understand the impact of non-living things on a habitat.

Background

Everything in the natural world is connected in a web of life. Our sun is the initial source of heat and energy for our planet and the life that thrives on it. Solar energy is used to support the life of producers, species such as plants that produce their own food from sunlight through the process of photosynthesis. In turn, producers may be consumed by herbivores (plant eaters). Carnivores (meat eaters), in turn, may eat herbivores. Omnivores consume both plants and animals.

Non-living things, such as rocks, rivers, waterfalls, rockfalls, weather, fire, and pollution influence a habitat positively or negatively. The web of life is created by relationships not only between living things, but also between living and non-living things.

Materials

- Yellow ball
- String
- Digital images of producers, herbivores, omnivores, carnivores, and non-living things. Download and print two or three of each at http://www.nps.gov/zion/forteachers/loader.cfm?csModule=security/getfile&PageID=524385
- Photographs Pencils
- Clipboards
- Paper

Suggested Procedures

1. Inform students they are going to make a "munch line" or food chain. Attach the string to the ball and place the yellow ball, which represents the sun, in a tree or have a volunteer hold it. The string from the ball represents the energy from sun to Earth.

2. Pass out one image to each student. Ask those who think they are producers, who get energy directly from the sun, to stand up. Briefly discuss each of their images, and have the group confirm that each organism is a producer. As each is confirmed, have them line up next to the sun, hold onto the string (energy) from the sun, and hold up their images.

3. Repeat the exercise with herbivores, omnivores, and carnivores, and discuss the differences. Have students make a c-shaped line for best group viewing.

4. The students left sitting should be holding cards for non-living things. Have this group stand up across from the others and discuss why these things are non-living and why they don't rely on energy to exist, whether from the sun or another food source further along the food web.

5. Divide students into four groups. Send each group to one quadrant of the classroom and give each of the students a clipboard, pencil, and paper. Have the kids fold the paper in thirds, then in half.

NPS/ADRIENNE FITZGERALD

Visitors learn about river habitats.

6. Ask the students to pick three things in their section of the classroom that illustrate or represent a living or non-living thing. It could be a picture, an object, or a word. Then have them draw one item in each of the top sections of the folded paper. One thing should be smaller than a penny, one larger than a dog and one in between (e.g., leaf, rock, tree, feather, or animal track). On the writing half, have the students answer the following questions about each object:

    - What is it?
    - Is it living or non-living?
    - If living, where does it fall in food web (e.g. herbivore, carnivore)?

Evaluation – Flash Flood Scenario

Tell the students that non-living things can change a habitat. As an example, ask the students to think of something that might affect everything in the desert habitat. Help them figure out that they are in a riverbed and that heavy rain sometimes fills the riverbed and moves things around.

Have students pick up their carnivore, herbivore, omnivore, producer, or non-living object cards. Explain how a flash flood can occur when a large amount of rainfall occurs in an area. Ask the students to predict how their type of living or non-living things would react to a flash flood. They should discuss their predictions with their group. Remind them to think of the food web they created earlier. Ask students to predict how flood effects could be carried up the food chain. Start by having the group of non-living things share their thoughts on what would happen to them in a flood. Have the producers, herbivores, omnivores, and carnivores share their thoughts. Have each group present their questions and predictions. Discuss how they could confirm their predictions.

Post-Visit Activities

1. Hurry for a Habitat

Duration: 45 minutes
Location: Outdoors
Key Vocabulary: desert, mountain, pinon-juniper, riparian (riverside), wetland (swamp), woodland

NPS/ADRIENNE FITZGERALD

NPS/CAITLIN CECI

NPS/SARAH STIO

An Arizona toad, Mexican spotted owl, and coyote find homes at Zion National Park.

Objectives

After this activity, students will be able to: a) name and describe at least four Zion/southern Utah habitats, b) name two animals that live in each habitat, and c) identify what causes habitats to be different from each other.

Method

Using a relay race activity, students will become familiar with different habitats in Zion and southern Utah, and species found in each.

Background

Zion contains several different habitats including riparian corridors along the Virgin River, wetland (swamp), pinon-juniper woodlands, slickrock desert, and mountain. All these habitats differ due to their variation in elevations and amount of water. This activity will develop students' knowledge of differences between habitat, as well as different species that live in each.

Materials

- 4 boxes, bags, or crates
- Digital images (cards) of Zion/southern Utah animals and plants. Download and print one of each from http://www.nps.gov/zion/forteachers/loader.cfm?csModule=security/getfile&PageID=524387

Suggested Procedure

1. Place at least four containers (e.g., boxes, bags, or crates) labeled with the different Zion habitats in a line with labels facing the group.

2. Divide the group in half, and line up each group in single file. The lines should be next to each other with the leader facing the habitat boxes (relay race-style).

3. Stack or scatter the image cards between the students and the boxes.

4. Upon your signal, the first student in each line will run to the image cards, pick one up, and place it in its appropriate habitat container. The student will then run back to his or her line and tag the next person who will repeat the process. This continues until each student in both groups has placed a card in a habitat container.

5. Once the groups are finished, review the contents of each habitat box.

6. When you encounter cards placed in the incorrect habitat container, discuss why certain species cannot survive in particular habitats.

7. Conclude by discussing the differences of specific plants and animals in each habitat.

Evaluation

Discuss the following questions with the students: Do some animals depend on more than one habitat? Why do certain plants and animals need a particular habitat? What makes the habitats different (i.e., elevation, water levels, amount of annual precipitation, vegetation)?

2. Habitat Hold-Up

Duration: 30 to 45 minutes
Location: Classroom / Outdoors
Key Vocabulary: carnivore, desert, food chain, habitat, herbivore, mountain, pinon-juniper woodland, predator, prey, riparian (riverside), wetland (swamp),

Objectives

After completing this activity, students will be able to: a) identify various habitats in Zion and southern Utah, b) describe a food chain in each habitat, and c) identify two herbivores, two omnivores, and two carnivores that live here.

Method

By assuming the role of a Zion plant or animal, students will become more familiar with the species and their role in the habitat.

Background

Each habitat contains a unique collection of plants and animals. This creates a series of delicate food chains in which each organism plays a critical role.

Materials

Animal and plant image cards. Download and print one of each from http://www.nps.gov/zion/forteachers/loader.cfm?csModule=security/getfile&PageID=524389

Suggested Procedures

1. Assign a different plant or animal to each student and give them the appropriate image card.

2. Have each student observe and study the plant or animal to determine which habitat it lives in and its role within that habitat.

3. Students can sit in a circle or at their desks.

4. Ask the group of students questions and if the question applies to them, they stand up. For example, if you asked, "Who lives in a wetland?" Zion snail, canyon treefrog, and cattail, etc. would stand up. Continue to ask various questions which describe or indicate characteristics of the plant or animal (see sample list of questions below). Be creative with different slants of questioning or points to focus on.

5. When all species in a habitat are standing, have the students make a food chain using their organisms.

   Sample Questions:

   Who lives in a swamp/wetland? sub-alpine/mountain pine forest? desert? riparian/river area?

   - Who is a carnivore? herbivore? omnivore? nocturnal? predator? prey?
   - Who has an organism that depends almost exclusively on humans for survival?
   - Who might be an endangered species?
   - Who is cold-blooded? warm-blooded?
   - Who uses sunlight directly?

Evaluation

Group students into their habitats and have them explain (and possibly research) why habitats in southern Utah and Zion are important for life to exist.

NPS/BARB GRAVES

A leopard lizard in its desert habitat.

3. Living or Non-Living Lapsit

Duration: 20 minutes
Location: Classroom with a cleared space/ Outdoors
Key Vocabulary: drought, food, habitat, interdependence, shelter, space, suitable arrangement, pollution, water

Objectives
After completing this activity, students will be able to: a) identify habitat components, b) recognize how humans and other animals depend on habitats, and c) understand that loss or change in habitat may impact people and wildlife.

Method
Students form an interconnected circle to demonstrate habitat components and the impacts of change to the habitat.

Background
People and other animals share basic needs. Every animal needs a place to live and this place is called a habitat. A habitat includes food, water, shelter, and space combined in a suitable arrangement to meet the animal's needs. An animal will be affected if any of their habitat components are missing or adversely affected by an arrangement of components unsuitable for the animal. Natural events like disease, drought, or flash floods cause changes to habitats. Human actions create changes as well, for example, pollution, construction, and use of pesticides and herbicides. Changes to one part of the habitat can impact other parts because everything is interconnected and related. Interrelations between plants, animals, non-living things and their surroundings are important to the survival of all life forms.

Materials
- None

Suggested Procedure
1. Have students form a circle, standing shoulder to shoulder. Ask each student to name one of the four habitat components. Then have the fifth student in the circle start over with food and continue around the circle until every student has said one component. These components will be their roles in the rest of the activity.

2. Ask students to turn right so that they face the back of the student in front of them. Then have everyone take one step in towards the center of the circle. They should all be standing quite close together.

3. Ask everyone to listen carefully and place their hands on the shoulders of the person in front of them. On the count of three, have the students sit down slowly on the knees of the student behind them, keeping their own knees together to support the person in front of them. Point out to them that all the components of a habitat, represented by the students, have now been put together in a proper arrangement where everything is interconnected, i.e., the linked lapsit circle in which they are now sitting. Discuss how each component is important to habitat stability.

4. Repeat the activity. Once everyone is in the lapsit position, call on all the students that represent water. Explain that this is a drought year. Say "water is reduced in the habitat by drought conditions." Now have students representing water remove themselves from the lapsit circle. At this point, the circle will either collapse or suffer disruption. The balance is lost.

5. Now have the remaining students reform the lapsit circle. After the circle has been reformed have water students play the role of a flash flood. Have them try, as a group, to create an opening and work their way back into the circle. This should not be easy, but the stability of the lap sit circle should be lost again.

6. Discuss with the students other ways that habitat stability might be disrupted. What natural events in addition to droughts or flash floods may impact survival? Talk about rockfalls, road construction, development, water pollution, storms, and weather.

NPS/BARB GRAVES

A Fremont cottonwood against a winter sky.

7. Ask the students to discuss what this activity means to them. Ask them to summarize the main things they learned. Points could include:

    - Humans and other plants and animals depend on habitat.
    - Loss of any habitat element can impact life balance.
    - Changes to habitats are can be influenced by both living and non-living things

Evaluation

1. What are the five essential components of habitat?

2. How is the arrangement of food, water, shelter, and space important to humans and other animals?

3. Which would probably have the greater long-term impact on the wildlife living near Zion National Park:

    - A severe winter that killed many plants and animals?
    - The building of a shopping mall and parking lot on top of the land?

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