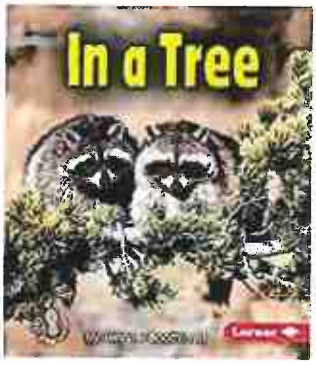
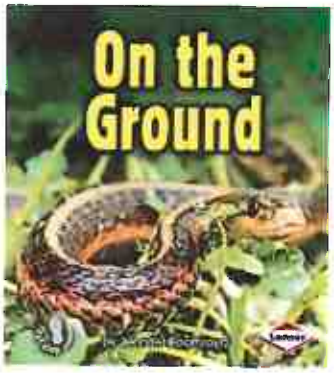
Homes and Habitats

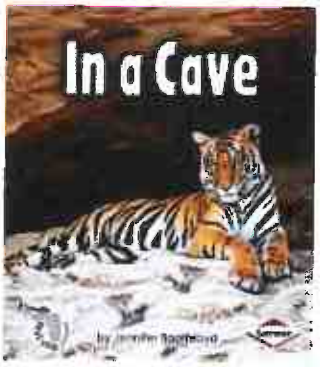
PSS Kit Number 7

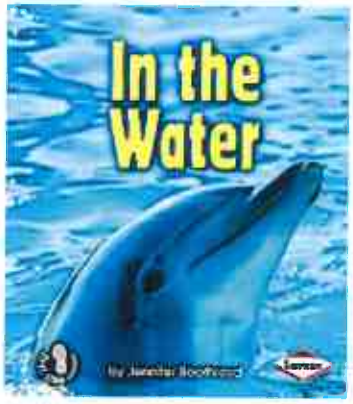
Kit Contains

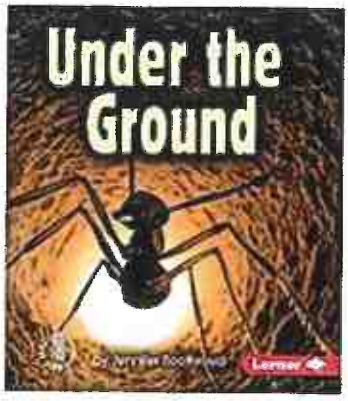
1 Go Pro
1 Micro SD Card
"In A Tree"
"In A Cave"
"On the Ground"
"In the Water"
"Under the Ground"
10 Model Magic
1 Glue gun
10 Glue gun sticks
5 Binoculars
Lesson Plans











Pint Size Science

Homes and Habitats

Introduction

Living things must adapt to their environment in order to survive. Sometime they are able to do this by changing components of their habitat to best suit their needs. Pine trees drop older needles on the ground in order to prevent other plants from growing near the tree and competing for resources. Beavers cut down small trees to build their dam and back up flowing water to create their home. Trees move and break through concrete to make more room for their roots.

However, not all of these changes are beneficial to the environment. For example, moth larvae eat the roots of grass killing the plant and leaving the soil bare, which leads to erosion. The adult Emerald Ash Borer eats leaves and causes very little damage to the tree. The larvae, laid in the bark of Ash trees, disrupts the transport of water and nutrients in the tree eventually killing the tree. Humans dump garbage in grassland and forest that can poison the soil, killing plants and animals.

Kit Materials

Go Pro
Micro SD card
"In A Tree"
"In A Cave"
"On the Ground"
"In the Water"
"Under the Ground"
Model magic
Glue guns
Binoculars

ANIMALS HAVE BASIC NEEDS TO SURVIVE

Provocation
Read "In A Tree." What does a tree provide to animals and insects? What do they provide to humans?

Investigation
Investigate a tree. Use binoculars and magnifying glasses to see what animals/insects are living in/on the tree. Set up the GoPro and have it record for preset periods of time. What animals did you see visit the tree?

PINT SIZE SCIENCE

HOMES AND HABITATS

ANIMAL HOMES ARE REFLECTIVE OF THE ENVIRONMENTAL CONDITIONS WHERE THEY LIVE

Provocation
What is a habitat? How are animals living in the same living space similar? How are they different?

Investigation
Use research materials to find out more about animals that live in the same habitat. What food is provided to them? Is there enough water to meet their needs? Could those animals survive in a different habitat?

HUMAN INTERACTIONS WITH THE ENVIRONMENT CAN HAVE AN EFFECT ON THE HABITAT OF OTHER ANIMALS

Provocation
Look at pictures showing different forms of pollution. How does the pollution get there? Watch the video "Lilly Litter" and discuss what the video shows.

Investigation
Use the GoPro camera to take pictures and video of animal habitats in your area.

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Homes and Habitats

Main Concepts

- Animals have basic needs to survive
- Animal homes are reflective of the environmental conditions where they live
- Human interactions with the environment can have an effect on the habitat of other animals

Science Standards: IELS-8.1.PS.4, 8.1.PS.5, 8.1.PS.7, 8.2.PS.2, 8.2.PS.3, 8.2.PS.4, 8.3.PS.1, 8.3.PS.2, 8.3.PS.3, 8.3.PS.4; Iowa Core-K-LS1-1, K-ESS2-2, K-ESS3-3, 1-LS1-1, 2-LS4-1

Guiding Questions

How do animal homes reflect the environmental conditions where they live?

What are the basic needs animals have to survive?

How do human interactions with the environment affect the habitat of animals?

STEM Career Connection

Wildlife Biologist - Scientists who study animals and other wildlife and how they interact with their ecosystems. They study the physical characteristics of animals, animal behaviors, and the impacts humans have on wildlife and natural habitats.

Zookeeper - Job where one advises veterinarians on animals' health, consults with animal curators on animals' environments, and answers questions from the visiting public on animals' bodies, diets, habitats and behaviors.

Homes and Habitats

Vocabulary

Habitat: *a living space that can provide all the things a plant or animal needs to survive*

Pollution: *the contamination of air, water, or soil by substances that are harmful to living things*

Carbon dioxide: *a heavy colorless gas that is formed by burning fuels, by the breakdown or burning of animal and plant matter, and by the act of breathing and that is absorbed from the air by plants in photosynthesis.*

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Investigating Trees

Materials needed

- ✓ Go Pro
- ✓ Magnifying glasses
- ✓ Binoculars
- ✓ Pencil and paper
- ✓ *In a Tree*

- What is a habitat? What kind of living spaces (habitats) can you think of? Read the book *In A Tree*. What were the animals shown using the tree for a living space? What does the tree provide for animals? What do trees provide for us?
- If possible, go outside and observe a tree. Have children draw a picture of it, touch it, use the binoculars to look up into it, look for animals that might be in the tree. Have children write "I wonder" statements/questions about the tree and what they observe. After coming inside, have students share their statements/questions. Determine which are testable and which are researchable. Have learners conduct investigations into the testable questions. Discuss resources that will help them answer researchable ones and make a plan to access them.
- Take the GoPro outside and decide as a group where to place it in order to get the best view possible of the entire tree. Leave it for a period of time to record animals that might visit the tree during the time it is there. What animals do you think might come to the tree? What animals have you seen in a tree? Watch the video. Did any of the animals that we thought might come to the tree appear in the recording?
- Have children use the modeling compound, found objects, and/or other materials to construct a tree.

Seedlings Versus Sprouts

In A Tree is a **Sprout** level book but can be used by Seedling level students to make comparisons between the many animals and insects that call a tree home.

Sprouts might need help locating insects or evidence of an animal home in or on the tree.

Homes and Habitats
Investigating Trees

Background Information

All living things have basic needs in order to survive. This is a characteristic that separates them from nonliving things. For animals these needs include shelter, food and water. Plants need soil, water and nutrients. The characteristics of a habitat must fill these needs. Cat Tails must live in places with a lot of water, such as drainage ditches, wetlands or riparian (area between land and waterway) zones. Other plants, like Rosemary and Thyme, need dry, well-drained soils to survive. Since animals that are carnivores only eat meat, they must live in an area that supports the animals that they hunt. Wolves live in grasslands, not to eat the grass, but because their main prey are herd animals that eat the grass.

Icon Key

- Large or small group
- Outside activity
- Center activity
- Lab coat needed
- Teacher supervision required
- Safety goggles
- Science Sprouts kit

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Different Needs, Different Habitats

Materials needed

- ✓ Paper
- ✓ Markers
- ✓ Resource materials

- Create a list of animals' needs with the students. Do people need some of the same things? What are some places where animals could find the things they need to survive? Those places are called habitats. Have children work together to name several different habitats and the animals that might live there. How are the animals similar in each habitat? How are they different?
- Have learners make a list of characteristics that help living things to survive in different habitats.

Seedlings Versus Sprouts

This investigation is more suited for **Seedling** level students.

For **Sprout** level, talking about habitats as animal homes and having them classify animal names that would live in water, on land, or under the ground would be more developmentally appropriate.

Homes and Habitats

Different Needs, Different Habitats

Background Information

Different animals living in the same habitat will have similar adaptations. This is known as convergent evolution. Animals living in the arctic have thicker fur and/or feathers that tends to be white. Animals living dark areas tend to have larger eyes and ears. Animals living in the water have fins and flippers. When observing an animal, predictions can be made about their habitat based on their traits and characteristics. Part of the habitat of animals with wings will be higher up off of the ground.

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Looking at Pollution

Materials needed

- ✓ Paper
- ✓ Pencil
- ✓ Pictures showing different forms of pollution from resource page
- ✓ Video "Lilly Litter" from resource page
- ✓ Expert speaker

- Show students the pictures of different kinds of pollution. What do you see in these pictures? What do you think "pollution" means? Have you ever heard that word? How do you think the pollution got into these places in the pictures? Can you think of ways to clean up what is shown in the pictures?
- Show the video to the children. Describe what you saw in the video. How did the pollution affect the way the water flowed? How do you think the pollution affects the animals who use the waterway to survive?
- Record or have students write questions they would like to ask an expert speaker. Invite someone who is knowledgeable about caring for the environment to talk to the class and have children ask their questions.
- Go into the area around the school and pick up trash. Discuss with students the positive impact they made by caring for the earth and environment.

Homes and Habitats

Looking at Pollution

Background Information

Pollution is the addition of contaminants into a natural environment that causes adverse changes. Pollution can take lots of forms and includes chemicals, litter, noise or light. Humans cause changes to their habitat (and that of other animals) when they pollute the environment. If a company dumps waste chemicals in a grassland area, it could kill the grass and contaminate the groundwater, making it uninhabitable. If humans tear down a forested area to build a mall, it could disrupt the migratory path of birds that previously rested there on their journey. If a racetrack is built near a wildlife area, it could change the soundscape interrupting animal communication.

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Who Lives Where I Live?

Materials needed

- ✓ GoPro
- ✓ Paper
- ✓ Pencils/crayons/markers
- ✓ Pictures of animals (optional)
- ✓ Prints from GoPro photos

- Have students share their findings from their research in the Different Needs, Different Habitats activity. If this was not done, have them generate a list of different homes or habitats and the animals that they think will live there.
- Take the students out, or have them look out the window, and name the habitats they see. This can be done on a field trip, a walk to the park, on the playground, etc.
- Let children take pictures with the GoPro of the different habitats they see and any examples of life they see in the habitat. What are some animals that you see around where you live, your school, the library? Where are places that animals can live in the environment around us? If pictures of a tree are taken, encourage students to think of all the different places that can be a habitat in the tree; examples could be branches, roots, leaves, bark, because different animals will use the different parts of the tree as a home. Also, the students could lay on the ground and take pictures looking up into the tree. This would give them a different perspective of what a tree looks like. If they want to take pictures of the grass, have them put the GoPro down into the shoots to see if there are insects visible. Have them look for holes that ants may use as an entrance to their tunnel, beehive, spiderweb, or any other hole or crevice that could be used as a home for an animal or insect.
- When returning to the classroom, review the pictures taken on the GoPro. What were some of the animals that you were surprised to see? Where were some places you were surprised to see animals living? Print the pictures out. Students can glue pictures of animals that would live in each habitat onto the picture of the habitat or draw an animal. They could then write a sentence or description of their finished picture.
- Put the pictures together to create a class book of each habitat. This can be done many times throughout the year, during different seasons, different weather conditions, different times of the day.
- After the book(s) is completed, have the students share it with another class, an expert speaker, their parents, a community group, etc.

Seedlings Versus Sprouts

Sprouts can work together to make a class book. Their comments and captions can be recorded by an adult.

Seedling level students can create their own page for either a class book or an individual one that can be added to with pictures of different habitats throughout the year.

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