

Problem Solvers Activity SE 11: We All Have a Habitat

CHILDREN ARE LEARNING...¹

Science Content:

- A habitat is a place where an animal lives.
- A habitat has everything an animal needs to survive: food, water, shelter, and space.
- Different animals live in different habitats, depending on their needs.

CHILDREN ARE DOING...

Science Practices:

- Notice patterns
- Make observations
- Develop and use a model

MATERIALS NEEDED:

4 sticky notes

Chart paper and marker

Small mouse toy (optional)

2-3 boxes of different sizes that will fit toy mouse

Open-ended materials to create a mouse habitat—for example:

- Construction paper
- Markers/crayons
- Shredded paper
- Leaves, etc.
- See the table on the following page for additional ideas on what a mouse habitat should include.

Handout 1: Habitat Cards

PREPARATION:

For the EXPAND activity:

- Print and cut one set of **Handout 1: Habitat Cards** for every pair of students, plus one extra set for group use. Separate into two piles—animals and habitats—and keep aside until needed.
- Optional: Laminate the Habitat Cards and/or glue to index cards to make them sturdier. If you wish, you can implement this activity on a feltboard, which will require adding hook-and-loop tape to the back of one set of cards.

¹ Adapted from the Next Generation Science Standards (kindergarten): <https://www.nextgenscience.org/>

- On one set of **Habitat Cards**, trim sticky notes so they cover the animal in each of the four habitat pictures. Only the habitat (ice, trees, water) should be visible.
- Read the background information below to review facts about each animal featured in the **EXPAND** activity.

For the EXPLORE activity:

- With your guidance, children will build a habitat model for a field mouse in this activity. Have the mouse toy (if using), cardboard boxes, and open-ended materials handy for children's discussion/decision-making. Children can use these open-ended materials—or other materials they find inside or outside the classroom—to build their habitat model.
- Review the background information on mice habitats (next page) to share with children.
- *If you wish, you can allow children to choose another animal to build a habitat model for—perhaps they are interested in a specific animal right now (like bats in October) or you want to choose an animal found in your community. Be sure to do a little background research so you can answer children's questions about its habitat.*

Background Information on Habitats for Teachers:

A habitat is a place where a plant or animal lives. The habitat has everything the plant or animal needs to survive: food, water, shelter, and space. Children will continue to learn about habitats throughout their school years, adding to their knowledge as they grow. For this activity, the key message about habitats is that each animal lives in a habitat that meets all of their needs. Not every animal can live everywhere. No fish live in the sky. No birds live underwater; even birds that dive to catch fish have to come up for air.

In the **EXPAND** activity, children are guided to think about the things that make a habitat suitable for a particular animal.

- Is there water to drink?
- Is there food that the animal likes to eat?
- Is there shelter that protects them from the weather and other animals that might eat them?
- Do they have enough space to move around?
- How do they get oxygen/breathe? Birds and animals that live on land get oxygen from the air they breathe. Fish get oxygen from the water and can spend all their lives there.

BACKGROUND INFORMATION ON THE ANIMALS FEATURED IN THE EXPAND ACTIVITY:

Salmon

A salmon is a kind of fish, which means it spends its whole life in the water. Salmon are born in streams or rivers. When they are adults, salmon migrate, or move, to the ocean. But when it's time for them to lay eggs, salmon return to the stream or river where they were born. Salmon eat smaller animals that are found in the sea—like fish and shrimp. People and other animals (like bears) like to eat salmon.

Polar Bear

Polar bears live where it is cold all year long, near icy water (like the Arctic sea ice). They can swim for days at a time looking for food to eat. Their two layers of fur and a thick layer of fat help to keep the bears warm, even in the coldest weather. Polar bears' white fur helps them hide from the animals they hunt (like seals) in their snowy, icy habitat. They like to eat seals, walrus, fish, sea birds, and even berries and plants sometimes.

Parrot (Macaw)

A macaw is a parrot, which is a kind of bird. They live in a tropical rainforest, which is a warm, wet forest that gets lots of rain. This makes it easy for macaws to find water. Also, rainforests have a lot of trees with fruits and berries, which macaws love to eat. And rainforests have many tall trees, which is exactly where macaws like to build their nests, rest, and sleep. Macaws eat plants—seeds, nuts, fruits, leaves, flowers, and plant stems.

Frog

Frogs are amphibians, which means they spend part of their lives in the water like ponds and part on land. Frogs eat worms, spiders, insects, water beetles, and more. Frogs lay their eggs in water. Their eggs hatch into tadpoles, which look a little like fish. The tadpoles grow legs and are soon able to hop on land. Once a tadpole has its legs, it is called a frog.

BACKGROUND INFORMATION ON THE FIELD MOUSE FOR THE EXPLORE ACTIVITY:

Use the chart below for background information on the habitat needs of field mice. If children would like to choose a different animal for their habitat model, be certain to research the animal's habitat needs in preparation for this activity.

FIELD MOUSE	HABITAT NEEDS: SHELTER, SPACE, FOOD, AND WATER
<p>The field mouse is nocturnal. (It is active at night and sleeps during the day.)</p> <p>Field mice are 3-4 inches long.</p> 	<p>Shelter: Field mice prefer to live in a place that has a lot of ground cover (grass or fields). Usually when mice live outdoors, they build underground nests called burrows. The entrance to the burrow is hidden away, usually in a field or grassy area, so the mice are safe while they sleep. The inside of the nest is built using soft materials (paper, grass, leaves, moss, fabric, etc.) that the mice find and carry inside.</p> <p>A burrow has an entrance and also an exit, where the mice can escape quickly if the entrance is blocked. Sometimes mice build tunnels in their burrow. These tunnels can go to different entrances or can be used to store food.</p> <p>Space: A mouse burrow is usually no bigger than 3 feet long and 18 inches deep.</p> <p>Food: Field mice will eat garden crops, fruit, seeds, plants, tree bark, berries, moss, and fungi (mushrooms). They will even eat small frogs!</p> <p>Water: Field mice find water in puddles, streams, and lakes.</p>

Activity Instructions

ENGAGE

Gather a group of 4 children at a table or in a circle on the floor. (Note: Groups of 6 children work well if you are teaching 4-year-olds.)

EXPLAIN: Today, we are going to talk about the places where animals live. We call the places where an animal lives its habitat. A habitat is a place that has enough space for the animal, and where the animal can get food, water, and air to breathe.

ASK: Humans are animals too. What food do you have in your habitat? Where is the water in your habitat? Where do you go to sleep and stay safe in your habitat? Do we have air or oxygen to breathe? Let's take a deep breath and see! (*Model taking a deep breath.*) So humans have a habitat, because we are animals too!

ASK: Let's think about another animal now. Can someone share an animal they know? (*Invite children to name an animal they've seen and share what they know about where it lives. Ask where the animal lives, what it likes to eat, how it stays safe, etc.*)

ASK: Hmm. I'm wondering about the places where animals live. Can a dog live in the sky? Can a bird live underwater? (*Encourage children to imagine/explain why these animals can't live in these habitats.*)

SUMMARIZE: Not all animals can live in all places. Each animal has a special place where it lives that's just right. That place is called its **habitat**. An animal's habitat has just what it needs to grow and be safe and healthy—air or oxygen to breathe, food, water, a place to stay safe from bad weather and other animals, and enough space. Let's play a game to explore the habitats of four different animals.

EXPAND

Place the macaw, salmon, polar bear, and frog cards face up on the table. Keep the habitat cards (with animals covered by sticky notes) aside.

SAY: I have 4 different animals here. We're going to play a game to see if we can figure out where each of these animals might live.

ASK: Invite children to tell you what they know about each animal. (*It's okay if children don't know anything about the animals pictured. Use the details in the **Background Information for Teachers** section to give children some knowledge of these animals. Questions to focus on include those listed below.*)

- What is this animal's name? (*Note that "macaw" is the special name for this colorful bird. "Polar bear" is the name for this specific white bear. A "salmon" is the name for this particular fish. Explain that every animal has its own name.*)
- How do you think this animal moves—fly, walk, swim, or jump?
- What do you think this animal eats?

TRY IT: Place the four habitat cards on the table, so that you have one column of animals and one column of habitats (with the animals hidden by sticky notes). Mix up the order of the habitat cards so they are not next to their matching animal.

SAY: On this side, we have our four animal cards (*point and say each animal's name*). On this side (*point*), we have four habitat cards that show us where these animals live. I wonder if you can help me figure out which animal lives where?

IMPLEMENT: Start with the macaw, the easiest animal to match with its habitat. Point to the macaw and ask which of the photos show where it might live—its habitat. Point to each habitat photo and help the children describe it. Let the group come to a decision about which habitat is right for the macaw. (If children

are having difficulty, use the questions below to prompt their critical thinking.) Choose a child to remove the sticky note from the tree habitat to reveal whether their prediction was correct.

Use questions to focus children's observations on key details of the different habitats:

- What clues do you see in the picture? I think I see ice in that picture. What kind of animal might live in a cold, icy place?
- Hmm, look at the thick fur on this animal. Would an animal need fur like this in a place that's very cold or very warm? Which habitat looks cold?
- Let's look at the habitat pictures. One of the pictures has plants called lily pads floating on top of the water. Which animal needs a habitat with a place where they can sit outside the water?

Help children bridge the knowledge of their current community to predict a habitat for an animal they may not have seen before.

- When you wear a heavy coat, is the weather cold or warm? This animal has a heavy coat of fur. Do you think his habitat is cold or warm?
- We have birds in our community. Where do they live?
- Have you seen a fish before? Where do they live? *(If children don't share, explain that fish are born/hatch in the water and spend their whole lives in the water.)*
- Where do you think frogs live? Do they live in the water like a fish, or near the water? *(Provide additional information as necessary: Frogs' eggs hatch in the water but once the tadpoles grow legs, they spend their lives near the water. On the other hand, fish stay in the water for their whole lives.)*

TRY IT: Use the habitat cards to play a memory game.

Leave the animal-habitat matches visible on the table as you implement the second part of this activity.

Group children into pairs and give each pair a set of 8 cards (4 animal cards and 4 habitat cards).

Show children how to place cards face down and take turns flipping over two cards to discover a match between animal and habitat. If no match is uncovered, the player returns the cards to their position, face down.

If a player discovers the match, they explain why it's a match (for example, "A macaw lives in the trees") and keep the cards. Play continues until all cards have been matched.

EXPLORE

INTRODUCE: Next, we are going to build our own model of a habitat! A model is something we build to look like something else. Today we are going to build a habitat model for a field mouse *(hold up the mouse toy, if using)*.

- What can you tell me about a mouse? (Are they big or small?)
- Does anyone know where a mouse lives? *(Use the information below to help with this discussion. Review each element of the field mouse's habitat.)*
- Do you think a mouse needs a big space or a smaller space for its habitat?
- Does anyone know what a mouse likes to eat?
- Where do you think a mouse finds water to drink?

TRY IT: Use chart paper to help children create a plan for ensuring all of these elements are in their habitat model. Draw simple pictures to show the selected animal's habitat needs.

WHAT ALL ANIMALS NEED	TEACHER PROMPTS
Oxygen/Air to breathe	<ul style="list-style-type: none"> Is there air/oxygen in our habitat model?
Food	<ul style="list-style-type: none"> What do you think the field mouse eats? (Share background information as needed.) What kind of plants or animals should we put in our habitat? How can we find/build/create some of these food items for our habitat?
Water	<ul style="list-style-type: none"> Where does our field mouse get water to drink? Where should we put water in our habitat?
Shelter	<ul style="list-style-type: none"> Where can our field mouse sleep and stay safe? What will that look like in our habitat model? What should we include? Does our field mouse live in trees, or grass, or water, or somewhere else? What should we be sure to include in our habitat?
Space	<ul style="list-style-type: none"> Is this a big animal that needs lots of space to run and hunt? Or is this a small animal that doesn't need much room at all? What size box should we use for our habitat model—a bigger box or smaller box? (Let children decide on a box to use for the habitat model.)

CREATE: Help children create a model of the field mouse habitat.

- Show children the open-ended materials you have collected. Let them explore these objects and materials.
- Encourage children to look for additional materials in the classroom to create elements of the field mouse habitat. They might use: blocks, blankets, other open-ended materials like tissues or cotton balls, pom-poms, coffee filters, play-dough, etc.
- Give each child in the group a "job" to create one or more elements of the habitat. Observe and provide support as needed to help children collect or create the food, water, and shelter needed for the field mouse.
- Help children place each of their creations in the box to build the habitat model.
- When the children are done, let them place the field mouse toy in the habitat model.

REVIEW: Observe the habitat model as a group. Review the five components of a habitat once more to help children check to make sure all of these elements are present in their habitat model. Leave the habitat on display for several days so children can return to it and continue their exploration/learning.

REFLECT

To close the activity, bring the children back together. Use a reflective question/s like those below to prompt children's thinking about habitats.

- Can you share one thing you learned today about an animal and its habitat?
- What was the most surprising thing you learned about habitats?
- What do you like best about our habitat model? What was hard or tricky about making a habitat model for a mouse?
- What animal habitat would you like to learn more about?

SUMMARIZE: Animals need oxygen to breathe, food, water, and space to live. The place where animals find all of the things they need to grow and be safe is called their habitat.

Individualizing the Activity

Make it more challenging:

- For the **EXPAND** activity, after making one animal-habitat match as a group, pair children up and allow them to work together in creating pairs for the remaining 3 animals. Observe and provide guidance/problem-solving as needed.
- Implement the **EXPLORE** activity in pairs (rather than as a group) and allow each pair to construct their own mouse habitat.
- Alternatively, let pairs choose a different animal toy and construct a different habitat. Support them in thinking through the details of what to include in that animal's habitat. Note that this approach will require the teacher to help children research each pair's selected animal.
- Invite children to create their own pretend animal in the **EXPLORE** activity and decide what elements to include in its habitat.

Make it less challenging:

- Reduce the number of **Habitat Cards** in the **EXPAND** activity by skipping one or more of the water habitats/animals (fish, frog) to make the matching game easier.
- Reduce the number of elements discussed when creating the habitat in the **EXPLORE** activity. Focus on food, water, and shelter. Create these elements as a group, with guidance and scaffolding from the teacher.

MAKING CONNECTIONS ACROSS THE DAY:

- Take a walk in the community and pause to notice the animals along the way. Talk about where they might live and what they might eat. Take photos to document the animals you see so you can read more about their habitats when you return to the classroom.
- Keep a set of **Habitat Cards** where children can continue the memory and matching game during free play.
- Create a display of picture books that feature animal habitats.
- Provide animal figurines for sand or water play. Ask questions to help children expand on their imaginary play: "What does it eat? Where does it sleep?"
- Consider implementing a classroom garden. Discuss how growing food in a garden is one way that humans can make sure their habitat has food to keep them healthy.

Song: *Habitats*

Directions: Model the animal movements in the song. Encourage children to do what you do!

Habitats, habitats, (Sway side to side)

Animals live in a habitat.

Water, land or in the trees

Let's be animals and make-believe.

Let's walk like a polar bear,

(Make heavy, stomping movements)

Heavy feet on the ice and snow.

Polar bears live in cold, cold places with a

Warm, fur coat wherever they go!

Habitats, habitats,

(Sway, sing along if possible!)

Animals live in a habitat.

Now let's hop like a little frog,

(Hop lightly up and down)

Jumping around on the lily pads.

Frogs live in and out of water,

And they breathe through their slimy, wet skin.

Habitats, habitats,

(Sway, sing along if possible!)

Animals live in a habitat.

Now let's fly like colorful parrot,

(Flap arms, stand up high)

Spread our wings and pretend to fly.

Parrots nest in trees high above us.

They stay safe, up high in the sky.

Habitats, habitats,

(Sway, sing along if possible!)

Animals live in a habitat.

Now let's swim like a great big fish,

(Hands together, pretend to swim around)

Wiggle our tails in the wavy sea.

A fish's home is in the water.

Currents take them where they wanna be.

Habitats, habitats,

(Sway, sing along if possible!)

Animals live in a habitat.

Water, land or in the trees,

Let's be animals and make-believe!

Making Literacy Connections

Share the following book with children as an opportunity to deepen their understanding of habitats. The literacy extension activity below suggests another play-based experience to share.

Suggested Book: *Nesting* by Henry Cole

AS YOU READ:

- The illustrations are black and white in this book, with a little bit of blue. Begin with the cover: What do children see? What are the blue objects on the cover? What do children predict this story will be about?
- On the first two-page spread, can children spot the robin on the branch? What do they know about a bird's habitat? (If you use technology in your classroom, you might want to share this 2-minute video about birds' nests: <https://pbskids.org/videos/watch/birds-nests/24785>)
- When the two robins explore, what do children predict they are looking for? What will they do with the dry grass and small twigs?
- Even though a robin is brown and gray, its eggs are bright blue. Can children find the egg in the nest? Do they predict there will be just one egg or more than one egg? (Turn the page for the answer. Invite children to help you count.) Let children know it takes about two weeks for a baby bird to grow in the egg and be ready to be born. If you'd like, look at your classroom calendar to think about how long two weeks is.
- Look at the page where the baby birds are pecking through the eggs to be born. Can children spot the cracks from the little peck, peck, peck of the babies' beaks? The author tells us the babies are blind and defenseless – help children understand what this means: the babies cannot see at first when they are born, so they need the adult bird to keep them safe.
- We know a habitat has to have food for the animal to eat. What food do baby robins enjoy?
- A habitat has to keep us safe from weather. What happens to the babies during the storm?
- In this story, we learn that the snake is a predator—it wants to eat the baby robins. What do the mother and father robin do?
- What are some other foods in the robins' habitat? (Apples and berries!)

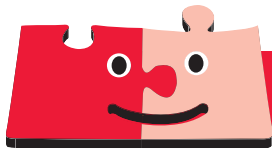
BUILD ON THE BOOK: BUILD A CLASSROOM NEST

Encourage the children to gather materials from the classroom—blankets, pillows, blocks, boxes, or other items—and build a cozy nest in a corner of the room. Let children pretend to be baby birds in an egg, pretend to break through their eggshell, and hatch. Can another child pretend to fly out looking for food for the babies? Can the babies pretend to fly out of the nest when they're big enough? Re-telling a familiar story through play helps children remember it, learn the concepts, and is a joyful way of extending a literacy experience. You may even want to use the classroom "nest" as a "safe place" children can go when they are feeling overwhelmed.

Handout 1: Habitat Cards







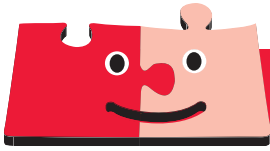
Discovering Habitats

This week, children are learning about animal habitats. Every animal needs five things in their habitat: oxygen/air to breathe, food, water, shelter, and space.

Here are some ideas to help your child notice and think about habitats in the world around them:

- Take a walk outdoors and look for the animals in your neighborhood. (Your child may spot tiny creatures that adults miss—like ants marching by.) Talk about where the animals live and what they might eat. Look up for squirrel nests in the trees, look down for anthills beside the sidewalk.
- If you have a family pet, talk about the habitat you've created for it. When do you give it food? When do you give it water? Where does your pet stay during bad weather to stay safe? Let your child assist in feeding the fish or putting out water for the dog or cat.
- Visit a community nature center, zoo, or aquarium. Together, discover all the habitats that have been specially created for the animals that live there.
- Humans live in habitats, too! Talk about how your family chooses healthy food, drinks water, and has a place to live where everyone is safe.





Solo para familias

Descubrimiento de hábitats

Esta semana, los niños están aprendiendo sobre los hábitats de los animales. Cada animal necesita cinco cosas en su hábitat: oxígeno para respirar, alimentos, agua, refugio y espacio.

Estas son algunas ideas para ayudar a su niño a observar y a pensar en los hábitats del mundo que está a su alrededor:

- Den un paseo al aire libre y busquen los animales del lugar donde viven. (Su niño quizá vea criaturas diminutas que los adultos pasan por alto, como hormigas que se llevan las migas que la gente deja caer). Hablen del lugar donde viven los animales y de lo que comen. Busquen nidos de ardillas en los árboles, y hormigueros junto a la acera.
- Si en su familia tienen una mascota, explíquelo al niño el hábitat que han creado para ella. ¿A qué hora le da de comer? ¿Cuándo le da agua? ¿Dónde se queda su mascota para protegerse del mal tiempo? Deje que el niño ayude a darle de comer a los peces o a servir agua para el perro o el gato.
- Visite un centro comunitario sobre la naturaleza, un zoológico o un acuario. Descubran juntos todos los hábitats creados especialmente para los animales que viven allí.
- Los humanos también vivimos en hábitats. Hable de cómo su familia elige alimentos sanos, bebe agua y vive en un lugar seguro para todos.

