

Problem Solvers Activity SE 10: What Do They Need: Animals and Plants

CHILDREN ARE LEARNING...¹

Science Content:

- The difference between animals and plants
- Living things need water, air, and nutrients from their environment.
- Animals and plants have some needs that are the same, and some needs that are different.

CHILDREN ARE DOING...

Science Practices:

- Making observations
- Noticing patterns in the natural world

NOTE TO TEACHERS:

Young children can develop misconceptions (things they misunderstand) about science. You can use this activity to correct some common misconceptions children may have about plants and animals.

Misconception 1: Humans are not animals. Humans are a kind of animal, called a mammal. Some important things about mammals are:

- Mammals have hair or fur (this even includes mammals like dolphins or whales—which have some hair when they are born but then lose it!)
- Mammals are warm-blooded (this means mammals have the same body temperature no matter how warm or cold it is outside)
- Mammals feed their babies milk

Misconception 2: Plants are not alive. Actually, plants are alive. They need air, water, soil, nutrients, and sunlight to live and grow. Without those things, plants will get brown, dry, and wither. Ultimately, they may die—or no longer grow at all. Teachers can compare plants with other items in the child's world, like mulch or rocks that are not alive. Mulch and rocks don't grow in size and always look the same. They don't need specific things (like water, air, sun, nutrients, and soil) to live and be healthy.

Misconception 3: Animals always live on land. It is true that many animals live on land, like humans, birds, squirrels, dogs, horses, cows, and more. Other animals live in the water like dolphins, fish, whales, and more. Some animals live on both the land and the water like frogs, alligators, crocodiles, and more.

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

MATERIALS NEEDED:

34 index cards

Large piece of chart paper

Marker

Gluestick or tape

Handout 1: Animals

Handout 2: Plants

Handout 3: Needs

PREPARATION:

- **For the EXPAND activity:**
 - Print the Plant and Animal Cards from **Handouts 1 and 2**.
 - Cut out the 22 cards. Glue, tape or staple each picture to an index card. Shuffle the cards.
 - Create two piles of 10 cards each. Keep 2 cards (one animal, one plant) aside for your demonstration.
- **For the EXPLORE activity:**
 - Print the images from **Handout 3**.
 - On a large piece of chart paper, make a large plus sign (+) on the page to form 4 squares. Label each of the 4 sections by cutting/taping one of the animal/plant images from **Handout 3** (the humans, the robin, the pine trees, and the bee). See example to the right.
 - Cut out the remaining cards from **Handout 3** (the needs for humans, birds, bees, and pine trees). Glue, tape or staple each to the remaining 12 index cards.
 - Create 3 piles of cards. One pile should be for shelter/ space to grow (soil, house, hive, nest). One pile should be for food (dinner plate, nuts/berries, and flower). The final pile should be for water (water glass, rain, puddle, and bird bath). Shuffle each pile and set aside until needed. Keep the sun card separate - it will be used in the activity, but will be played by itself.
 - Keep the tape close by for this activity as children will be sorting the cards and taping them on the chart.



Activity Instructions

ENGAGE

Gather a group of 3 to 4 children at a table or in a circle on the floor.

ASK: Today we're going to discover what animals and plants need to live and be healthy. Let's find out what you already know about animals.

- What animals live in your community (or your house)?
- Think about the animals you know. What do animals need to live and be healthy?
- Can anyone tell me what a dog needs in order to live and be healthy? That's right, they need food. What else do dogs need?
- What do YOU need to be healthy?

ASK: Now let's talk about plants.

- What plants do you see at home or in your community?
- What do plants need to grow and be healthy? *(You might reference Unit 2, Super Seeds, if you have completed it already. This unit addresses what plants need to grow.)*

ASK: Let's think about how plants and animals are the same and different. *(Use questions like the ones below to tap into children's understandings of plants and animals, and the differences between them.)*

- Are humans, like us, animals too? (We are!)
- Do you think birds are animals? What about snakes? Alligators? Do you think fish are animals? (All of these creatures are animals too.)
- What do you think is important to know about animals?
- Is a flower an animal? What makes you think that? (A flower is a plant.)
- What do you think is important to know about plants?
- What do you think are the differences between plants and animals?

EXPLAIN: Define plants and animals using the bullets below.

- Animals are living things that need food and water.
- Animals also need shelter, or a place where they can be safe and protected from the weather and other animals who might want to hunt or eat them!
- Can animals move? They can! *(Have children demonstrate how to move like a cat, horse, or monkey.)*
- Can plants move? They cannot. The wind might blow their leaves, but they stay rooted in the ground. Can you sway like a leaf in the breeze?
- But plants are living things that also need food, or nutrients, and water.
- Plants can make their own food from what is in the soil, water, and air.
- Plants also need space to grow. They need space for their roots underground and also space for them to grow above the soil too.

TRANSITION: Now we're going to use all of the knowledge you have about animals and plants to play a card game where we sort animals and plants. I'll need you to be Problem Solvers to figure out which is which!

EXPAND

EXPLAIN: You and your partner will get a set of cards. There are pictures on each card. You will pick up a card and decide if the card has a plant or an animal on it. Let's try it together first.

MODEL: Take out the two cards you put aside. Model how to select a card from the top of the pile. Hold it up to show the children.

- Ask: *What do you see? Is this a plant or an animal?*
- Prompt deeper reflection: *That's right, it's an animal. What makes you know it's an animal?*
- Show children how to place the card down on one side of the table: *I'll put all the animal cards right here.*
- For the next card, go through the same set of questions. Model how to put the card on the other side of the table.
- Explain: *I will put the plant cards right here. I have two piles now: one, two. Every time I pick up a card, I will decide whether to put it in the animal pile or the plant pile. Are you ready to play? Let's go!*

PLAY: Pair the children up and give each group a stack of 10 cards. Prompt them to begin by suggesting that one child take a card and say whether it is a plant or animal. Make sure children take turns selecting/placing cards. If needed, show them where to make the two piles of plants and animals. Observe whether children are separating their cards correctly and provide support if needed.

NOTE: If children are confused about a card, you can help them decide "plant or animal" by asking questions like:

- Does the picture on your card show something living in soil?
- Does this picture have leaves or branches?
- Does the picture on your card show something that can move from one place to another?
- Does the picture on your card show something with hair, fur, feathers or fish scales?

ASK: We played a card game to think about the difference between plants and animals. Do you have a favorite card? Is it a plant or an animal? What makes that card your favorite?

EXPLORE

REVIEW: Earlier, we talked about the needs that plants and animals have. Does anyone remember what plants and animals need to live and be healthy?

- Plants need space to grow, water, air, sunlight, and food (called nutrients, which plants make from the soil, air, and water).
- Animals need water, air, food, and shelter, or a place where they be safe.

TRY IT: Hang up the prepared chart paper with four labeled sections.

EXPLAIN: Now we're going to play a card game about animal and plant needs. You're going to choose a card and decide whether it shows you a human need, a bird need, a bee need, or a tree need.

- Here, we'll hang cards that show human needs.
- Here, we'll hang cards that show what needs this bird—called a robin—has.
- Here, we'll hang cards that show what needs this insect, a bee, has.
- Last, we'll hang cards that show the needs this special kind of plant—a pine tree—has.

TRY IT:

- Take out the stack of shelter/living space cards that you created. Let a child select the top card.
- Have the child show it to their peers. Ask if they know what it is.
- Talk about what need the picture represents: Is it water, food, or shelter? Does it show space (soil) for the tree to grow?
- Which animal will use that card? Or does the card show a pine tree need?
- Help the child tape the card in the appropriate place on the chart.
- Give each child a turn to select a card and place it on the chart.
- Continue with the stack of food/nutrient cards and the water cards, letting children take turns to select a card, discuss the need being met, and match the card with the plant/animal where it belongs.
- Lastly, take out the sun card and place it face down on the table. Let the next child in line pick it up and show the group. Wonder aloud: "The sun is not food, it's not shelter, and it's not water. But one living thing on our chart needs the sun to grow and thrive. Do you have ideas about where the sun goes on our chart?"

PAUSE AND REFLECT: Once the children have placed all of the cards onto the chart, pause for a moment and encourage children to look at the finished chart. Children take longer to process information than adults do. Giving them time to pause and look at the finished chart helps them understand this activity. You might ask questions like:

- What do you see on our chart?
- What does our chart tell us?
- When you look at our chart, what are your questions?
- What are you curious about when you look at our chart?
- What is something you learned from making our chart?

SUMMARIZE:

- Plants and animals are very different. But some of their needs are the same.
- Animals need water and food, or nutrients, to live and be healthy, and plants *also* need water and nutrients.
- Animals and plants have some needs that are different.
- Animals need some sort of shelter for protection. But plants do not need shelter, do they?
- But plants need space in the soil to grow. Do animals need soil to grow? No!
- Today we learned about the different ways that plants and animals meet their needs, so they can grow and thrive.

REFLECT

To close the activity, use a reflective question/s - like those below - to prompt children's thinking about animal and plant needs.

- What do you think is important about plant and animal needs?
- What needs do you have as a human being?
- What happens if a plant doesn't get one of its needs? Like, what if a plant doesn't get any water? What do you think will happen?
- What will you tell your grown-ups about plant and animal needs today?

SUMMARIZE: Today we learned about the differences between plants and animals. We also thought about what plants and animals need to live and be healthy. Some needs are the same, like water and food or nutrients. But some needs are different, like plants need soil to grow and animals do not. We were Problem Solvers today as we learned about the different needs of plants and animals!

Individualizing the Activity

Make it more challenging:

- In the **EXPAND** activity, when children are playing in pairs, prompt them to say to their partner: *I think this is an animal/plant **because**...* This encourages children to put their experiences and growing knowledge base into words.
- For the **EXPLORE** activity: Ask children to think about animals they see at home, in their community, or in books/media. When children have named an animal, show children how you search for information about that animal's preferred food and what types of shelter it uses (for example, using a book from the library or the Internet). Give children paper or blank index cards to draw new food and shelter cards to add to the chart.
- For the **EXPLORE** activity: You can also create two charts and two sets of cards and have children work in pairs for this activity.

Make it less challenging:

- In the **EXPAND** activity, focus on animals first and then on plants. Pre-sort the cards so they are in this order. You can also reduce the number of cards, but ensure that each child gets at least 2 turns sorting cards.
- In the **EXPAND** activity, play this card game as a teacher-led group activity, rather than in pairs.
- In the **EXPLORE** activity, use only the human cards and the plant/tree cards to simplify the task at the start, adding in additional cards as children are able.
- In the **EXPLORE** activity, you can also create your own cards that feature a child/children's favorite animals or plants (like a holiday tree). Using a child's unique interests can be an effective strategy to engage their attention.

MAKING CONNECTIONS ACROSS THE DAY:

- Make the plant/animal sorting game a free play choice for children in the classroom.
- When children are eating lunch or snack, take some time to talk about how animals have a need for food and why food helps us grow and be healthy.
- If you have plants in the classroom or in an outdoor space, encourage the children to think about how plants get their needs met. Where does the plant get water? Where does the plant get sun? Where did the soil (with nutrients) come from?
- Let children help with the care of classroom pets, plants, or the school garden.
- When children come in from playing outside, offer them water and make the connection that drinking water regularly meets an important need that humans have.
- When you are outside on the playground, notice the animals and plants in the world around you. Encourage children to show you when they find a plant or an animal outside. Talk about what these animals might eat, and how the plants get sun and water.

Song: *Plant or Animal?*

Materials Needed: Plant and animal cards from activity

Show children the cards indicated and encourage them to name each picture as a plant or animal during the song. Pause the song if needed or have children just shout out their answers.

Verse 1

Hey Problem Solvers, let's play a game.
Comparing some pictures; give each a name.

Animal or plant, which will you choose?
Let's have some fun; there's no win or lose.

Verse 2

Here is a dolphin swimming in the sea
Is it plant or animal? Please tell me!

(Show dolphin picture)
(Encourage children to say "animal")

Here is sunflower, pretty as can be.
Is it plant or animal? Please tell me!

(Show sunflower picture)
(Encourage children to say "plant")

Verse 3

Here is a butterfly flying round my knee.
Is it plant or animal? Please tell me!

(Show butterfly picture)
(Encourage children to say "animal")

Here is a baby, with small hands and feet.
Is it plant or animal? Please tell me!

(Show baby picture)
(Encourage children to say "animal")

Verse 4

Here's some tomatoes, juicy, red and sweet
Is it plant or animal? Please tell me!

(Show tomato picture)
(Encourage children to say "plant")

Here is a cactus; prickly in the heat.
Is it plant or animal? Please tell me!

(Show cactus picture)
(Encourage children to say "plant")

Making Literacy Connections

Share the following book with children as an opportunity to deepen their understanding of the different ways that animals meet their needs for food. The literacy extension activity below suggests another play-based experience to explore the needs of animals.

Suggested Book: *What Do Animals Eat?* by Katerina Gorelik

AS YOU READ:

- On the page with the baby birds pictured in the nest, point out how the adult birds put the worms or insects right in the babies' mouths. What do adult humans do to feed baby humans?
- When the owl goes hunting, the rabbits and mice hide. Why is this?
- On the page that says the fox "would like to *dine* on the chickens," ask children if they can guess what *dine* means. Dine is another word for "eat."
- On the page with wild boars sneaking past the tiger, ask children if they can find the wild boars on the page. What does it mean that the tiger has a "full stomach"? What does it feel like when the children have a full stomach?
- Can children find all the things hedgehogs like to eat in the picture (eggs, earthworms, mice)?
- Where is the animal that the crocodiles like to eat? Can children imagine not eating for a year, like crocodiles? What would that feel like?
- Ask children to show you the pelican's long *beak* in the illustration.
- The polar bear only drank milk as a baby but now he is eating solid food, like an adult polar bear. Do the children know any babies in their family or neighborhood who only drink milk/bottles right now? Do they know any babies who are starting to eat food? What foods do babies eat?

BUILD ON THE BOOK: ANIMAL NEEDS

Materials: Photocopies of each page of the book—photocopy an image of the animal and an image of what the animal eats. If desired, cut out each image and glue to sturdy cardboard.

1. Explain that this game will match up animals and the foods they eat to meet their needs so they can grow and be healthy.
2. Shuffle the images and hand out an image to each child.
3. As you read the book again, ask children to pay attention to the pictures in the story. When they see the picture they're holding, they should raise their hand.
4. When children raise their hand, ask them what animal or food they are holding. Ask children to come up and form pairs (animal/food(s) it likes to eat). Place the pairs of images on the floor (or tape to the wall behind you) as you read.
5. When you're done reading, place the book and the images in the library corner of the room so children can play on their own.

Handout 1: Animals





Handout 2: Plants





Handout 3: Exploring Needs for Animals and Plants

AN ANIMAL (HUMAN)'S NEEDS:



Water



Shelter



Humans

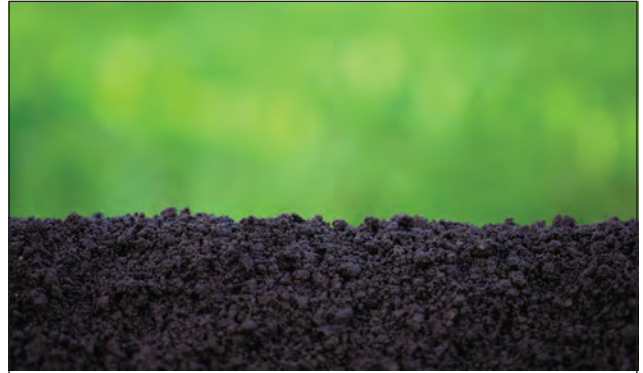


Food

A PLANT (PINE TREE)'S NEEDS



Rain (Water)



Soil and Space to Grow



Pine Tree



Sunshine

A BIRD (ROBIN)'S NEEDS



**Worms and Insects, Seeds,
Nuts, and Fruits
(Food)**



**Nest
(Shelter)**



Robin



**Bird Bath
(Water)**

AN ANIMAL (BEE)'S NEEDS



**Puddle
(Water)**



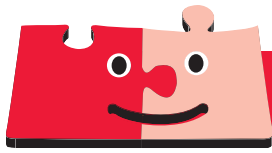
**Hive
(Shelter)**



**Nectar is an energy-rich, sugary
substance bees collect from flowers
(Food/Nutrients)**



Bee



Exploring Plant and Animal Needs

This week, the children are learning about plant needs and animal needs. You can help your child think about what plants and animals need to grow by trying one of these activities:

- Notice how you and your child eat food and drink water every day. Talk about how hungry or thirsty feelings are reminders that we need food and water in order to grow and be healthy.
- If you have a plant in your home, invite your child to help take care of it. Give them a job to do—like watering the plant or putting it in a new pot. Talk about how the plant is getting water, food (from the soil, water, and air), and sunlight it needs to grow and be healthy.
- If you have a pet in your home, ask your child how it gets food and water. Let them watch you fill the water and food bowl. Observe (at a distance) how your pets eat and drink in order to stay healthy. Talk with your child about the plants and animals in your home:
 - How much food does the cat need?
 - How much water should we give our plant?
 - What does the dog do when he's thirsty?





Solo para familias

Estudiar las necesidades de las plantas y los animales

Esta semana, los niños están aprendiendo cuáles son las necesidades de las plantas y los animales. Con una de estas actividades, puede ayudar a su hijo a pensar en lo que necesitan las plantas y los animales para crecer:

- Explique que tanto usted como su hijo necesitan comida y agua. Háblele de cómo las sensaciones de hambre o sed nos recuerdan que necesitamos comida y agua para crecer y estar sanos.
- Si tiene una planta en casa, invite a su hijo a cuidar de ella. Dele una tarea, como regar la planta o ponerla en una maceta nueva. Háblele de cómo la planta recibe el agua, el alimento (de la tierra, el agua y el aire) y la luz solar que necesita para crecer y estar sana.
- Si tiene una mascota en casa, pregúntele a su hijo cómo consigue comida y agua. Déjele que le vea llenar el bol del agua y el de la comida. Observe (a distancia) cómo comen y beben nuestras mascotas para mantenerse sanas. Converse con su hijo sobre las plantas y los animales de su casa:
 - ¿Cuánta comida necesita el gato?
 - ¿Cuánta agua debemos darle a nuestra planta?
 - ¿Qué hace el perro cuando tiene sed?

