# Herbivore

Life Science | Lesson Guide

1st Grade

## Photo Description

This image shows two animal footprints pressed into muddy soil surrounded by grass and small wildflowers. The prints are deep indentations in the earth that tell us an animal walked through this spot. We can see the shape and size of the feet that made these marks.

## Scientific Phenomena

Anchoring Phenomenon: Animal tracks are created when creatures walk on soft ground and leave impressions of their feet behind.

Why This Happens: When an animal steps on mud or soft soil, its weight pushes down and creates a mold or print of its foot. Different animals have different foot shapes and sizes, so their tracks look different. Tracks help us learn about animals without seeing them—they're like clues that tell us which animals visited a place and what they were doing.

## Core Science Concepts

* Animal Movement: Different animals move in different ways. Some walk on four legs, some on two legs, and some crawl. Each way of moving leaves a unique track pattern.

* Evidence and Observation: Scientists observe things in nature to learn. Animal tracks are evidence that tells us animals live in or travel through an area.

* Habitats and Ecosystems: Animals leave tracks in places where they live and hunt for food. The muddy ground near plants is a good habitat because there is water and food nearby.

* Inherited Traits: Each animal species has feet shaped a certain way because of what kind of animal it is. These foot shapes are inherited—they come from the animal's parents.

**Pedagogical Tip:**

For First Grade learners, keep track identification very simple. Focus on the observable features (size, shape, depth) rather than exact species identification. Let students make predictions based on what they see: "Do you think this was a big animal or small animal? How do you know?" This builds observational skills without requiring advanced classification knowledge.

**UDL Suggestions:**

Provide multiple representations of tracks: actual photos (like this one), hand-drawn illustrations, and if possible, plaster casts or clay impressions students can touch. Some learners benefit from kinesthetic experiences—let students make their own "tracks" by pressing their hands or feet in sand or clay to understand how tracks form. Offer a visual chart showing common local animal tracks so students can match what they observe.

## Zoom In / Zoom Out

Zoom In: The Tiny Details (Microscopic Level)
If we could look at the mud under a microscope, we would see tiny grains of soil and water mixed together. When an animal steps down, its weight pushes these soil grains closer together and squeezes out some of the water. The animal's foot pushes the soil particles into a new shape—the shape of the animal's toes and paw pad. If we looked even closer at the animal's foot itself, we'd see tiny bumps and patterns on the skin that help the animal grip the ground and not slip!

Zoom Out: The Bigger Picture (Ecosystem Level)
This muddy spot with tracks is part of a whole ecosystem—a natural community where plants, animals, soil, and water all work together. The animal that made these tracks is part of a food chain: maybe it's hunting for insects or small animals near the plants, or maybe other larger animals are hunting it. The mud stays soft because water from rain or a stream keeps it wet. The plants grow there because the soil is moist and rich. All of these things—the tracks, the plants, the water, and the animals—are connected in this special outdoor space.

## Discussion Questions

* "What animal do you think made these tracks, and why?" (Bloom's: Analyze | DOK: 2)

* "How would tracks look different if a bigger animal walked here?" (Bloom's: Evaluate | DOK: 3)

* "Why do you think this animal was walking near these plants and water?" (Bloom's: Explain | DOK: 2)

* "If we found tracks like these in our schoolyard, what would that tell us about the animals that live near our school?" (Bloom's: Create | DOK: 3)

## Potential Student Misconceptions

Misconception 1: "The animal is still in the mud."
Clarification: A track is just a mark or print left behind—like when you write with a pencil and it leaves marks on paper. The animal walked through and left its footprint, but the animal has already moved on to a different place. The track is evidence that the animal was here, but it's not here anymore.

Misconception 2: "All animal tracks look the same."
Clarification: Different animals have different kinds of feet, just like different people wear different shoes! A cat's foot looks different from a dog's foot, and a bird's foot looks different from both of them. By looking at a track carefully, we can figure out what kind of animal made it because each animal's feet are special and unique.

Misconception 3: "Tracks only appear in mud."
Clarification: While mud is a great place to see tracks clearly, animals leave tracks in many other soft materials too—like sand at a beach, snow in winter, dust on a path, or even wet grass. Any soft surface that an animal steps on can show a footprint. Hard surfaces like concrete or rocks don't show tracks as easily because they're too hard for feet to press into.

## Extension Activities

* Track Hunt Walk: Take students on a nature walk around the school grounds or nearby park to search for animal tracks. Provide clipboards and paper so they can sketch or trace the tracks they find. Discuss what animals might live in those areas and what they need.

* Make Your Own Tracks: Set up a station with sand, mud, or salt dough. Have students press toy animal feet, their own hands, or objects into the material to make prints. Compare the different prints and discuss how size and shape change based on what made the track.

* Track Matching Game: Create or display images of 3-4 common local animal tracks (squirrel, dog, bird, rabbit). Show students a mystery track photo and have them vote on which animal they think made it. Reveal the answer and discuss what clues helped them decide.

## Cross-Curricular Ideas

Math Connection: Measuring and Comparing Tracks
Have students measure the length and width of the tracks in the photo (or real tracks they find) using non-standard units like paperclips, blocks, or their own hand spans. Create a simple bar graph comparing the sizes of different animal tracks. Ask questions like: "Is this track bigger or smaller than your foot?" or "How many blocks long is the track?" This builds measurement and data skills.

ELA Connection: Animal Track Stories
Read the book Whose Footprints? or a similar track-themed story, then have students create their own simple narratives about the animal in the photo. Students can draw a picture of what they think the animal was doing and dictate or write a sentence: "I think a _____ walked here because _____." Create a classroom book with all the student predictions and illustrations.

Social Studies Connection: Exploring Local Wildlife
Create a simple map of your school grounds or a nearby park. Mark places where students have seen animal tracks or signs of animals. Discuss how animals use different parts of the habitat for different reasons (where they find food, water, shelter, or rest). Connect this to how humans also use different spaces in the community for different purposes.

Art Connection: Track Imprinting and Nature Art
Set up an art station where students make prints using toy animal feet, cookie cutters shaped like animals, or their own hands and feet pressed into paint, clay, or natural materials like mud and sand. Display the creations as a "Track Gallery" and have students compare colors, shapes, and sizes. They can also use their track prints to create patterns or collages that tell a story about animals in their habitat.

## STEM Career Connection

Wildlife Biologist / Animal Scientist
A wildlife biologist studies animals and how they live in nature. They look for tracks, watch animals, and learn where animals go and what they eat. Some wildlife biologists work in forests, deserts, mountains, or wetlands to protect animals and their habitats. They use their observations—including reading tracks—to help keep animal populations healthy and safe.
Average Annual Salary: $65,000 USD

Zoo Keeper or Animal Care Specialist
Zoo keepers work with animals every day, feeding them, cleaning their homes, and watching for signs that they are healthy or sick. They learn to recognize each animal's footprints and behavior patterns to make sure the animals are doing well. Zoo keepers use observation skills—just like scientists reading tracks—to understand what their animals need.
Average Annual Salary: $32,000 USD

Environmental Scientist or Park Ranger

Environmental scientists and park rangers protect natural areas like forests and parks where wild animals live. They walk through nature, look for animal tracks and signs, and use that information to understand which animals live there and if the habitat is healthy. They teach people about the animals and help keep the land safe for them.
Average Annual Salary: $64,000 USD

## NGSS Connections

Performance Expectation:
K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:
* K-LS1.A - All organisms have basic needs (food, water, air, habitat)
* K-LS1.C - Organisms have unique and diverse life cycles

Crosscutting Concepts:
* Patterns - Animal tracks follow patterns based on the animal's foot structure and movement
* Structure and Function - The shape of an animal's foot is related to how it moves and where it lives

## Science Vocabulary

* Track: A mark or print left by an animal's foot in soft ground like mud or sand.

* Evidence: Clues or signs that help us learn about something. Animal tracks are evidence that an animal was in a place.

* Habitat: A place where an animal lives and finds food, water, and shelter.

* Footprint: The mark that an animal's foot makes when it steps in mud, snow, or sand.

* Observe: To watch and notice things carefully using your eyes and other senses.

## External Resources

Children's Books:
Whose Footprints?* by Masayuki Yabuuchi (explores different animal tracks)
Come Look with Me: Discovering African Wildlife* by Charlene W. Billings (includes animal tracks and habitats)
Bear Snores On* by Karma Wilson (animals in habitats; tracks implicit in story)