Animal Tracks

Students will learn there are many ways to know of an animal's presence other than actually seeing the animal. This lesson will introduce students to animal tracking and the concept of using tracks to access an animal's presence and activities.

Grade Level: 2nd Grade

Phenomena: How many types of living things live in a place?

Objectives:

- Students will compare and contrast the characteristics of different tracks.
- Students will match five different animal tracks to the correct animal.

Materials:

- Backyard Poster
- 20 Premade Plaster Tracks
- Tray with Sand
- Animal Tracks Coloring Page
- Pencils
- Water
- Bucket
- Ziploc bags (sandwich size)
- Rubber track replicas-molds (available to purchase at www.acornnaturalists.com)
- 3 sets of tracking ID cards
- SAS Tracking Book
- "Mammal Tracks: Life size tracking guide" booklet
- Spatula for smoothing
- Plaster of Paris
- Plastic drop cloth
- Spoon for stirring inside bags if needed

Time Considerations:

- Preparations: 15 minutes
- Activity 1: 10-15 minutes
- Activity 2: 10-15 minutes
- Activity 3: 10-15 minutes
- Activity 4: 10-15 minutes
- Activity 5: 10-15 minutes
- Activity 6: 10-15 minutes
- Conclusion: 5 minutes

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Nevada Academic Content Standards—Science

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

Science and Engineering Practices (SEP):
Developing and Using Models
Planning and Carrying Out Investigations
Analyzing and Interpreting Data

Disciplinary Core Ideas (Lesson Specific):
LS2.A Biodiversity and Humans

Crossing Cutting Concepts:
Cause and Effect
Structure and Function

Excellence in Environmental Education Guidelines

Strand 2.2-The Living Environment (A,C) Learners understand basic similarities and differences among a wide variety of living organisms and basic ways in which organisms are related to their environment.

Strand 1—Questioning, Analysis, and Interpretation Skills (A, B, C, G) Learners are able to develop question, design investigations, collect information, and draw conclusions in order to learn about the environment.

Background

When outdoors, many children don't have the good fortune of seeing animals in action; seeing them usually takes luck, patience, silence and time. There are many other ways to observe wildlife without actually seeing the animals. For Instance, children can look for evidence of the animals' activities. There are many signs that children can learn to look for that indicate what types of animals are around, what they're eating and doing, what sort of habitat they might live in, and what kinds of interactions are happening between animals. Animal tracks are one of the easiest signs for children to find and understand.

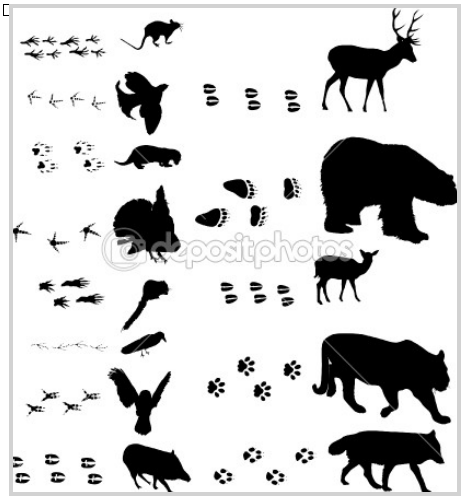

Image 1: Different Animal Tracks http://depositphotos.com/8544619/stock-illustration-birds-and-animals-with-tracks.html

Preparation

Print out a copy of the Coloring Page for each student.

Prepare pans of sand ahead of time. (These should be big enough for one child's foot to fit in).

Make a variety of plastered track casts prior to teaching the lesson. Include 2-3 species of bird, dog, cat, rodent, and bear

Doing the Activity

for students to compare/contrast track characteristics.

Activity 1: Animal Brainstorm & Track Introduction

(SEP: Analyzing and Interpreting Data)

Begin by having students share with each other some of their favorite animals. Ask students if they know one thing that all these animals have in common with each other? (Tracks!)

Ask students if they have ever seen a real track before? If not (or if so), tell the group they are going to have a chance to see one right now!

Ask for volunteer to take off his/her shoe and sock, then to step into the prepared pan of sand. (*Remember to brush the sand off their foot when finished).*

Move the pan around the group and ask the class what it is they see: (a track!)
Have students describe the track (five toes, heel, big, small, long, etc…).

Explain to students that today we are going to study tracks. Our goal is to see if we can learn how tracks are different from each other and what tracks can tell us about the animals that made them.

Activity 2: Tracks Are Different!

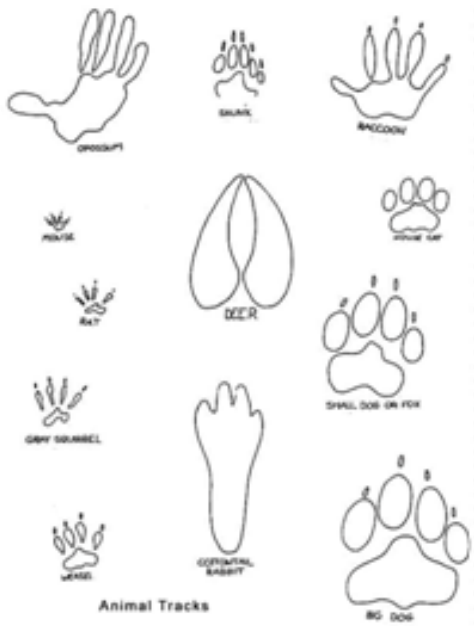

Image 2: http://kaweahoaks.com/html/

(SEP: Analyzing and Interpreting Data)

Explain to students that indeed we can learn lots about animals from their tracks, but are all tracks the same? (No!
Use the bird, bear, deer, and dog plaster track casting to demonstrate this idea to the class. With each track have students identify the differences between them. Differences include size, shape, paws or hooves, claws or no claws, number of toes or talons, etc…

Hold up a bird track and point out the number and size of the toes. Compare the bird track to a bear track and then to a dog track.

Explain to the class that they are on their way to being great trackers! The class is going to look at even more tracks in the next activity, but first we're going to sing the track song!

Track Song - see page 6

Activity 3: Exploring Tracks

(SEP: Analyzing and Interpreting Data)

Line students up along the edges of the carpet area or in a single file line.

Explain to students they are going to examine tracks in groups. Their goal is to identify different characteristics in all the tracks. Remind students the tracks are breakable, so to handle them gently.

Take 3-4 students at a time, lead them to an open area in the classroom to sit on the floor.

Hand the group 3-4 different kinds of tracks, with at least one bird track. Have students begin investigating the tracks. Do the same with the remaining students.

Periodically through their exploration pause groups and have students find specific characteristics in their tracks (Ex. "Hold up a track that was made by a big/small animal," "hold up a track that was made by an animal that had claws," etc.).

When found, students should hold up the track above their head for the instructor to quickly assess their understanding.

(NOTE: During this activity, the instructor can choose to have students rotate between different track groups. This will help to keep students focused and engaged).

Activity 4:
Backyard Poster
(SEP: Developing and Using Models)

Bring students back to the carpeted area. Quickly ask students to list ways that tracks are different.

Explain that scientists look at lots of other factors that might indicate that an animal is nearby. There are signs of animals other than just their tracks.

Create and share a story about a dog. In your story, share how much fun your dog has outside, but sometimes it likes to play hide and seek.

Using the backyard poster, have students identify clues or pieces of evidence that shows where the dog may be hiding. Students can point to tracks, dog house, scat, etc.…

Next, have students think critically about the tracks. Is the dog big or small, walking or running, which direction is it going, and where the dog actually is located.

Reinforce to the class, that by studying tracks, people or scientists can learn a lot about animals. Expert trackers can see not only the identity of the animal, but also the size, weight, age, sex, state of health, when it passed, where it was going, which way it was looking, and many other details!

Activity 5:
Walking to Make Tracks
(SEP: Planning and Carrying Out Investigations)

(NOTE: If the lesson will be 30 minutes or less, this activity can be skipped).

Scientists can also tell what type of animal the track belongs to by recognizing the pattern that different animals make because they move in a specific way. Then ask students if tracks are actually made differently? (YES!)
Animals walk in many different ways! Ask the students to name animals that move in different ways. *Ex. A rabbit compared to a horse*

To set up this activity, move students to the edge of the carpeted area. With each walk, first demonstrate it to the class. Then have 4-5 students mimic the walk. Avoid having all students mimic the walk at once, unless you can move outdoors. Collisions can occur indoors!

In terms of arrangement or pattern, animal tracks tend to fall into four general types. Animals from the same or a closely related family tend to have similar patterns to their tracks. Learning these patterns can really help in narrowing down which animal might have made the particular track. The following are four general pattern types that most tracks will fall into. These are only guides, for every animal has several different walks that affect the pattern of its tracks. And sometimes, for a variety of reasons, tracks will simply be haphazard for short distances.

Waddler: A waddler lifts both feet on the same side at the same time, which makes the animal sway or waddle from side to side as it walks. This can leave two different tracks: a zigzag line of almost overlapping front and back tracks, or a line of tracks where a front track will be opposite to a rear track. Most wide, heavy-set animals fall into this category:

Image 3: Beaver Tracks
http://nwco.net/09-appendixcbeyondtheroutine/9-06-Beaver.asp

bear, raccoon, porcupine, opossum, skunks, badgers, beaver, and muskrat.
Bounder: This group includes most weasels except skunks, badgers and wolverines. Bounders hop in steady series of jumps, forelegs first and back

legs pulling right behind them.

Striders or Diagonal walkers: Striders lift their opposite front and back legs at the same time (just like a baby crawls). This leaves a nearly straight or slightly zigzag line of single prints. This group includes all dogs, cats, and hoofed animals. One thing to notice when trying to identify the strider (diagonal walkers) is whether the rear foot track falls exactly in the front foot track, looking like one track (direct registration), or if the rear track overlaps the front track, so that you can see part of both front and back track (indirect registration).

Animals can see where to place their front feet to the best advantage, but cannot see where to place their hind feet; thus, direct registration benefits an animal by having the rear feet placed in the exact same location that was chosen for the front feet. This is particularly beneficial to animals who silently stalk their prey, such as members of the feline family.

Foxes also do direct registration,

Image 4: Fox Tracks in the Snow
http://krankeloon.deviantart.com/art/Fox-Tracks-in-the-Snow-272701109

while all other members of the dog family do indirect registration.

Gallopers: Gallopers bound forward with both front feet at the same time and then bring the back feet around in front of the front feet. This leaves a trail of paired hind feet tracks in front of paired or slightly staggered

Image 5: Cotton Tail Rabbit Tracks
http://www.clccharter.org/maya1/

front feet tracks. This group includes all rabbits, hares, and most rodents.

Activity 6:
Tracks Coloring Page
(SEP: Analyzing and Interpreting Data)

Now that the students are experts in studying tracks, explain that a group of animals need their help in the next activity.

Hold up the track coloring page. Explain that the animals have forgotten what their tracks look like and each person needs to help the animals find their tracks!

In order to help, students must draw a line that correctly matches the animal with it's track. Demonstrate this by using the human on the coloring page. Clearly show how the line connects the two figures together.

(NOTE: Avoid using the bear and coyote as examples. The bear and coyote tracks are an excellent way for students to

Conclusion

show their understanding of the lesson and critical thinking skills).
Review with the students the differences in tracks and how animals move.

Have students answer the following questions with a partner: What are some animal signs that we can look for in the wild? What can we learn from animal tracks? Where can animal tracks be found? What are the four general types of animal tracks?

Assessment

Finish by singing the Track Song one last time!
Assess students by their contributions to class discussions and their answers through questions.

Quiz individual students as they complete the Tracks Coloring

Extensions

Page and have students justify why they are matching tracks and animals with each other. Take the class outside and

(Continued on page 5)

search for real tracks.

After the lesson on tracks, allow students to make plaster animal tracks to take home.

The following is the directions on how to make plaster tracks:

1. Have each student (or pair of students) select a rubber track that they would like to make.
2. Have students mix 1 part water to 2 parts plaster in their plaster mixing baggies. They should seal the bags then squish the mix around until the plaster is smooth without lumps. It should be relatively thick, but able to be poured.
3. Have them pour the plaster into their molds until the entire mold is filled and the surface of the plaster is smooth. Use cardboard pieces, a spatula, or knife, to smooth the surface.
4. Leave the plaster in the mold until it has hardened—leaving it to dry overnight is recommended. Then remove the plaster from the mold and the track is completed.
5. When plaster is completely dried, ***before removing them from the mold*** have students write their name and the animal track type on the smooth, bottom part of the plaster (the part facing up when plaster is still in the rubber mold).
6. Gently remove the cast from the mold and allow students to explore their track. Finally place the track into a Ziploc sandwich bag to take home.

Set-up a relay race in which the students race using the four different types of animal walks: waddle, bound, stride, gallop.

Read the book, *Big Tracks, Little Tracks*, by Franklyn M. Branley about different tracks in the snow.

Writing Enrichment
Have students draw on paper different animal tracks and then ask them to write a story about how those tracks got there.

Vocabulary

Classify: to put things into groups according to their characteristics

Compare: to judge one thing against another and notice similarities and differences

Difference: the way in which things are not like each other

Evidence: information and facts that help prove something or make you believe something is true

Habitat: the place and natural conditions in which a plant or an animal lives

Imprint: a mark made by pressing or stamping something on a surface
Pattern: a repeating arrangement of colors, shapes, and figures

Similarity: alike, or of the same type

Track: a track is a mark left by an animal (human or otherwise). It can be an actual footprint but may be a trail of a tail, something being dragged, or for the sake of this lesson a track may simply be a sign that the animal was there.

Sources

- *The American Heritage® Dictionary of the English Language*, Fourth Edition. Copyright © 2000 by Houghton Mifflin Company. Published by Houghton Mifflin Company.
- Branley, Franklyn M. *Big Tracks, Little Tracks.* Leonard Kessler, Illustrator. New York, Thomas Y. Crowell Company, 1960.
- Carss, Bob. The SAS Guide to Tracking. Connecticut: Lyons Press, 2000
- Levine, Lynn., and Martha Mitchell. Mammal Tracks: Life-size Tracking Guide. Vermont: Heartwood Press. \

Images:
1. http://depositphotos.com/8544619/stock-illustration-birds-and-animals-with-tracks.html
2. http://kaweahoaks.com/html/
3. http://nwco.net/09-appendixcbeyondtheroutine/9-06-Beaver.asp
4. http://krankeloon.deviantart.com/art/Fox-Tracks-in-the-Snow-272701109
5. http://www.clccharter.org/maya1/

Tracks Song!

Goes to the Tune: The Farmer in the Dell

We're searching for Tracks!
We're searching for Tracks!
Up, down, and all around
We're searching for Tracks!

Tracks can be BIG!
Tracks can be small!
Tracks come from animals
Who fly, hop, and crawl!

Where Are My Tracks???

Name:_____