

Tracks in the Sand [ME]

Grades: K-2

Time: 45 minutes to 1 hour

Goals: To differentiate species based on their tracks in the sand.

Objectives:

Students will be able to: identify species by their tracks; define biodiversity; and explain how animals interact with their habitats.

Materials:

Uplands forest or wetlands area with soft sand and tracks

Tracks worksheet (provided)

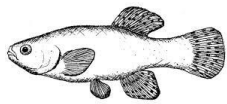
Clipboards

Pencils

Preparations: Prior to this activity, scout an area that has a sufficient amount of identifiable tracks in the sand. If an insufficient amount of tracks are available, you can use your own feet and hands to create tracks for the students, using their tracks worksheet as a guide.

Procedures:

1. **Pre-Activity (introduction):** This can be done in the classroom or out in the field. Begin with a discussion about footprints. When we go to the beach, when we walk on soft sand, our feet make prints, sometimes with details of the bottoms of our shoes. Explain that when people get lost in the woods, rangers will use their footprints to find them. Wildlife biologists and marine biologists will also use animal tracks to determine where they went, how fast they're moving, and who made the tracks. Give examples such as tracking deer in a deep forest or identifying sea turtle species based on their crawls on the beach. Inquire if they've ever seen animal tracks in the sand when walking in the woods or on the beach. Did they know which animals made them?
2. **Activity:** Take the class to an uplands forest area with sandy soil or a wetlands area that has sufficient amounts of sandy soil. Make sure there are enough tracks in the sand for the students to identify different species. Discuss as a class the habitat that you are sampling in and the species they may encounter there. Ask the students to describe the parts of their body they use to make tracks and what their barefoot tracks would look like in the sand (they might mention five toes and a heel). You can equate these body parts to the parts of an animal track, such as a raccoon or bear or other mammal. Discuss how bird tracks are different from mammal tracks and they are both different from reptile tracks.



Divide the students into wildlife biologist teams of two or three. Each team will be given a clipboard and a tracking worksheet. They are to spread out (but not go off the sandy path) and try to identify as many different species as possible. They can circle the ones they find on their worksheet and then add either a check mark or a tally mark if they find more than one animal with those tracks (e.g. two deer walking side by side). Give them approximate 20-25 minutes to identify species using their tracking worksheets and then call them back to reconvene as a group.

3. Post-Activity (review): Once the class is together again, discuss the tracks they found. Ask the students to identify the species they found and how they were able to decipher between species. What morphological features (like toes or claws) stood out in the tracks that made them easy to identify? Which ones did they have more difficulty identifying and why? When looking at the tracks, did they appear to be moving in a straight line or did they zig-zag across the path? Explain that these are all indications of the direction the animal was moving and whether they were walking slowly, looking for food, or escaping a predator. Discuss how many different species they were able to identify. Use the term biodiversity to describe many species living in the same habitat together and how they interact with each other in their habitat.

Key Words:

Habitat

Uplands forest

Wetlands

Species

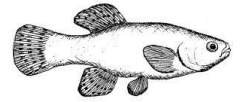
Diversity

Tracks

Background Information:

Adapted from Alaska Department of Fish and Game

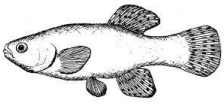
When looking at animal tracks in the sand, you aren't just identifying which species they belong to; you are essentially defining who that species is, what they are doing in that area, where they are going or coming from, and when the species were in the area. You are defining whether the species was meandering in the area, looking for food, or just passing through, or even moving quickly to avoid a predator. Occasionally, certain species will leave more than footprints behind and you will be able to see what that particular individual was feeding on through their scat deposits. When you put all this information together, you have a broader picture of who the individual was and what they were doing.



When looking at the individual tracks, and depending on where the tracks are located (soft sand or compacted sand), you can view all the key morphological features of the foot of the organism. This will tell you whether the species is a bird, mammal, reptile, or amphibian. Claws, toes, palm pads, and heel pads all tell you which species you are viewing. Some species have five toes (like humans), while others have four or three. Snakes don't have any. The size of the track will tell you if you looking at a large species or a small species, a juvenile or an adult. If students have seen dog tracks in the sand, they will be able to associate a smaller dog print with a larger one.

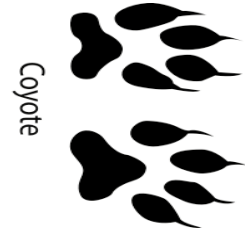
Wildlife biologists and ecologists will use their knowledge of organism tracks to not only learn about species diversity, interactions, and population count. With several different tracks in one area, scientists have been able to verify the behavior of individuals. Using sophisticated mathematical calculations, biologists can estimate both population growth and mortality rates.

Student Tracking Worksheet on the follow page.



Student Tracking Worksheet

Instructions: Circle the animal tracks you find and add a tally mark when you find more than one set of tracks in the sand.



Coyote



Red fox



House cat



Mink



Otter



Dog



Raccoon



Striped skunk



Beaver



Gray squirrel



White-footed mouse



Whitetail Deer



Opposum



Woodchuck



Muskrat



Cottontail rabbit



Crow



Turkey