

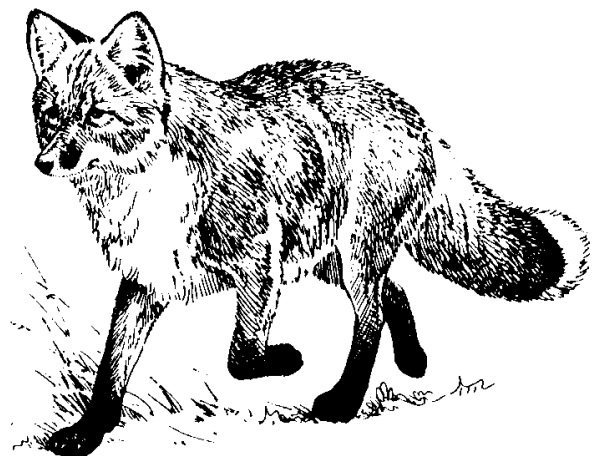
MIDDLE CREEK WILDLIFE MANAGEMENT AREA



Self-Directed Curriculum

Wildlife

Tracks



Self-Directed Curriculum Kits

- **Connect With Wildlife**

Students compare and identify twelve different Pennsylvania mammals using their pelts and wildlife background information.

- **Decoy Detective**

Students use the decoys to learn about waterfowl identification and divide birds into a diver or puddle duck classification.

- **Feet Are Neat**

Students explain the role of bird feet in bird survival and compare and contrast bird feet adaptations.

- **Let's Wing It**

Students compare and identify the different types of flight feathers that make up a bird's wing.

- **Scatology**

Students create fake animal scat and learn to identify an animal by its droppings.

- **Skull King**

Students infer from a skull what classification and niche the animal inhabits.

- **The Nose Knows**

Students identify different food smells and will compare the ability to distinguish different smells to animals using their sense of smell to find mates, offspring and food.

- **Wildlife Tracks**

Students use a variety of methods to observe, identify, collect and document tracks of different common wildlife species in Pennsylvania.

WILDLIFE TRACKS - Teacher's Page

Objective:

- Use a variety of methods to observe, collect and document tracks of different common wildlife species in Pennsylvania.
- Use field guides and related references to identify and interpret wildlife tracks, different gaits and other wildlife sign.
- Recognize animals that are found in the local community.
- Analyze wildlife sign to construct a reasonable explanation for a wild animals' behavior, traits and needs.

Background:

Looking for tracks and other animal sign is a fun activity for people of all ages. Animals are somewhat lazy and will often travel well used paths instead of blazing their own trails through thick brush or cover. Knowing this allows us to walk down several of the well used trails at Middle Creek and look for what are called "track traps". These areas are usually wet or covered in mud or sand and preserve animals tracks. Information about track identification is included in both field guides listed below.

Materials Needed:

- Tracks field guides:
 1. Pocket naturalist "Animal Tracks", an introduction to the tracks and sign of familiar North American Species.
 2. Pathfinder Outdoor Survival Guide, "Basic Tracking Guide", a waterproof folding guide to familiar animal sign in the Eastern woodlands.

Activity 1:

- Box of rubber animal tracks
- Ink pads
- Ink refill bottle
- Let's Make Tracks worksheets

Activity 2:

- Box of plastic animal tracks

Activity 3:

- Clipboards for each small group of students
- Pencils
- Rulers in mm and inches
- Animal Track Traps Student Worksheet
- Track Clues Student Worksheet

Activities:

Depending on the weather and amount of available time, there are 3 different activities teacher's may use with students. Activity 1 may be conducted inside, but Activities 2 and 3 are designed to be conducted outside.

Activity 1: Students can use rubber animal tracks and ink pads to stamp tracks onto the blank "Let's Make Tracks" worksheets. Identify each track and discuss their differences.

Activity 2: Teachers can take the box of plastic tracks into the field and have the students make tracks in soft mud near a stream or pond. Students can then look for and compare their tracks to real tracks and signs left by animals at Middle Creek.

Activity 3: Locate a "track trap" and have students complete the Animal Track Trap and Track Clues worksheets. Students may use the field guides to identify their tracks.

***Suggested places to make and look for animal tracks for Activities 2 and 3 at Middle Creek include:**

- Conservation Trail (map available at the Visitors Center). Stop #6 is near a wetland forest. Other good locations are Stop #s 9 and 10 near sunfish pond.
- Spice Bush Trail (map available at the Visitors Center). Go to the area along the creek running downstream of sunfish pond and into the woods near the horse hitch.

Pennsylvania Game Commission

www.pgc.pa.gov



Let's make tracks!

ANIMAL TRACK TRAP WORKSHEET

Name(s) _____

A “track trap” is an area in the environment where, in the right conditions, sign of an animal/human passage would be easily detected.

1. Describe the location of your track trap. For example: on a wildlife trail, a walking path, whether the ground is wet or dry, sunny or shady, lots of vegetation, etc.

2. List the different species you can distinguish among the tracks?

3. Draw a picture. Sketch the features located near the track trap. Also include tracks of each individual animal and its direction of travel (north, south, east and west). If possible, measure the stride length (distance between the heel of one foot and the heel of the opposite foot of the same animal) and describe the actions or movements of each animal whose tracks appear in the trap.

TRACK CLUES WORKSHEET

Name(s) _____

1. Document the characteristics of one animal track (complete a separate form for each species):

Length in centimeters:

Width in centimeters:

Depth in centimeters:

Number of toe imprints:

Number of claw imprints:

2. Describe the habitat where you found this track.

3. Draw a sketch of this animal track.

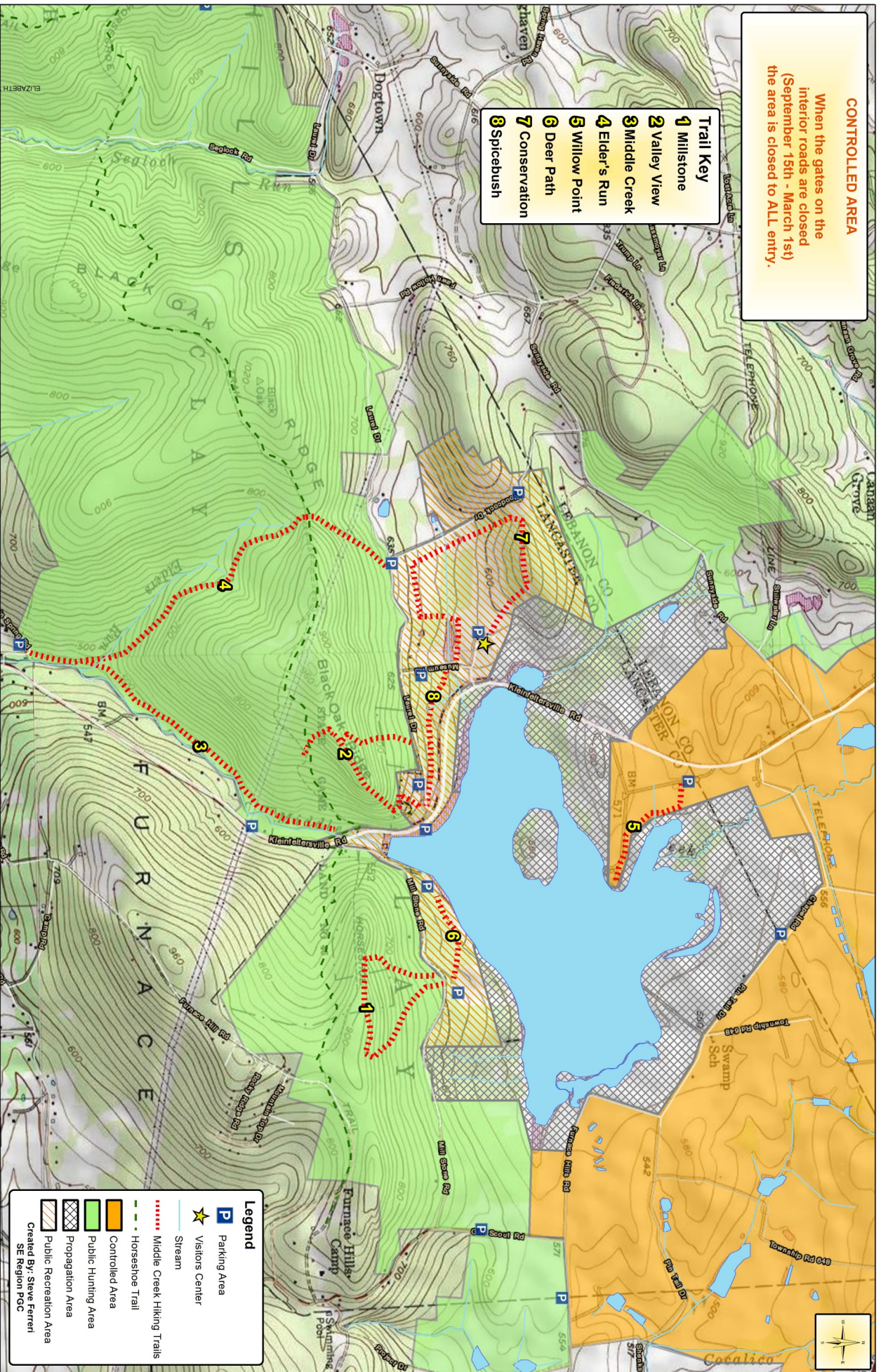
4. Describe any clues that tell you what this animal might have been doing. (Such as eating, hunting, resting, walking or running).

5. Use a field guide to animal tracks to investigate which species of animal might have made this track.
Write the name of the animal you think might have made the track.

MIDDLE CREEK WILDLIFE MANAGEMENT AREA HIKING TRAILS

CONTROLLED AREA
 When the gates on the interior roads are closed (September 15th - March 1st) the area is closed to ALL entry.

- Trail Key**
- 1 Millstone
 - 2 Valley View
 - 3 Middle Creek
 - 4 Elder's Run
 - 5 Willow Point
 - 6 Deer Path
 - 7 Conservation
 - 8 Spicebush



Legend

- Parking Area
- Visitors Center
- Stream
- Middle Creek Hiking Trails
- Horseshoe Trail
- Controlled Area
- Public Hunting Area
- Propagation Area
- Public Recreation Area

Created By: Steve Ferreri
 SE Region FGC

Animal Sign and Tracking: Terminology

Bound: An animal's gait characterized as when the hind feet land on or in front of the tracks made by the front feet.

Casting: The filling of a track impression with material like "dental stone" or "Plaster of Paris" whereby that material takes on the characteristics that were left by the track impression.

Dirt time: The time in the field spent practicing tracking skills.

Disturbance: The presence or occurrence of a change from a former condition.

Footprint: Visible evidence that a paw, hoof or foot has contacted the surface.

Gait: A manner or rate of movement or progress.

Walk: One foot in front of the other usually with two parallel rows of alternate and even spaced tracks. The slowest of the gaits. A normal unhurried pace.

Trot: Faster than a walk. Two diagonally opposing legs (right-front and left-hind) that advance at the same time, contacting the ground and propelling the animal forward while the other pair (left-front and right-hind) move forward with each other but opposite the other pair. Usually leaves tracks in groups of two which produces a lateral print pattern. Consists of tracks from each foot on the same side of the animal. In a trot, the front and hind feet can register directly or indirectly.

Loping or Galloping: One of the fastest gaits and usually produces groups of four tracks at a time. Not the preferred gait because it takes too much energy to maintain. While galloping there is a period of time when all four feet are off the ground. This space between sets of four tracks is called and "**intergroup length**". After the suspended period, the front feet contact the ground first and then the hind feet register. The animal is usually moving fast enough that when the hind feet hit the ground they contact the ground in front of the front feet.

Ground cover: Any material that lies on the surface of the ground and is impacted by track-makers. Examples include soil, leaves, vegetation, asphalt, snow, etc.

Indexing: Creating a sign or track similar to a track or sign in question. Indexing is done to aid in interpretation of the age, manner of creation and other characteristics of a track or sign in question. An example would be finding a broken grass or vegetative stem and then breaking one with your hand and comparing the color and damage of the first plant to the one you just manipulated. You can also use your fingers or a stick to

imitate an animal's track next to a found track and observe the differences in aging of that track.

Partial print: An impression that is incomplete but retains identifying characteristics of the track-maker. (animal or people)

Register: A footprint or track that leaves an impression in the substrate or ground cover.

Direct Register is one on top of the other exactly

Indirect register is slightly separated and can be an **under-step** front foot in front of hind, or **overstep** hind foot in front of front foot

Scat: Feces or poop! Good example of sign and can help to determine what area an individual species has been recently.

Sign: An indicator of activity; a disturbance that is unnatural or out of place in the environment.

Straddle: The distance between the inside of the heels of both feet as measured perpendicular to the direction of travel and between the two straddle lines.

Stride length: The linear distance between two successive steps of the same foot.

Track: (noun) The identifiable imprint or disturbance left. Also called trace, imprint, mark, spoor, impression; (verb) to follow a subject (animal or people) by locating and proceeding along its sequence of disturbances or sign.

Track trap: An area where, in the right conditions, sign of passage would be easily detected. Track traps can be naturally occurring or man-made.

***Definitions from the book "Foundations for Awareness, Signcutting and Tracking" by Robert Speiden.**

Tracks!

Objective

Students will identify common animal tracks.

Method

Students make plaster casts of animal tracks.

Materials

Casting plaster, containers for mixing, spray shellac or plastic, petroleum jelly, milk cartons or plastic 2-liter soda bottles, cardboard, knives, sandpaper, black ink or paint; OPTIONAL: loops of wire

Background

Looking for evidence of wildlife is one method of determining what animal species live in a certain area. Signs of wildlife—such as burrows, nests, droppings (scat), or food litter—can be seen and identified but some of the easiest signs to interpret are animal tracks.

Animal tracks can be the basis for several types of investigations. The students can develop an animal species list by the tracks found in the

region. Wildlife population estimates can be made by observing the number of tracks found during a specified length of time. Habitat requirements of certain species can be determined by finding their tracks in certain areas and not finding them in others.

Track hunting is an easily acquired skill. Find a spot of level ground with fairly soft, fine, textured soil. Smooth the soil over with your hand. After several days, return to the spot to see what animals have been there. The best places to look for animal life are near water or on well-worn trails. Larger animals will use the more open areas, while a small spot the size of your hand cleared under some bushes will reveal tracks of mice, shrews, and various reptiles.

Tracks can be preserved and collected by making plaster casts. This simple procedure will allow educators to collect tracks and add them to other evidence such as bones or scat that may have been previously collected.

NOTE: You may need a special permit from the state natural resources agency to possess animal parts.

Once the tracks have been observed or preserved, the animal that made them can be identified. For example, all mammals have basically the same foot structure but they use the parts of the foot in different ways. For instance, compare an animal's foot in relation to the human hand. Some animals walk on their hands like raccoons and bears. Others walk or run on their toes like cats and coyotes, while some animals walk on their toenails or hooves like deer and elk.

Grade Level: 5–8

Subject Areas: Science, Expressive Arts, Environmental Education

Duration: two 45-minute sessions or longer

Group Size: small groups of two to five

Setting: outdoors

Conceptual Framework Topic Reference: WPIA1

Key Terms: tracks, evidence

Appendices: Outdoors, Field Ethics, Early Childhood

If students look at a track, they can determine how that animal gets around. With this information, a student can also study what part of the foot the animal walks on, whether claws are present and how many steps are taken in a measured distance.

Procedure

1. Take a class or group on a field trip to an area where there will be a variety of tracks—a nearby lake, stream, or wildlife refuge area.
NOTE: If a field trip is not possible, track prints may be purchased from science and nature stores or catalogs. The purchased track prints can then be imprinted into a box of sand or other loose soil type and filled with plaster.
2. Divide students into small groups to find tracks. Divide them into groups according to areas where they will look for tracks (e.g., one group under bushes, one group at a meadow's edge, one group near a pond's edge). Prepare the students to look carefully and responsibly.
3. Once a track is found, clean it of loose particles of soil, twigs, leaves, and other litter.
4. Spray the track with shellac or plastic sealant from a pressurized can to seal the track.
5. Form a two-inch wide strip of cardboard into a ring surrounding the track. Press the cardboard ring firmly into the ground to give support, leaving at least one inch above ground to mold for the plaster. One of the easiest ways to make the mold is to cut plastic two-liter soda bottles or paper milk cartons in half. Cut both the top and bottom from a tuna or cat food can or a plastic margarine tub to make simple round molds. Stapled strips of cardboard in the shape of a circle can also be used.
6. Mix about two cups of plaster in a container, adding water slowly until it is about as thick as heavy cream. Carefully pour the mixture into the mold until the plaster is almost to the top. Allow the plaster to harden at least 15 minutes before lifting it out of the track. If the soil is damp, the plaster may take longer to harden.
7. When the cast is hard, lift it out and remove the ring. Clean the cast by scraping it with a knife blade or toothbrush and washing. Please note that you may need to wait a few hours to ensure that the cast is sufficiently dry.
8. To make a reverse image of the track, apply a thin coating of petroleum jelly to the track and surface of the cast. Place the animal cast on a flat surface and surround the cast with a two-inch strip of cardboard as before. The original cast now becomes the mold.
9. Mix the plaster and pour it into the mold, making certain that the top surface of the casting is smooth and level with the mold. If you plan to use the casting as a wall plaque, place a loop of wire in back of the casting while the plaster is still soft. Allow two hours for the plaster to harden. Discuss different ways of recording animal tracks—photos, drawing, plaster, or so forth.
10. Carefully remove the mold when the plaster is dry. Separate the two layers, and wipe the excess petroleum jelly from the face of the cast and track. Scrape any rough places with a knife blade, or use fine sandpaper to smooth the surface. Wash the completed cast with water.
11. When the cast is thoroughly dry, paint the inside of the track with India ink or black poster paint. Label each cast with the name of the track and the student's name. A coat of clear shellac or clear plastic may be applied to protect and preserve the casting.

Extensions

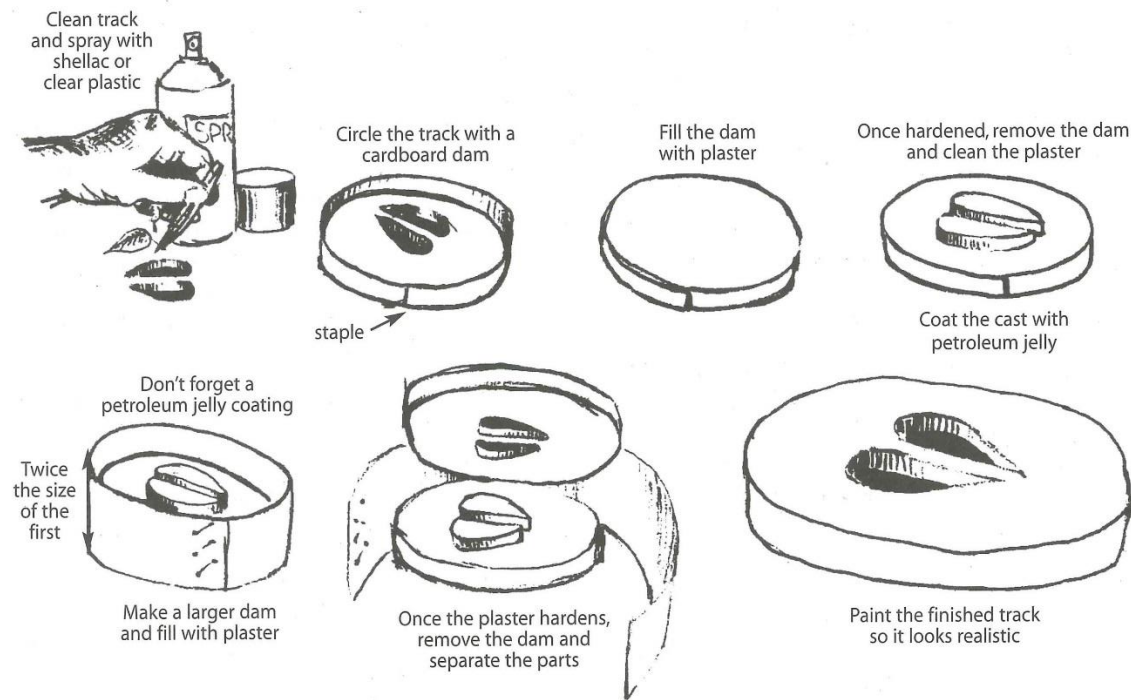
1. In a sandy area, have the students move their bodies in different ways such as walking, running, and jumping. Compare the differences between sets of tracks made by the same student doing each movement. Evaluate how speed, directional changes, and other variations in travel alter the tracks.
2. Write a wildlife story through the use of appropriate tracks. As a variation, make up a "track story" and have others guess what happened in the story.

Aquatic Extension

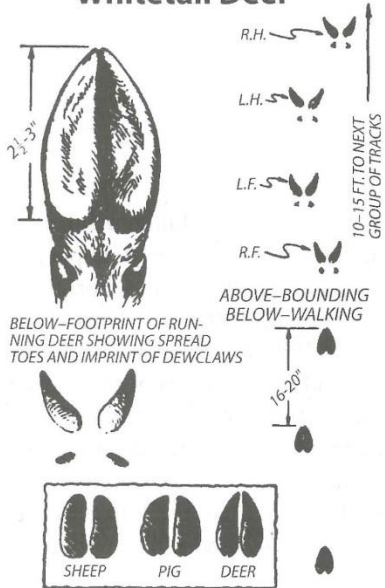
Display all the tracks according to the habitats where the tracks were found. How many of the tracks, if any, were found near water? If any were found near water, identify the kind of aquatic environments near which the tracks were found (e.g., pond, stream, lake, marsh, beach).

Evaluation

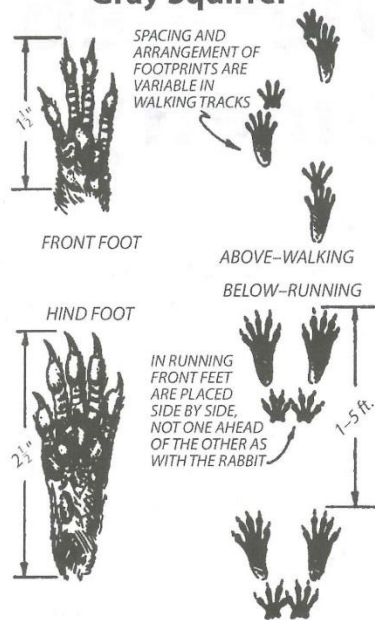
1. Have the students group the tracks and discuss how characteristics indicate the life style and size of the animal. Students could summarize verbally or in writing their discussion of the tracks and could make predictions for other animals in the same group and in different groups.
2. What is the advantage of using plaster casts versus photography to study and preserve animal tracks?
3. What are the advantages and disadvantages of the plaster medium?
4. Draw and label tracks of animals common to your area.
5. How would the knowledge about animal tracks and tracking help the following people? Consider a biologist studying lions, a wildlife photographer interested in elk, and a shepherd with a flock of sheep. What kinds of things would they need to know about animal tracks to do their jobs?



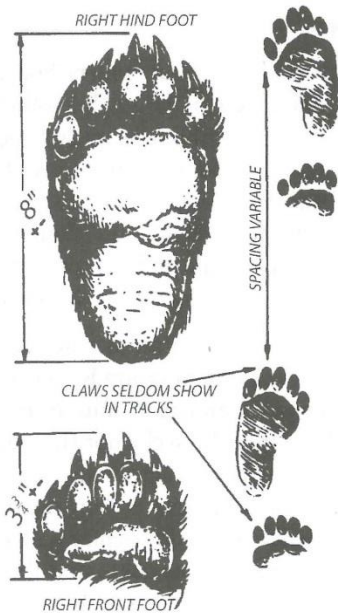
Whitetail Deer



Gray Squirrel



Black Bear



Cottontail Rabbit

