Festival Activity: Animal Trackers

Subject: Science, Math

Concept: Animal tracking

Key Vocabulary
- Tracks
- Track pattern
- Stride
- Straddle
- Track angle
- Hoof
- Bounding

Skills
- Observation
- Comparing
- Analyzing
- Communication
- Classification

Materials
- □ All materials will be provided by the activity leader.

Students will become animal trackers through investigating track features and the animals that make them!

Grade Level Expectations (GLEs) or Evidence of Learning

Science

1.1.2 Understand the relative position and motion of objects.

Math

1.2.4 Understand and apply systematic procedures to measure length, time, weight, money value and temperature.

Objectives

Students will: 1) identify tracks, and 2) list the differences between tracks based on animal size and adaptations.

Suggested Procedure

Students will be divided into two groups led by wildlife biologists. Each group will learn to measure track size, stride and straddle of different animals and compare animal tracks in a wetland area. The tracks found in the wetland area include deer, cougar, coyote, hare, raccoon, duck, frog, and black bear.

Background*:* Reading An Animal's Story

Tracks are part of an animal's signature. Here are a few helpful hints basic to track reading. Animals move in different ways. Coyotes and cougars, for example, walk, trot and gallop (fastest gait). The distance between tracks will vary depending on the activity. Rabbits and squirrels jump. A single foot print is called a track and a series of tracks create a pattern. The patterns shown in this activity are the most common for the animals, but are NOT the only type of tracks the animals leave. For identification, both individual tracks and patterns are measured. This activity will provide practice in both.

Vocabulary Words

Tracks - imprints left on the ground by animals or humans.

Track pattern - arrangement of tracks.

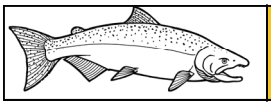
Stride - length from the center of one track to the center of the next track. Helps indicate the animal's body length.

Straddle - measures the widest point in a pattern of tracks. For example, the two hind feet might be the widest point and they are measured from outside edge to outside edge. The straddle decreases in width from walk to trot to gallop.

Track angle - animals walk with feet pointed out like ducks, straight or pointed inward, "pigeon toed".

Hoof - the cloven hoof is typical of an ungulate like the deer, moose, elk or caribou.

Bounding - a form of jumping typical of the weasel family.



Pre-Work: Making Your Footprints

Subject: Science, Math

Concept: Tracking

Key Vocabulary
- Tracks
- Stride

Skills
- Observation
- Comparing

Materials
- □ Butcher paper
- □ Shallow tray of water
- □ Paper towels for clean-up
- □ Measuring tape
- □ Paper
- □ Pencils

Scientists learn about animals by studying their footprints. Your students will investigate tracks made by people and animals.

Grade Level Expectations (GLEs) or Evidence of Learning

Science

1.1.2 Understand the relative position and motion of objects.

Math

1.2.4 Understand and apply systematic procedures to measure length, time, weight, money value and temperature.

Objectives

Students will: 1) investigate their tracks to determine the number of footsteps it takes to travel the entire length of their bodies, 2) determine the taller of two students, 3) determine the shorter of two students, 4) compare and contrast “running” tracks and “walking” tracks, and 5) compare forward and backward directional tracks.

Background

Animals and people tracks can tell us a story about where they traveled from and where they went. It may also give us clues on how fast they were moving and their relative size.

Suggested Procedure

1. Roll out pre-cut lengths of butcher paper. Pieces must be at least the length of the tallest child plus one foot.

2. Choose 4-6 students to participate. More students can be involved depending on your supply of butcher paper. Ideally, choose a shorter and taller student for comparison; you can participate too!

3. Have students step into a shallow tray of water and have them walk across the butcher paper.

4. Have another student or yourself outline each footprint in pencil.

5. While examining the student's **tracks**, pose these questions to the students:

- Is there a relationship between your **stride** and your height?
- How many steps does it take to walk the length of your body?
- Can you tell who is taller/shorter by looking at two or more sets of footprints?
- Is there a way to tell if someone was walking or running when they made their tracks?
- Do you have the same stride if you walk backwards?

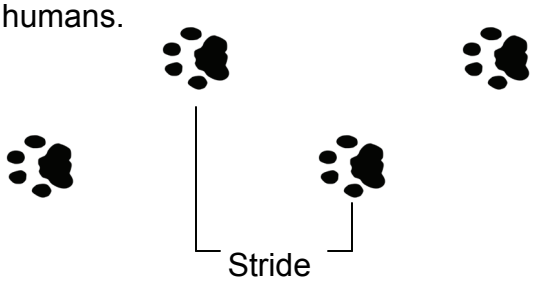
6. Allow the students to problem-solve to find answers.

7. Have students record their findings on paper or board.

Vocabulary Words

Tracks - imprints left on the ground by animals or humans.

Stride - length from the center of one track to the center of the next track. Helps indicate the animal's body length.



Adaptations for Students with Special Needs

Students in wheelchairs can enjoy this activity with a partner if the questions are slightly different.

- How many revolutions of your wheels will equal your height?
- How much does the diameter of the wheels of the wheelchair increase for the different sizes of wheelchairs?
- How do you vary how your tracks look?

With permission, the student may wet his/her wheelchair wheels before making tracks. To count revolutions, the student or helper can tie a piece of cloth, ribbon, or yarn around the top of the tire. As tracks are made, the student can observe how the ribbon alters the tracks. In this way the number of revolutions can be counted. The student can also demonstrate how she/he can make his tracks look different.

Extensions

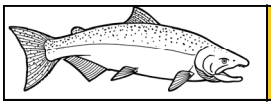
Make a graph of student's heights. Make a graph of the number of footprints estimated by each student.

Compare the length of the stride to the length of their leg.

Explore your school grounds and look for tracks of animals and people.

You may be able to obtain various rubber animal feet molds from you local wildlife agency, nature center, or scientific supply company. The rubber molds can then be used to make tracks and plaster casts.

From: "MUD-A Walk in Time" a Lesson Plan by Celina Hardin and Jada McHalffey



Pre-Work: Animal Tracker Training

Subject: Science

Concept: Animal tracking

Key Vocabulary
- Tracks

Skills
- Observation
- Comparing

Materials
- □ Overhead transparency Teacher Reference, "Common Animal Tracks"
- □ Overhead transparency Teacher Reference, "Who Am I?"
- □ Student Worksheet, "Who Am I?"

Salmon and wildlife have evolved together in the Pacific Northwest. Some wildlife eat salmon as they migrate from river to ocean. Others share the salmon's habitat by living in the surrounding mountains and meadows.

Grade Level Expectations (GLEs) or Evidence of Learning

Science

1.1.2 Understand the relative position and motion of objects.

Objective

Students will become an animal tracker and learn to identify some of the most common animal tracks found in our area.

Background

Animals leave evidence in the mud and snow such as burrows, droppings, fur or feathers, food litter, and of course their tracks. Tracks can tell a story about where the animal traveled from and where they went. **Tracks** (imprints left on the ground by animals or humans) can also give us clues about where the animal makes its home and how active it is on particular days.

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

Once these tracks have been observed, information about the animal that made them can be discovered. For example, all mammals have basically the same foot structure, they just use the parts of the foot in different ways. If we compare a raccoon's front foot to the human hand, we see that they are similar. They plant all four feet on the ground as if they were actually walking on their hands. Others walk or run on their toes, like cats and coyotes. Some larger mammals walk on their "toenails" or hooves like deer and elk. By looking at the track, we can determine what type of animal it is and how that animal lives. Simply observe what part of the foot it walks on, whether it has claws, how big the tracks are, and how far apart the tracks are from one another.

Clues to look for:

- Claws
- Digits
- Shape of track
- Pattern of tracks
- Measurements of tracks and distance between
- Direction of track
- Type of medium track was made in
- Freshness of track

From: www.dnr.state.wi.us/org/caer/ce/eek/teacher/trackact.htm

Suggested Procedure (Before class)

1. Have students observe their pets feet outside and observe its movement. What does the track look like? Does it have claws?

Suggested Procedure (During class)

1. Make a transparency of Teacher Reference, "Common Animal Tracks."

2. Help students to identify the eight tracks shown. These are the same animal tracks they will identify during the Salmon Festival activity. Start by asking them the following questions:

   Which animal is an amphibian? (frog)

   Which ones are mammals? (all except the duck and frog)

   Are claws visible in the tracks for all of them? If not, which tracks have claws? What animal is it? (coyote, raccoon, bear)

   Which animal walks on its toe nails or hooves? (deer)

   Which animal spends time in the water? How can you tell? (frog and duck; webbed feet)

   Which track has a hoof-shape? What animal is it? (deer)

   Which track is in the cat family? Does it have claws? What animal is it? (retractable claws never register in the track: cougar)

   Which track looks closest to a dog? What is it? (coyote)

   Which track is most similar to a human foot? (bear) Human hand? (raccoon)

3. Make copies of Student Worksheet, "Who Am I?" for each student. Let's review the animal tracks and see if students can identify some common animal tracks. See Teacher Reference, "Who Am I" for reference.

Website for animal tracking:
http://www.dnr.state.wi.us/org/caer/ce/eek/cool/trackQuizLVLOne.htm

Teacher Reference: Common Animal Tracks

A

Fore print
Length: 2.4-3.1 in
Width: 1.6-2.4in

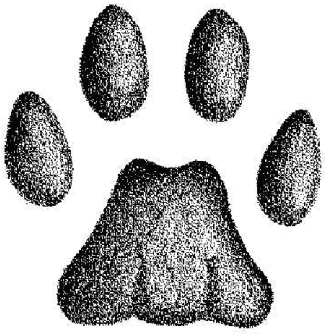
B

Fore print
Length: 2-3 in
Width: 1.5-2 in

C

Fore print
Length: 2-3 in
Width: 1.8-2.5 in

D

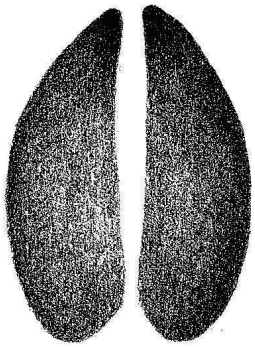


Fore print
Length: 3-4.3 in
Width: 3.3-4.8 in

E

Fore print
Length: 4-6.3 in
Width: 3.8-5.5 in

F



Fore print
Length: 2-3.5 in
Width: 1.6-2.5 in

G

Fore print
Length: .5 in
Width: .75 in

H

Fore print
Length: 1.5-2 in
Width: 1.5-2.5 in

From Animal Tracks of Washington and Oregon

Frog (G)	Raccoon (C)	Duck (H)
Deer (F)	Black bear (E)	Coyote (A)
Snowshoe hare (B)	Cougar (D)	

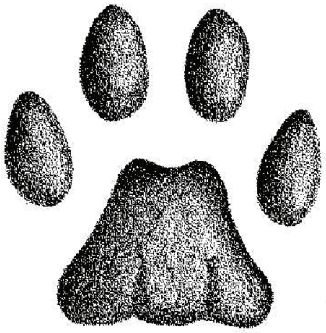
Student Worksheet: Common Animal Tracks

A

B

C

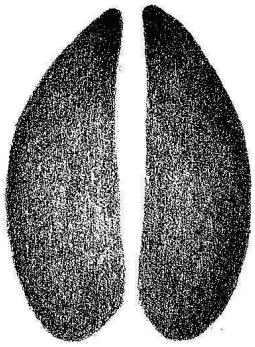
D



E

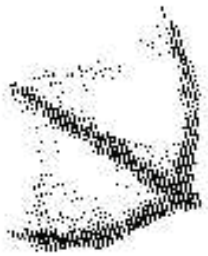
From Animal Tracks of Washington and Oregon

F



G

H

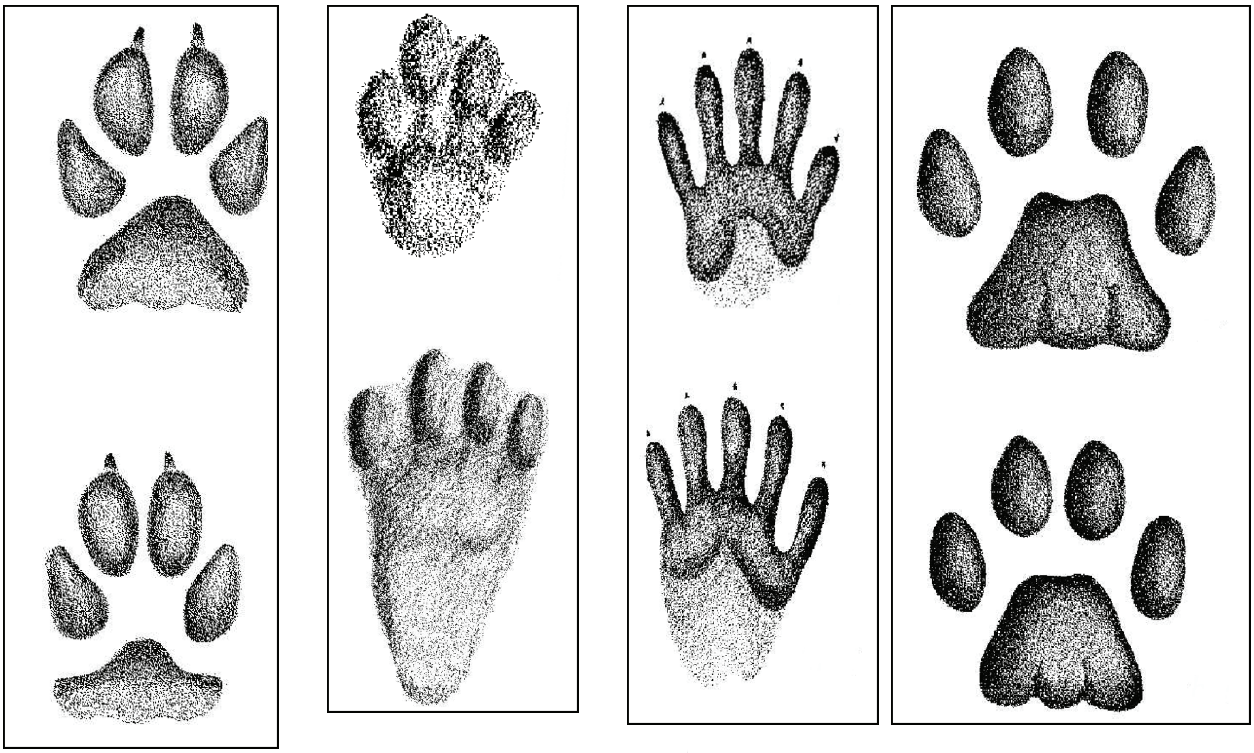


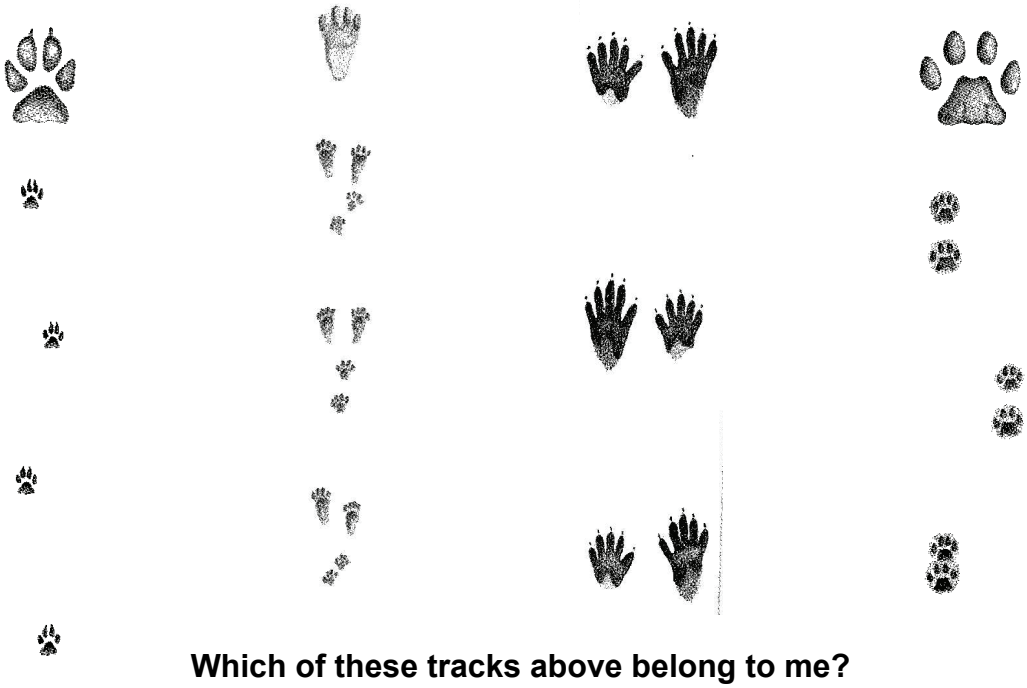
Frog	Raccoon	Duck
Deer	Black bear	Coyote
Snowshoe hare	Cougar	

(Tracks not to actual size)

Teacher Reference: Who Am I?

A B C D

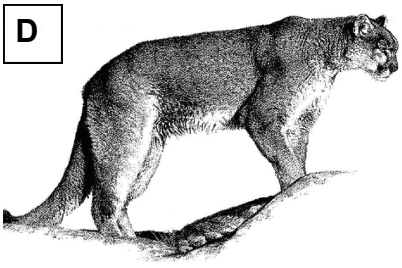




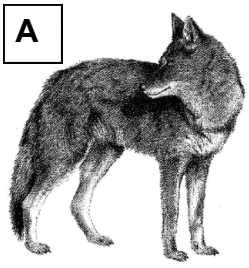
From Animal Tracks of Washington and Oregon

Which of these tracks above belong to me?

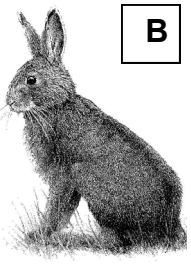
D



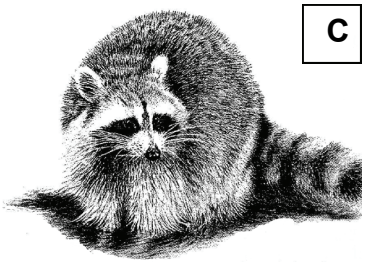
A



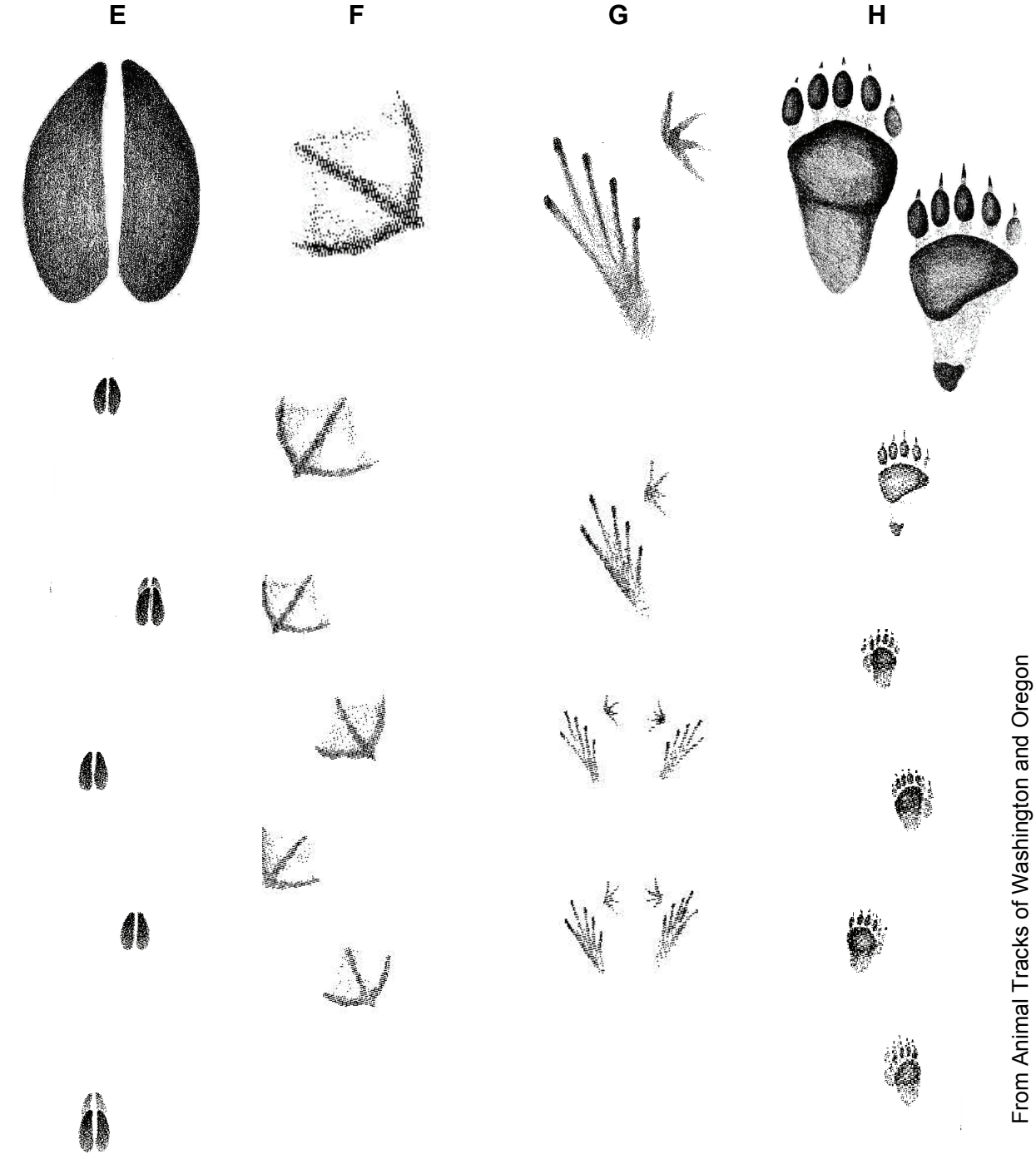
B



C

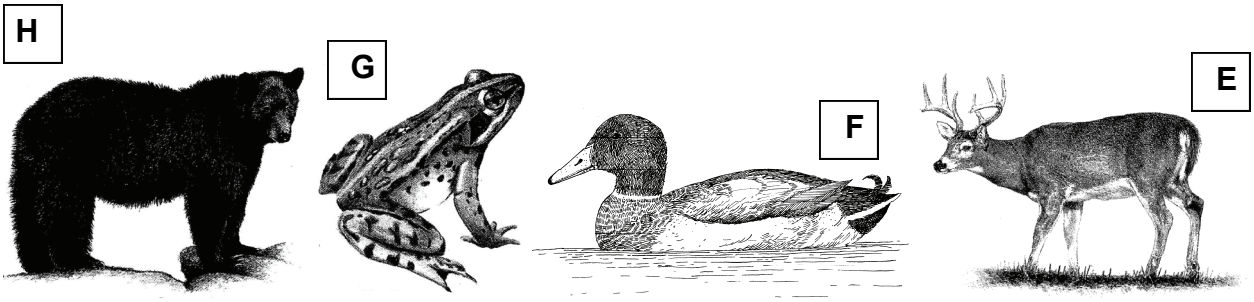


Teacher Reference: Who Am I?, Continued

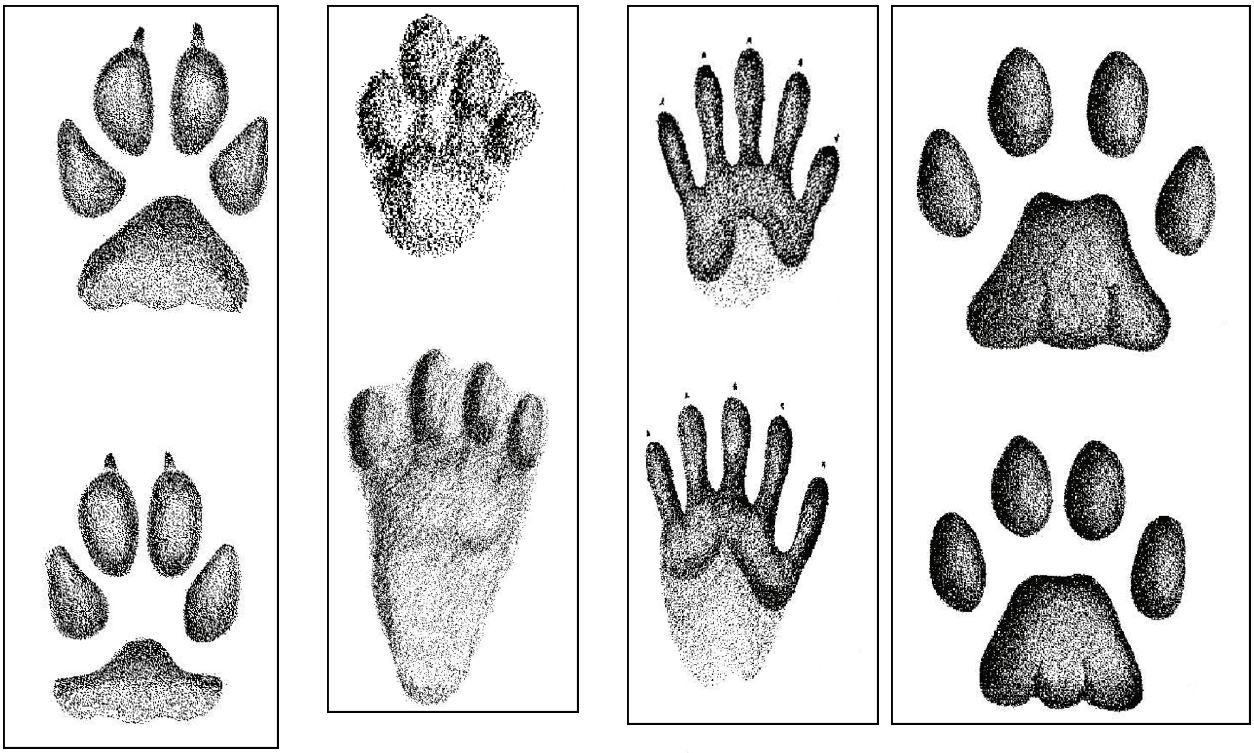


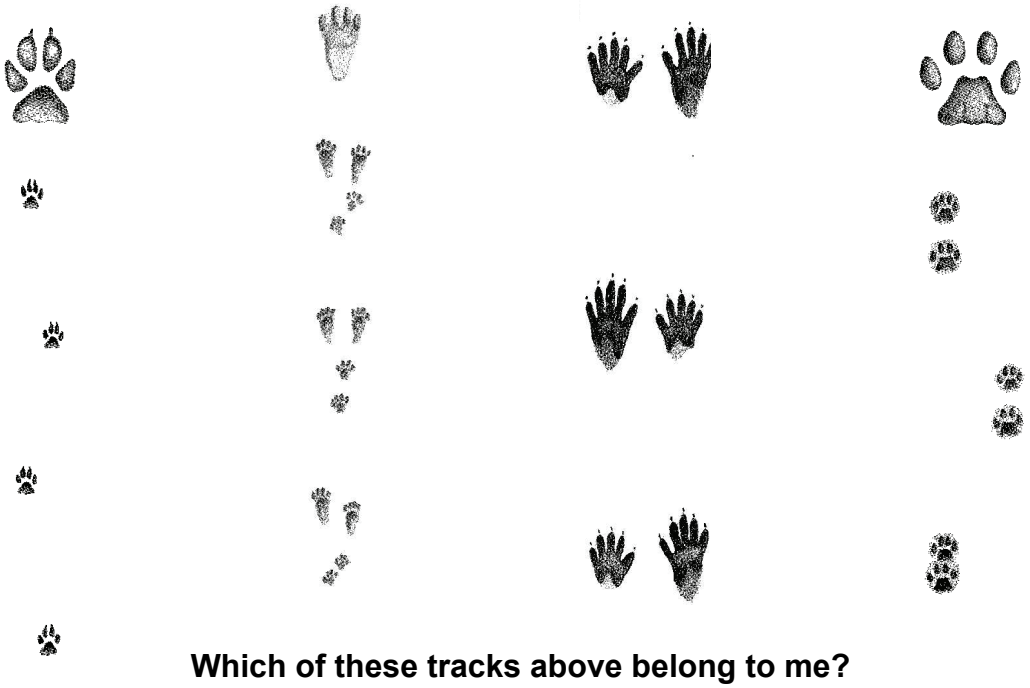
From Animal Tracks of Washington and Oregon

Which of these tracks above belong to me?



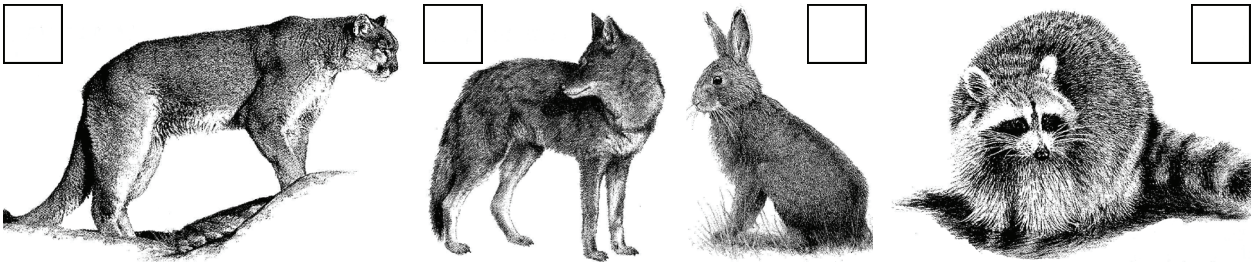
Student Worksheet: Who Am I?





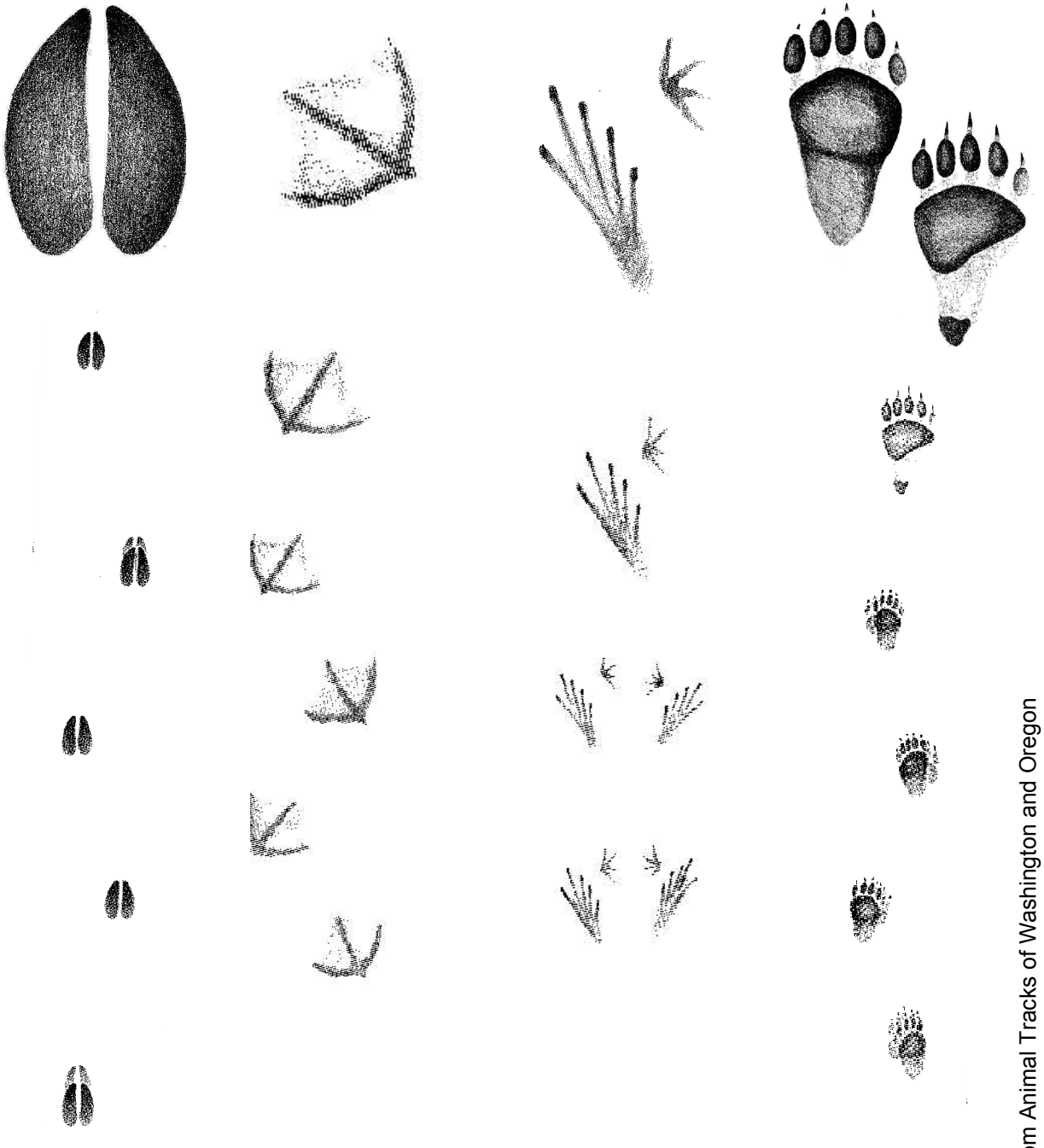
From Animal Tracks of Washington and Oregon

Which of these tracks above belong to me?



Student Worksheet: Who Am I?, Continued

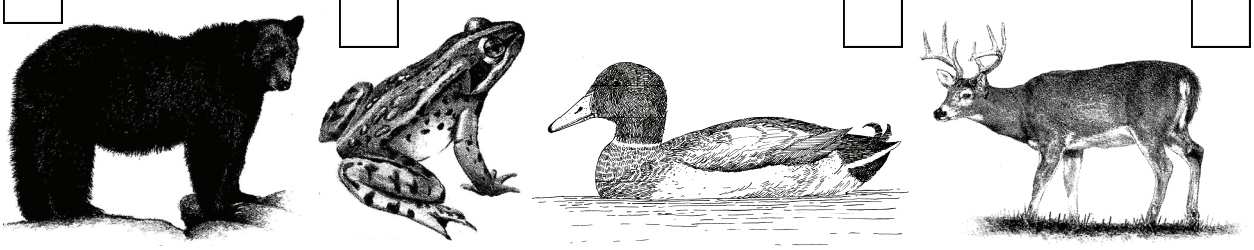
E F G H

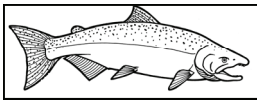


From Animal Tracks of Washington and Oregon

Which of these tracks above belong to me?

☐ ☐ ☐ ☐





Post-Work: Be A Tracking Detective

Subject: Science

Concept: Track identification

Key Vocabulary
- Track pattern
- Stride

Skills
- Observation
- Comparing similarities and differences

Materials
- □ Dog or cat
- □ Ruler

Become a track detective and discover what type of track patterns your dog or cat leaves behind.

Grade Level Expectations (GLEs) or Evidence of Learning

Science

1.1.2 Understand the relative position and motion of objects.

Suggested Procedure (Before Class)

1. Ask students to wet their pet's feet outside and observe its movement. Have the students draw a picture of their pet's **track pattern** (arrangement of tracks) and bring to class.

Suggested Procedure (During Class)

1. Ask the students the following questions about their pet's track pattern.

- Does it walk, trot, gallop, or jump?
- How long is it's **stride**? (length from the center of one track to the center of the next track)
- What is the size of the track?

2. Optional: Have your students repeat the process with a family member's tracks.

Extensions

Continue learning about animal tracking by going to the following website:

http://www.dnr.state.wi.us/org/caer/ce/eek/cool/trackQuizLVLOne.htm