



PENNSYLVANIA GAME COMMISSION



# PENNSYLVANIA WILDLIFE KITS

*Mammals*



PA.GOV/PGC

# PENNSYLVANIA GAME COMMISSION

Dear wildlife kit user,

The Pennsylvania Game Commission is pleased to offer this educational wildlife kit focused on some of our state's mammals. Featuring pelts, skulls, scat, and tracks, this wildlife kit may be used in the classroom, to study for the Envirothon, or just for those interested in learning more about Pennsylvania wildlife!

Pennsylvania spans 11 different ecoregions, creating diverse habitats for a multitude of wildlife species. From the rural reaches of northcentral Pennsylvania forests to the urban streets of Philadelphia and Pittsburgh, wildlife can be found everywhere!

The natural world is alive with motion and vibrancy, as are the minds of learners. Our goal for this kit is to foster a desire to learn more about the environment and stimulate a respect for our rich natural resources in Pennsylvania. Have fun and happy learning!



Pennsylvania Game Commission  
Bureau of Information and Education  
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[www.pa.gov/pgc](http://www.pa.gov/pgc)



To learn more and access even more wildlife resources, be sure to visit us at:

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# KIT INVENTORY

**Pelts:** Each kit includes 12 pelts:

- |            |             |                   |
|------------|-------------|-------------------|
| 1. Muskrat | 5. Gray fox | 9. Opossum        |
| 2. Deer    | 6. Beaver   | 10. Mink          |
| 3. Coyote  | 7. Raccoon  | 11. Bobcat        |
| 4. Red fox | 8. Skunk    | 12. Gray squirrel |

**Skulls:** Each kit includes 3 skulls. Due to availability, skulls vary between kits. Each kit will include one omnivore, one carnivore, and one herbivore.

**Omnivores**

1. Opossum
2. Coyote
3. Raccoon

**Carnivores**

4. Bobcat
5. River otter
6. Mink

**Herbivores**

7. Beaver
8. Muskrat
9. Groundhog

**Replitracks & Repliscat:** Each kit includes tracks and scat from:

- |           |            |            |
|-----------|------------|------------|
| 1. Beaver | 4. Red fox | 7. Muskrat |
| 2. Coyote | 5. Skunk   | 8. Raccoon |
| 3. Deer   | 6. Opossum |            |

**Other items:** Due to availability, items may vary between kits. Each kit includes a binder with:

- Critter Cards
- Tracks & Scat ID Cards
- Lesson Plans

**Kit Loan/Return:**

- Please limit your loan of the kit to **2 weeks**.
- Return all items to their original containers.
- Contact **[pgceducation@pa.gov](mailto:pgceducation@pa.gov)** for any questions or comments regarding the Pennsylvania Wildlife Kits.



# CRITTER CARDS



## CRITTER CARDS

# WHITE-TAILED DEER

Animal Family: Cervidae (Deer)

Latin name: *Odocoileus virginianus*

Preferred Habitat: deep woods, forest and field edges, woodlots in farming country, suburbs

Eating Habits: Herbivore - primarily a browser feeding on soft and woody tissue from a wide variety of trees, shrubs and crops



### Fun Facts

- Deer hides were used by early settlers and Native Americans for clothing/shelter
- Deer hair is hollow and when it is bent, it breaks into a tepee shape
- Male deer (bucks) grow and shed antlers which are bones that grow rapidly.
- Deer are aged by looking at the wear on their molar teeth



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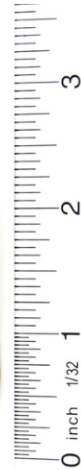
## TRACKS AND SCAT ID CARDS

# WHITE-TAILED DEER

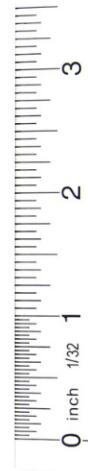
TRACK AND SCAT IMAGES PROVIDED BY ACRONNATURALIST.COM



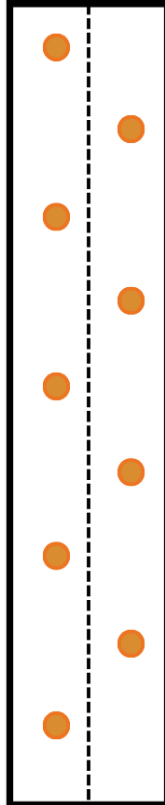
Front



Hind



White-tailed deer walking gait pattern

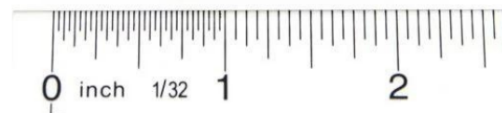


Direction of travel



● = both (direct register)

Scat



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## CRITTER CARDS

# COYOTE

Animal Family: Canidae (Dogs)

Latin Name: *Canis latrans*

Preferred Habitat: Brushy areas, mixed forests, marshes, agricultural areas and suburban settings



Eating Habits: Omnivore - small mammals, birds, eggs, insects, fruits, berries, grasses, crops, human garbage, domestic cats, poultry, carrion

### Fun Facts

- Coyotes are found in all 67 PA counties,
- They have adapted well to living around people
- Coyotes come in all color varieties from red, brown, black, blonde and crosses of these colors
- They can be hunted 365 days a year
- Coyotes howl, bark and whine similar to domestic dogs
- Scat is black when fresh, twisted and approximately 3" to 7" long

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## TRACKS AND SCAT ID CARDS

# COYOTE

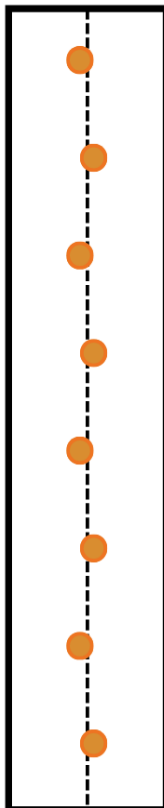


Front



Hind

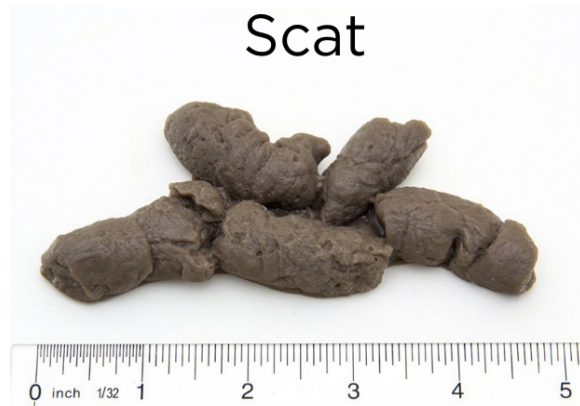
Coyote trotting gait pattern



Direction of travel



Scat



● = both (direct register)

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## CRITTER CARDS

# RED FOX

Animal Family: Canidae (Dogs)

Latin Name: *Vulpes vulpes*

Preferred Habitat: Woodlots and fields in agricultural areas, forest edges, suburban developments



Eating Habits: Omnivore - small mammals, birds, eggs, insects, fruit, berries, crops, domestic cats, poultry and carrion

### Fun Facts

- Very adapted to living around humans
- Usually has white tip on tail
- Can be seen day or night, especially in spring and summer, hunting for food to feed their pups
- Bark and scream at night, may sound like a human baby crying
- Known carrier of rabies, mange and distemper
- Scat is black when fresh, twisted and 3" to 4" long

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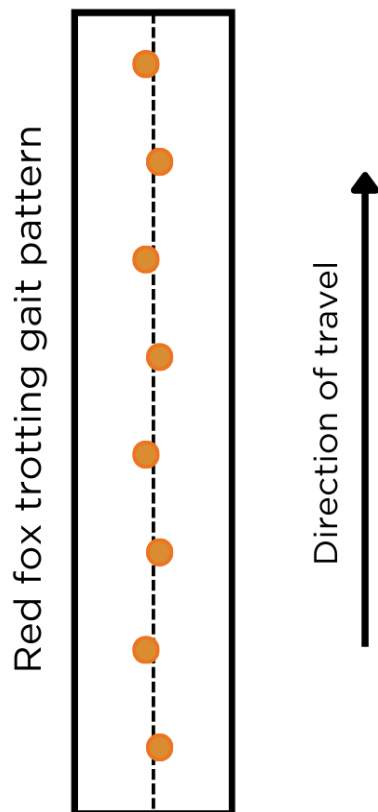
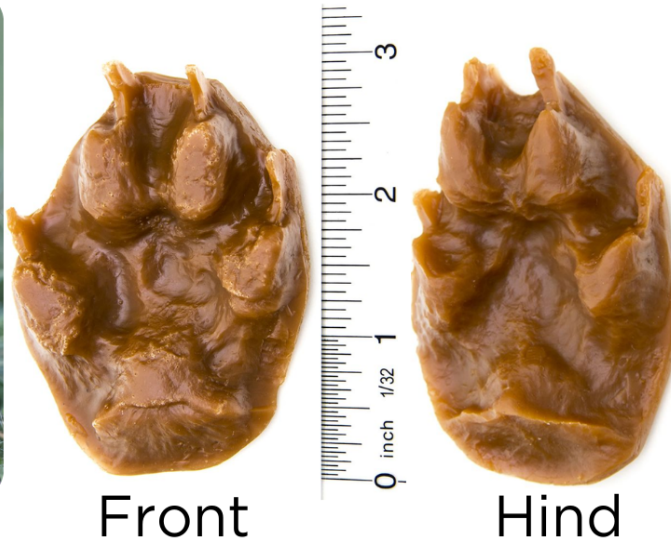
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## TRACKS AND SCAT ID CARDS

# RED FOX



● = both (direct register)

Scat



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## CRITTER CARDS

# GRAY FOX

Animal Family: Canidae (Dogs)

Latin Name: *Urocyon cinereoargenteus*

Preferred Habitat:

Deciduous or mixed  
hardwoods, swamps,  
rugged mountainous terrain

Eating Habits: Omnivore - small  
mammals, birds, eggs, insects,  
fruit, berries, crops, grasses, and reptiles



### Fun Facts

- Not normally seen in as close proximity to humans as the red fox
- Have semi-retractable claws that aid the fox in climbing trees to find food and avoid predators like domestic dogs and coyotes
- Usually have a black stripe of hair down the tail and a black tip of the tail
- Scat is black when fresh, twisted and 3" to 4" long

## CRITTER CARDS

# BOBCAT

Animal Family: Felidae (Cats)

Latin Name: *Lynx rufus*

Preferred Habitat: Wooded land broken up by brushy thickets, reverting fields, and south-facing rock outcroppings

Eating Habits: Carnivore - small mammals, birds, insects, reptiles, fish, carrion, deer

### Fun Facts

- The state's only native feline predator
- Nocturnal, secretive in nature
- Retractable claws like all cats; track pattern does not show claws
- Populations are stable to increasing
- PA has a limited trapping season for bobcats
- Short or "bobbed" tail, 3"-7" long



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## TRACKS AND SCAT ID CARDS

# BOBCAT

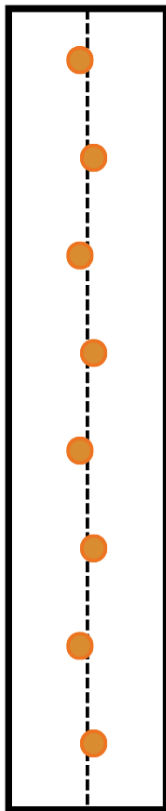


Front



Hind

Bobcat walking gait pattern



Direction of travel



Scat



● = both (direct register)

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## CRITTER CARDS

# BEAVER

Animal Family: Castoridae (Rodents)

Latin Name: *Castor canadensis*

Preferred Habitat: Streams, rivers, ponds, lakes near hardwood forests



Eating Habits: Herbivore - prefer the cambium (growing layer) of twigs, buds, and leaves of willows, aspens, cottonwoods, birch, alder, cherry, oak and other trees. Fleshy roots of cattails and water lilies.

### Fun Facts

- Largest rodent in PA, poor eyesight, excellent sense of smell and hearing
- Webbed hind feet for swimming and one split toenail used for grooming coat
- Build dams to back up water closer to their food sources
- Tail used for swimming, balance, fat storage, and danger alert
- Scent gland for marking territory



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## TRACKS AND SCAT ID CARDS

# BEAVER

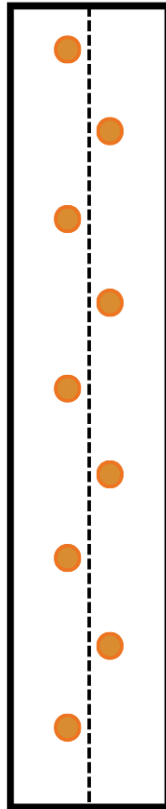


Front



Hind

Beaver walking gait pattern



Direction of travel



Scat



● = both (direct register)

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## CRITTER CARDS

# MUSKRAT

Animal Family: Castoridae (Rodents)

Latin Name: *Ondatra zibethicus*

Preferred Habitat: Swamps, bogs, marshes, wetlands, streams, lakes, ponds, and rivers

Eating Habits: Mainly herbivore - cattails, sedges, grasses, aquatic plants. Will eat clams, mussels, snails, crustaceans, fish, and frogs in small amounts.



### Fun Facts

- Smaller than a beaver
- Will dig holes along banks of ponds and streams
- Sign includes small green or black droppings on top of rocks as well as floating grass on water's edge
- Preyed upon by many predators including hawks, owls, mink, and fox
- Build lodges up to 2 feet high made of aquatic plants and mud



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## TRACKS AND SCAT ID CARDS

# MUSKRAT

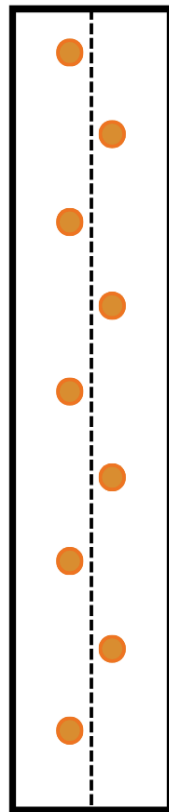


Front



Hind

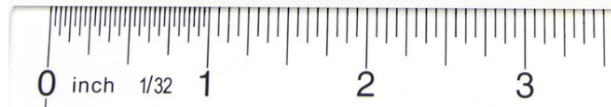
Muskrat walking gait pattern



Direction of travel



Scat



● = both (direct register)

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## CRITTER CARDS

# MINK

Animal Family: Mustelidae (Weasels)

Latin Name: *Mustela vison*

Preferred Habitat: Streams, rivers, marshes, wooded bottomlands, agricultural areas

Eating Habits: Carnivore - rabbits, mice, shrews, muskrats, fish, snakes, crayfish, frogs, turtles, birds, eggs.



### Fun Facts

- Long, slender body
- Fur used for coats, hats, and gloves
- Will travel over land and water
- Explores all crevices, holes, and banks along streams for food
- Related to skunks, otters, fishers, and weasels
- Prominent musk glands
- Scat is usually 1"-3" long, folded, twisted, tapered at the ends and black in color

## TRACKS AND SCAT ID CARDS

### MINK

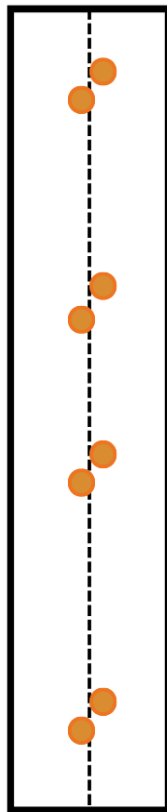


Front



Hind

Mink loping gait pattern



Direction of travel



Scat



PC: NY State Parks

● = both (direct register)

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## CRITTER CARDS

# RACCOON

Animal Family: Procyonidae

(only member of this family found in PA)

Latin Name: *Procyon lotor*

Preferred Habitat: Marshes, swamps, streams, rivers, agricultural areas, urban developments, wooded areas

Eating Habits: Omnivore - Insects, fish, crayfish, frogs, salamanders, snakes, turtles, fruit, berries, crops, eggs, birds, carrion, human garbage.



### Fun Facts

- Walk “plantigrade” or flat-footed like bears
- Do not “wash food” before eating it
- Are known vectors or carriers of rabies and distemper
- Well adapted to living around people



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## TRACKS AND SCAT ID CARDS

# RACCOON



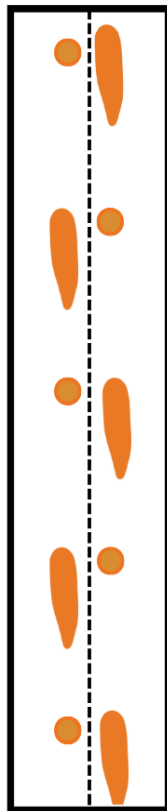
Front



Hind



Raccoon walking gait pattern (2x2)

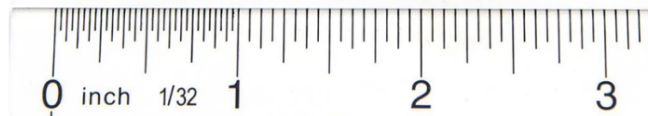


Direction of travel



● = Front    ○ = Hind

Scat



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## CRITTER CARDS

# STRIPED SKUNK

Animal Family: Mustelidae (Weasels)

Latin Name: *Mephitis mephitis*

Preferred Habitat: Woodlands, fields, agricultural areas, urban developments

Eating Habits: Omnivore/Insectivore - mice, voles, shrews, insects, birds, eggs, salamanders, snakes, frogs, spiders, ticks, berries, crops, carrion

### Fun Facts

- Can spray its musk up to 15' from 2 glands near anal region
- Black and white coloring is so the animal may be seen in the day or night
- Usually nocturnal
- Preyed upon by owls (owls cannot smell)
- Two subspecies: striped skunk (most common) and spotted skunk



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## TRACKS AND SCAT ID CARDS

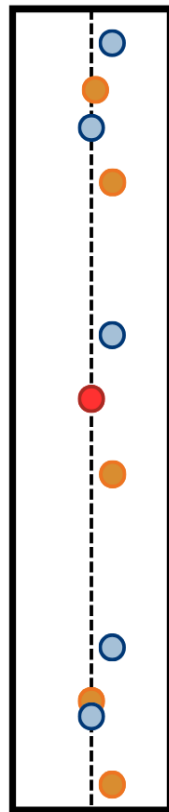
# STRIPED SKUNK



Front

Hind

Skunk loping gait pattern (2x2)



Direction of travel



Scat



● = Hind ● = Front ● = Both

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## CRITTER CARDS

# OPOSSOM

Animal Family: Didelphidae (Marsupials, or animal with a pouch)

Latin Name: *Didelphis virginiana*

Preferred Habitat: Bottomlands with woods and streams, urban developments, forested areas and agricultural areas

Eating Habits: Omnivore - earthworms, insects, mice, voles, shrews, birds, eggs, snakes, fish, salamanders, toads, carrion



### Fun Facts

- Has a prehensile tail for grasping branches
- Opposable thumbs on hind feet (only 2 other mammals in PA have these: bats and humans)
- Can feign death or “play possum” by rolling over on side and slowing down breathing and heart rate until danger passes
- Have the most teeth of any mammal in North America (50)

## TRACKS AND SCAT ID CARDS

# OPOSSUM



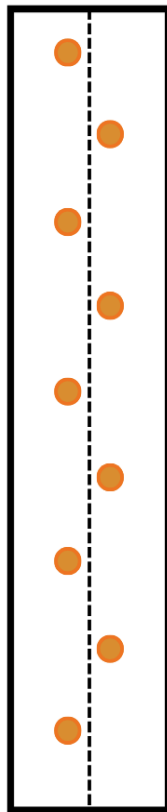
Front



Hind



Opossum walking gait pattern



Direction of travel



Scat



● = both (direct register)

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## CRITTER CARDS

# GRAY SQUIRREL

Animal Family: Sciuridae (Rodents)

Latin Name: *Sciurus carolinensis*

Preferred Habitat: Rural and urban areas, forests, parks

Eating Habits: Herbivore - acorns, hickory nuts, walnuts, beech nuts, berries, mushrooms, pine seeds, fruits



### Fun Facts

- Most common squirrel in PA; other species include fox, red, and flying squirrels
- Large, bushy tail helps with balance
- Keen sense of sight, hearing, and smell
- Melanism (black coloration) is fairly common in gray squirrels
- Predators include hawks, owls, foxes, and tree-climbing snakes
- Live in nests made of twigs, leaves, grasses, and bark, or dens, which are tree cavities



# WILDLIFE SKULL ACTIVITIES



**GRADE LEVEL: 4-12**

Students will learn about the similarities and differences among mammals, and how an animal's skull can reveal certain characteristics about how the animal survived in its natural habitat using replica wildlife skulls.

**CONTENT AREAS:** Life science, Environment, Ecology

**DURATION:** One activity per classroom session

## MATERIALS

- Skulls - at least one omnivore, one carnivore, and one herbivore
- Photos of the animal for each skull (photos included at end of booklet)
- Mystery Skulls student worksheet

## VOCABULARY

binocular, canines, carnivore, carrion, crepuscular, diurnal, habitat, herbivore, incisors, molars, monocular, nasal passage, nocturnal, omnivore, orbit, palate, peripheral, posterior, predator, pre-molars, prey

## Objectives

Students will be able to:

- Describe skull characteristics of several animals
- Describe how an animal's teeth can indicate what the animal eats
- Learn the definitions of carnivore, herbivore and omnivore
- Learn the definition of predator and prey, and the skull characteristics that correspond with these classifications.

## BACKGROUND

Skulls can tell us many things about how the animal once survived in its natural environment. A few observations of an animal's skull can tell us what the animal ate, whether the animal was a **predator** or **prey**, and which senses were most important to the animal's survival. The teeth in an animal skull can tell us whether the animal was a **carnivore** (meat eater), **herbivore** (plant eater) or an **omnivore** (meat and plant eater).



Lesson plan adapted from The University of Arizona College of Agriculture

**For more educational  
resources, please  
visit:**

**PA.GOV/PGC**



# WILDLIFE SKULL ACTIVITIES



## CARNIVORES

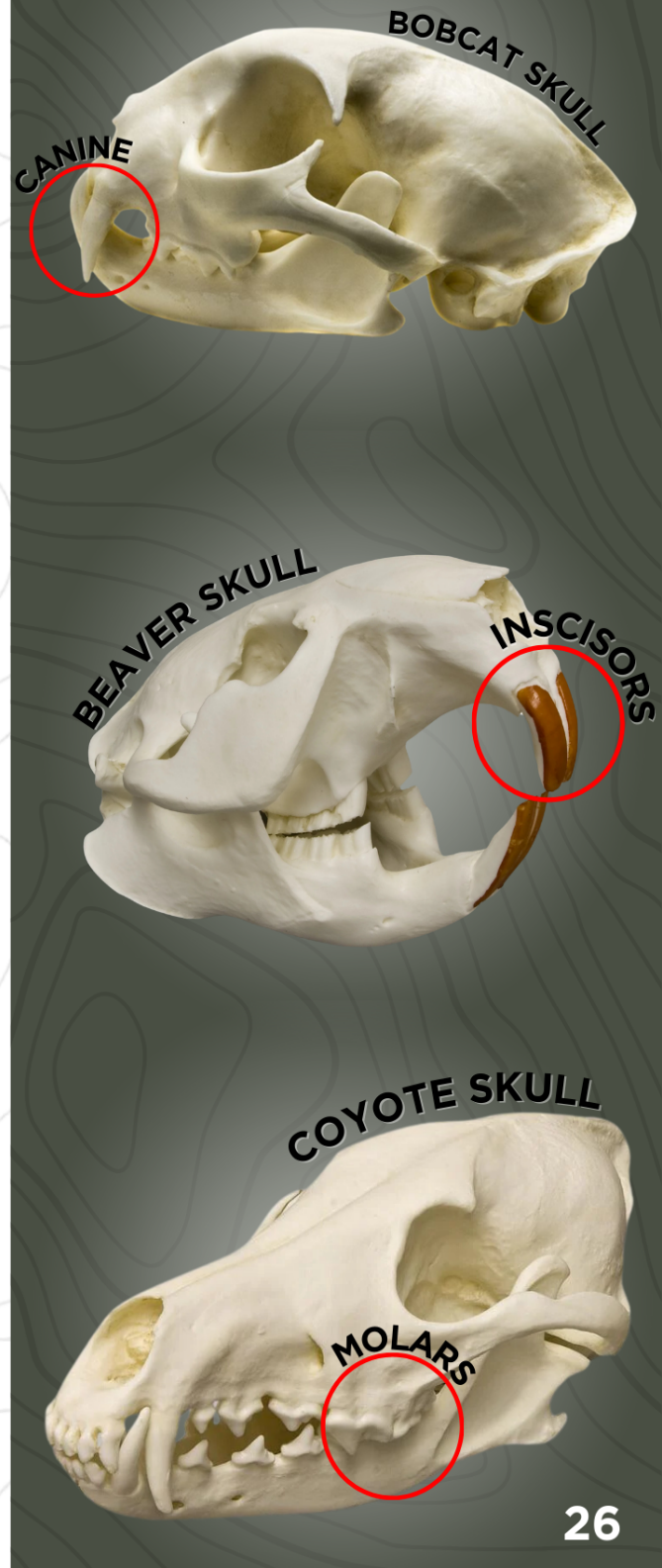
Carnivores have smaller **incisors**, which play a minor role in grooming. The **canine** teeth are large, long and pointed for piercing and holding prey. **Pre-molars** and **molars** are sharp and pointed for cutting and tearing flesh. Carnivores are predators (they eat other animals) and tend to bite, tear, and gulp food without any chewing action. Carnivores' teeth tend to be clean and white because they are not stained by plant material. **Bobcats, otters, and mink** are carnivores found in Pennsylvania.

## HERBIVORES

Herbivores have large, well-developed incisors for cutting plant material. Most ruminant (cud-chewing) herbivores, like deer and elk, do not have upper incisors or canines. Instead, they have a hard upper palate that serves as a "cutting board" for the lower incisors to cut through plant stems. This arrangement permits the rapid ingestion of large amounts of plant material. Unlike predators, herbivores have side-to-side movement of the lower jaw and are able to chew food. This chewing and grinding action causes teeth to wear with age. Herbivore teeth are often stained from substances in plants. Herbivores are prey species, including **deer, elk, beavers, muskrats and groundhogs.**

## OMNIVORES

Omnivores have a combination of carnivore and herbivore teeth characteristics and can be predators or prey. Omnivores have fairly large and well-developed incisors for cutting plant material. The canine teeth are long and pointed for killing and holding prey. Many omnivores are either predominately meat or plant eaters. For example, coyotes are omnivores that are predominately meat eaters, with long, sharp canine teeth similar to a carnivore. However, the coyotes' most **posterior** (back) molars have rounded cusps for grinding and crushing plant material. Omnivores in Pennsylvania include **coyotes, opossums, and raccoons.**





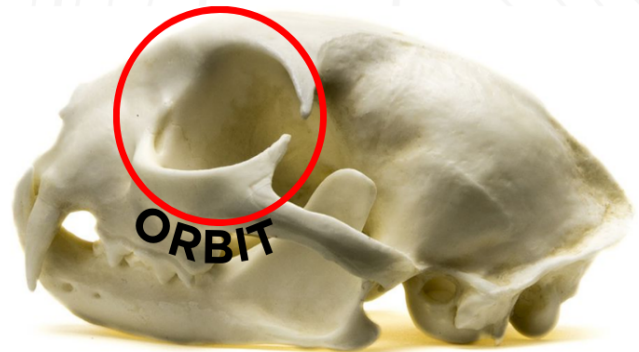
# WILDLIFE SKULL ACTIVITIES



## EYE-SPY

The size and placement of the **orbits** (eye sockets) in an animal's skull can also tell us a lot about how that animal survived. The size of the orbits in relation to the overall size of the skull, is generally proportional to the sharpness of the animal's eyesight. The larger the orbits, the better the eyesight of the animal. Bobcats have very large orbits and

hence, very acute vision. The large eyes of cats and many other **nocturnal** (active at night) animals play a role in their keen night vision by allowing more light to enter the pupils. In contrast, skunks have relatively small orbits and poorer eyesight. They must rely more on their keen sense of smell, rather than eyesight, to locate food and predators.



## PREDATOR VS. PREY

The placement of the orbits can tell us if an animal was a predator or prey species. Predators are animals that eat other animals and prey are animals that are eaten by other animals. Predators are always carnivores or omnivores, whereas prey may be carnivores, herbivores or omnivores. Most all predators have eyes located in a forward position on the skull. Forward eye placement provides the animal with a greater degree of binocular vision. **Binocular** vision means that both eyes focus on an object, allowing the animal to judge distance (depth perception). Binocular vision is an advantage when attacking prey and an important element of the predator's survival.

Herbivores are strictly prey, and most have orbits located on the side of the skull. This placement limits binocular vision but enhances the animal's field of view or peripheral vision. Herbivores have monocular vision, which means that they can see an object with only one eye. With monocular vision, each eye has a field of view of almost 180°, as seen with the deer skull to the right. Therefore, by using both eyes, these animals have nearly a 360° field of view. This field of vision provides the animal with a greater ability to locate predators and is an important element of their survival.



## KNOWLEDGE CHECK

If diurnal means active during the day and nocturnal means active at night, what does crepuscular mean? Active at dawn and dusk!



# WILDLIFE SKULL ACTIVITIES



## TRUST YOUR "INSTINKS"

The relative size of the **nasal passage** on a skull is an indication of the animal's sense of smell. The thin bony structures inside the nasal passage (nasal turbinates) provide the framework for membranes which sense odor. The greater the size of these structures, the greater the sense of smell. The short nasal passages of cat skulls indicate that cats do not have a very good sense of smell and rely more on other senses to locate prey. Conversely, the long nasal passage of a coyote indicates that coyotes have a very keen sense of smell and is important to the coyote's survival.



Nasal Turbinates

All of these characteristics discussed are elements of survival. The particular combination of characteristics that an animal has determines how that animal survives. Herbivores are equipped to detect predators with keen senses of hearing and smell along with monocular vision which offers a wide field of vision. When predators attack, an herbivore's best defense is their ability to make a quick escape. Carnivores that would predate upon these herbivores are equipped with large canine teeth to capture and kill prey. Predators have orbits forward on their skulls, giving them binocular vision and greater depth perception, which is critical for attacking prey. Omnivores, with the ability to eat both meat and plants, have a wider choice of food sources than strict carnivores or herbivores.

One of the most successful animal survivors is the coyote. Coyotes are currently found in all types of **habitats** across the contiguous United States, throughout Canada, and south to the Panama Canal. They can be found in all 67 counties in Pennsylvania. The coyote's survivability can be attributed to being an opportunistic omnivore that can eat almost anything, with excellent senses of sight, hearing and smell.



# WILDLIFE SKULL ACTIVITIES



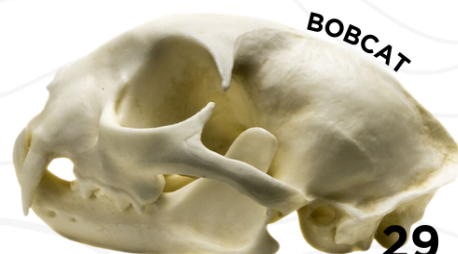
## PROCEDURE

### ACTIVITY ONE - TOOTH SLEUTH

1. Provide skulls to the students. Display at least 1 carnivore, 1 herbivore, and 1 omnivore.
2. Invite guesses and discussion to the questions below. Show the skulls separately, ask each question about each skull and point out the feature described in the answer.
3. Before posing questions, tell the students we will identify the animals in the next activity.

#### Skull 1 - Carnivore (bobcat, otter, or mink)

What did this animal eat?	This animal was a meat eater. We can tell by looking at the teeth.
Why are the canine teeth so long?	The canine teeth are used for piercing and holding other animals.
Why are the incisors short and small?	Incisors play a minor role for this animal, such as in grooming.
Why are the pre-molars and molars sharp?	The molars are used for cutting and shearing meat like scissors.
Can this animal chew?	The long canine teeth and the lower jaw prevent this animal from having side-to-side movement of the lower jaw. This animal bit, sheared, and gulped its food without any real "chewing" action.






# WILDLIFE SKULL ACTIVITIES



## Skull 2 - Herbivore (beaver, muskrat, groundhog, deer)

What did this animal eat?	This animal ate plants. We can tell by looking at the teeth.
Compared to the carnivore, are these incisors larger or smaller?	The incisors are large and well developed.
What are the incisors used for?	They are used as blades for cutting plant parts and stripping away leaves and bark.
Do these canines look like the canines in the carnivore?	No. The canine teeth in this animal resemble and function as incisors because as a plant eater, this animal has no use for long, pointed canine teeth.
Do the pre-molars and molars look like the carnivores?	No, they are large with high crowns and wide across the top for grinding and crushing plant materials.
Could this animal chew?	Yes. This animal had the ability to move its lower jaws in a side-to-side, chewing motion.
<p>Deer only: Notice there are there no upper incisors or canines. Why not?</p>  <p>WHITE-TAILED DEER</p>	<p>Most ruminant (cud chewing) animals (deer, elk, etc.) do not have upper incisors or canines. Instead they have a hard palate that serves as a “cutting board” for the lower incisors to cut grass and other plant materials, and to strip leaves off branches.</p>

# WILDLIFE SKULL ACTIVITIES



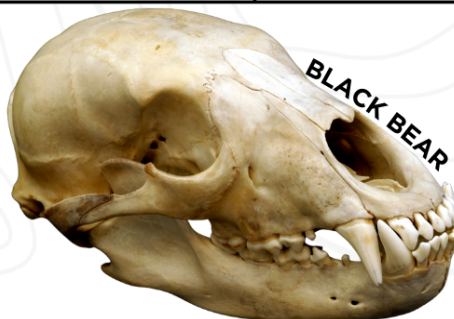
## Skull 3 - Omnivore (bear, coyote, raccoon, opossum)

What did this animal eat?	This animal ate both meat and plants. We see in this skull, teeth features of both carnivores and herbivores.
Why are the canine teeth so long and pointed?	The canine teeth are used for piercing and holding other animals.
What are the incisors used for?	They are used for cutting plant parts and stripping away leaves.
How do these pre-molars and molars compare to carnivores and herbivores?	This animal has both high crowned molars with sharp edges for shearing meat, and molars with wider crowns to crush bone and plant parts.
Can this animal chew?	No. The canine teeth in this animal resemble and function as incisors because as a plant eater, this animal has no use for long, pointed canine teeth.
Do the pre-molars and molars look like the carnivores?	No, they are large with high crowns and wide across the top for grinding and crushing plant materials.

RACCOON



BLACK BEAR



OPOSSUM





# WILDLIFE SKULL ACTIVITIES



## PROCEDURE

### ACTIVITY TWO - WHO AM I?

1. Provide skulls to the students. Display at least 1 carnivore, 1 herbivore, and 1 omnivore.
2. Show the skulls separately, ask each question about each skull.
3. Determine which animal belongs to which skull.

#### Skull 1 - Carnivore (bobcat, otter, or mink)

1. Look at the teeth. What did this animal eat? **Meat.**
2. Is this animal a carnivore, herbivore, or omnivore? **Carnivore.**
3. What animal is this? Give hints such as “this animal hunts at night” or “notice the large orbits”. Depending on the skull, answers include **bobcat, otter, mink.**

#### Skull 2 - Herbivore (beaver, muskrat, groundhog, deer)

1. Look at the teeth. What did this animal eat? **Plants.**
2. Is this animal a carnivore, herbivore, or omnivore? **Herbivore.**
3. What animal is this? Give hints such as “notice the well-developed and stained incisors” or “this animal can run very fast to avoid danger”. Depending on the skull, answers include **beaver, muskrat, groundhog, or deer.**



#### Skull 3 - Omnivore (bear, coyote, raccoon, opossum)

1. Look at the teeth. What did this animal eat? **Both meat and plant material.**
2. Is this animal a carnivore, herbivore, or omnivore? **Omnivore.**
3. What animal is this? Give hints such as “notice the long nose” or “notice the smaller orbits”. Depending on the skull, answers include **bear, coyote, raccoon, or opossum.**



# WILDLIFE SKULL ACTIVITIES



## PROCEDURE

### ACTIVITY THREE - PREDATOR VS. PREY

1. Ask students to define the words predator and prey.
2. Ask if an animal can be classified as both predator and prey.
3. After the students provide definitions, be sure each word is correctly defined.
4. Give examples of each classification and place a placard with the words "predator", "prey", and "predator and prey" on table with the appropriate skull(s) placed behind each placard.
5. Using the skulls from activity 1 and 2, have students identify predator and prey characteristics.

PREDATOR	PREY	PREDATOR & PREY
an animal that kills other animals for food. Some predators also eat carrion (the remains of a dead animal). Predators can be carnivores or omnivores.	animals that are eaten by other animals. Prey animals may be carnivores, herbivores or omnivores.	an animal that eats other animals but may also be eaten by other animals. An animal can be both predator and prey. An example could be a cat kills a mouse — the cat is the predator. Later, a coyote comes along and kills the cat — the cat is now the prey.

### Skull 1 - Carnivore (bobcat, otter, or mink)

1. From looking at these teeth, how do we know this is a predator?
  - a. Large canines in upper and lower jaw for piercing and holding prey.
  - b. Sharp and pointed pre-molars and molars for tearing flesh.
  - c. Long canines prevent side-to-side, chewing movement of lower jaw.  
Predators tend to bite, tear and gulp food without chewing action.
  - d. Teeth clean and white, not stained by plant materials.
2. From looking at the orbits in this skull, how do we know this is a predator?
  - a. Orbits are forward for binocular vision.
  - b. Forward eye placement is common in predators and helps them to judge distance (depth perception) when attacking prey.
  - c. Orbits very large; providing for excellent eyesight. Potentially nocturnal with good night vision.



# WILDLIFE SKULL ACTIVITIES



## **Skull 1 - Carnivore (bobcat, otter, or mink) (cont.)**

3. What does the nasal passage tell us about this animal's sense of smell?
  - a. Nasal passage is relatively short. Sense of smell not as good as some other animals. Relies more on eyesight and hearing and less on sense of smell to locate prey.

This animal is a (bobcat, otter, mink), which is a carnivore and a predator.

## **Skull 2 - Herbivore (beaver, muskrat, groundhog, deer)**

1. From looking at these teeth, how do we know this is a prey animal?
  - a. Large, well-developed incisors for cutting plant material.
  - b. Canines resemble incisors in form and function.
  - c. Molars are high crowned with grinding surfaces and often stained from plant material.
  - d. Has side-to-side movement of lower jaw for chewing action.
2. From looking at the orbits in this skull, how do we know this is a prey?
  - a. The placement of the orbits at side of head for wide field of vision help this animal watch for predators. They can almost see behind them. This is common in herbivore, prey species.
  - b. Comparatively large orbits, but not as large relative to cats. Good vision.
3. What does the nasal passage tell us about this animal's sense of smell?
  - a. Long in relation to skull size.

This animal is a (beaver, muskrat, groundhog, deer), which is a herbivore and prey species.

## **ACTIVITY FOUR - MYSTERY SKULLS**

1. Skulls are numbered and placed at several different locations in the room.
2. Distribute worksheets and divide students into equal groups with one group at each skull location.
3. Ask students to examine the skull at their location and individually or with their group record their observations on the worksheet. Rotate stations every 10-15 minutes.
4. When worksheets are completed, ask for volunteers or call on individuals to tell the group/class what they determined for skull 1. Proceed through the answers for each animal represented. Show photos/posters of each animal as it is identified. Discuss where this animal is found, how the characteristics observed relate to the animal's survival and habitat, and other facts about the animal.



Mystery Skull worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Skull no.	Side to side movement? (Y/N)	Teeth (Carnivore, Herbivore, Omnivore)	Smell (Nasal passage small/large)	Eyesight (Orbits small/large)	Eye placement (Forward/Side)	Predator, Prey, or Both?	Animal
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							





**Bobcat**





**River otter**





**Mink**



## White-tailed deer







Beaver



## Muskrat







**Groundhog**





**Black bear**





Coyote





**Raccoon**





Opossum



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