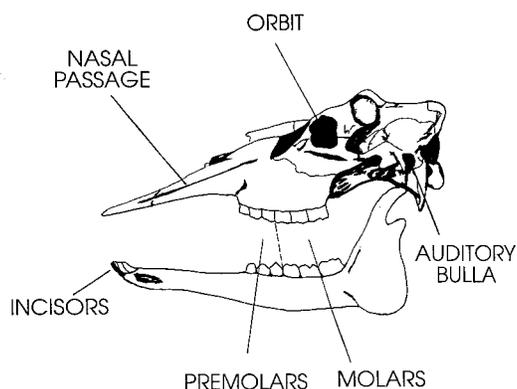


Wildlife Skull Activities



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AZ1145 • October 1999

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This information has been reviewed by university faculty.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James A. Christenson, Director, Cooperative Extension, College of Agriculture, The University of Arizona.

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Animal skulls can tell us many things about creatures and how they once survived in their natural environment. A few relatively simple observations of an animal's skull can tell us what the animal ate, whether the animal was predator or prey, and which senses were most important to the animal's survival.

Some of the characteristics of skulls that we use to tell us about how the animals lived are explained below. The skull diagrams on pages 5 through 7 in this publication will be very useful references while reading this information.

Note: Words in the Vocabulary List (page 17) are italicized in the body of this publication.

Teeth

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). These classifications and some of the corresponding characteristics of teeth are:

CARNIVORE: (meat eater, e.g. mountain lion, bobcat)

Carnivores have comparatively small, less developed *incisors*. *Incisors* play a minor role for carnivores such as grooming. The *canine teeth* are large, long and pointed for piercing and holding prey. Cheek teeth (*pre-molars* and *molars*) are sharp and pointed for cutting and tearing flesh. Some of the upper cheek teeth overlap lower teeth, providing a scissor-like shearing action to cut meat. These teeth are referred to as *carnassial teeth*. With overlapping cheek teeth and long *canines*, *carnivores* do not have the ability to move the lower jaw from side to side in a chewing motion.

Carnivores are predators (they kill and eat other animals) and tend to bite, tear and gulp food without any chewing action. The meat eater's teeth tend to be clean and white because they are not stained by plant material.

HERBIVORE: (plant eater, e.g. mule deer, elk)

Herbivores have large, well developed *incisors* for cutting plant material. Their *canines* resemble *incisors* in form and function. Most ruminant (cud chewing) *herbivores* (deer, sheep, cattle, etc.) 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. Ruminant animals often seek cover after eating to regurgitate and chew their cud while watching for predators.

Herbivore cheek teeth are large and wide with high, sharp crowns for grinding and chewing plant material. Instead of overlapping, the cheek teeth make surface contact to provide a grinding action. Unlike predators,

herbivores have side-to-side movement of the lower jaw and are able to chew food. This chewing, grinding action causes their teeth to wear with age. *Herbivore* teeth are often stained from substances in plants.

NOTE: American elk are the only members of the North American deer family that have upper *canine teeth*. These teeth, found in both males and females are often referred to as "ivory teeth" or "tusk teeth." They are not ivory and they do not presently serve any function. These stubby, rounded upper *canines* are carry-overs from the pre-historic ancestors of the American elk. Elk ancestors had tusks which protruded outward from the upper jaw over the lower jaw and served a defensive purpose. For an excellent treatise on the North American elk, that contains a complete description of the evolution of elk "ivory teeth" including the historical use of these teeth as ornaments and trade items by Native Americans see: *Elk of North America*, Jack T Ward and Dale E. Towell, eds., Stackpole Books, 1982.

OMNIVORE: (plant and meat eater, e.g. bear, coyote)

As might be expected, *omnivores* have a combination of *carnivore* and *herbivore* teeth characteristics. *Omnivores* have fairly large and well developed *incisors* for cutting plant material. The *canine teeth* are long and pointed for killing and holding prey. Cheek teeth are a combination of sharp, scissor-like *carnassial teeth* for shearing meat, and teeth with more rounded *cusps* for grinding and crushing plant material. There is surface contact between some upper and lower *molars*. *Omnivores* (except some primates) do not have side to side lower jaw movement. Rather than a chewing action, their cheek teeth perform both shearing and crushing actions.

Many *omnivores* are either predominately meat eaters or predominately plant eaters. The cheek teeth of these animals can usually tell us their predominant feeding strategy. The cheek teeth are the principle indicators. For example, the coyote is an *omnivore* that is predominately a meat eater and has cheek teeth very similar to a *carnivore*. However, the coyotes' most *posterior molars* have rounded *cusps* for grinding and crushing plant material. On the other hand, the black bear is an *omnivore* that is predominately a plant eater and has cheek teeth more closely resembling those of an *herbivore*.

Eyes

The size of the *orbits* (eye sockets) 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. As an example, mountain lions (and most cats) have very large *orbits* and hence, very acute vision. The large eyes of cats, and many other *nocturnal* animals, play a role in their keen night vision. The javelina (collared peccary) has small *orbits*

and hence, comparatively poor eyesight. The javelina must rely more on its keen sense of smell, rather than eyesight, to locate food and predators.

Nasal Passage

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 tell us that cats do not have a very good sense of smell compared to many other animals 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 that this sense is important to the coyote's survival.

Auditory Bullae

The *auditory bullae* ("bully") are the bony portions of a skull that encase structures of the inner and middle ear. In general, the larger, more inflated, this structure the greater the sense of hearing. Cats have comparatively large, inflated *auditory bullae* and very acute hearing. Although their hearing is much better than a human's, deer and elk have a relatively poor sense of hearing as compared to that of a cat.

Predator and Prey

Predators are animals that eat other animals and prey are animals that are eaten by other animals. Predators can also become prey. When a cat eats a mouse, the cat is predator. When a cat is eaten by a coyote, the cat is prey. Predators are always *carnivores* or *omnivores*, whereas prey may be *carnivores*, *herbivores* or *omnivores*. When we consider humans as predators, all animals may become prey.

When examining skulls to determine predators, we of course look for the teeth characteristics of a *carnivore* or an *omnivore*. If the teeth characteristics of a skull are strictly those of a *herbivore*, we consider the animal to be a prey species.

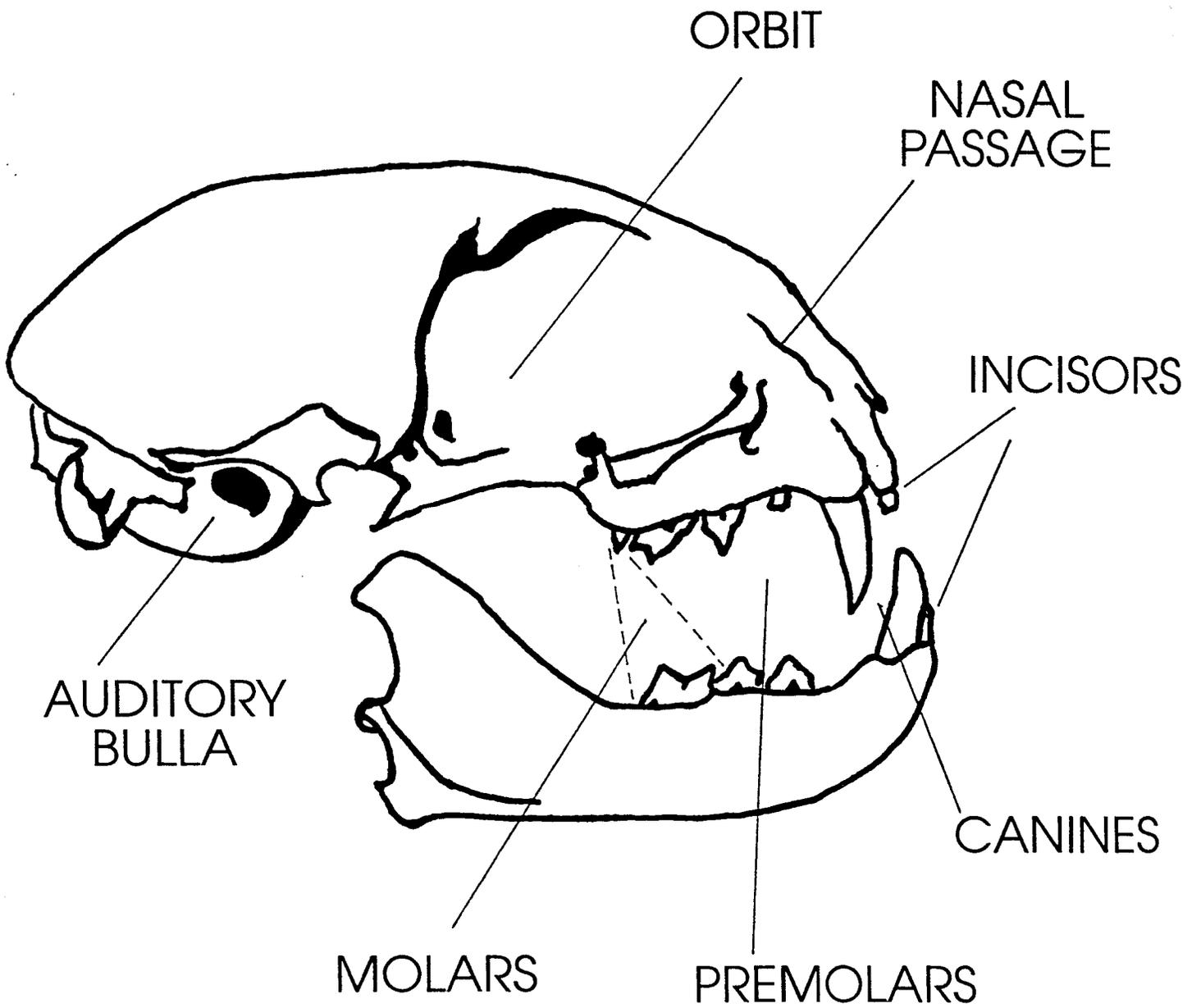
There is another skull characteristic that is very useful in determining predator/prey classification. This is the location of the *orbits* (eye sockets.) Most all predators have the eyes located in a forward position on the skull. Forward eye placement provides the animal with a greater degree of *binocular vision*. *Binocular vision* means that both eyes focus on an object providing the animal with a greater ability 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. These *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 degrees. Therefore, by using both eyes, these animals almost have a 360 degree 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. In some *herbivores* there is some overlap in the field of view and these animals may have partial *binocular vision*.

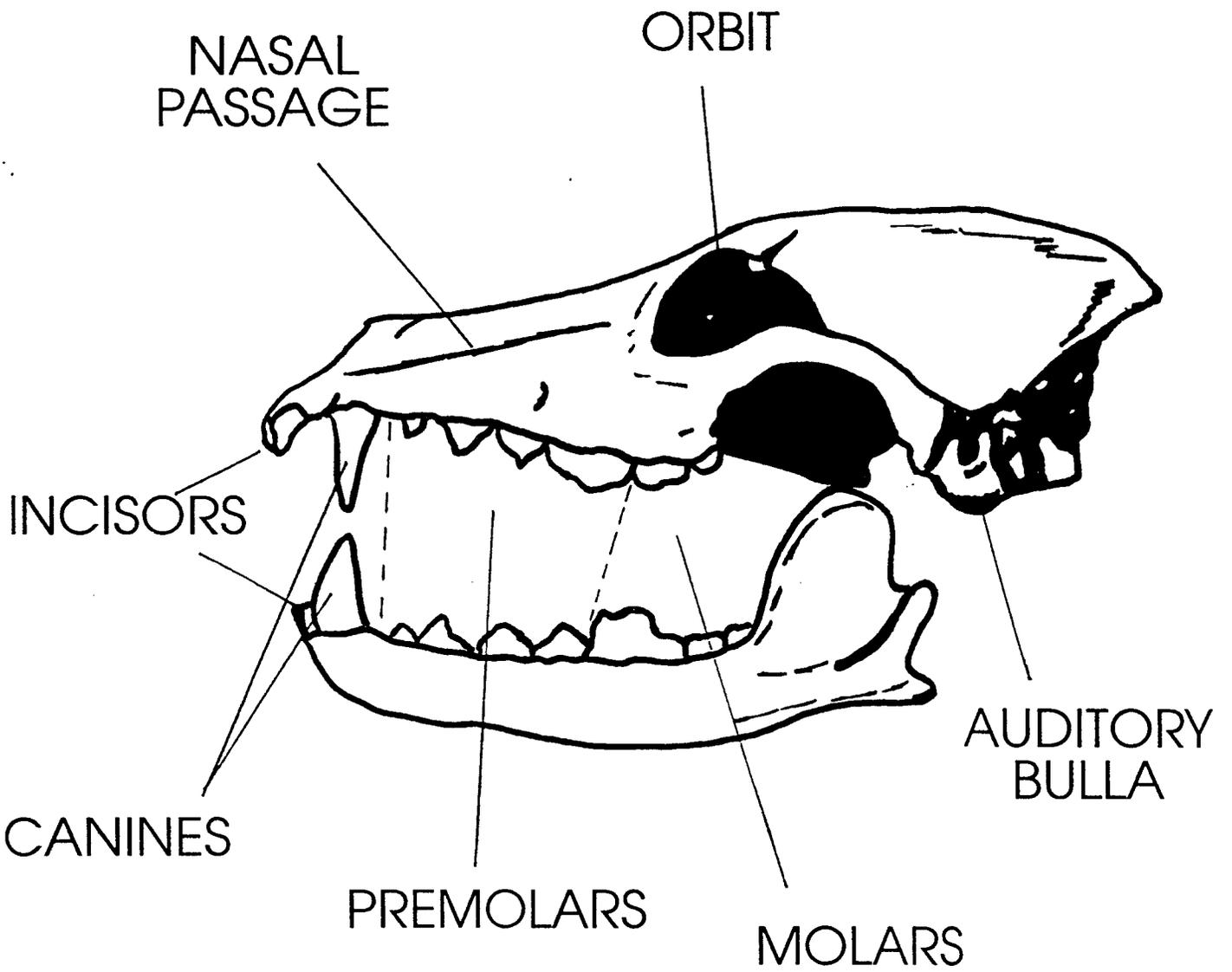
Characteristics for Survival

All of the characteristics discussed here are elements of survival. The particular combination of characteristics that an animal has determines how that animal survives. Ruminant *herbivores*, such as deer and elk, are able to ingest large amounts of food and retreat to cover to regurgitate and chew this food (chew their "cud") while hiding from predators. These *herbivores* are equipped to detect predators with keen senses of hearing and smell along with *monocular vision* which provides for a wide field of vision. When predators attack, the *herbivores* best defense is their fleetness of foot. *Carnivores* that would predate upon these *herbivores* are equipped with large *canine teeth* to capture and kill prey. These predators have *orbits* forward on their skulls and thus *binocular vision* which permits depth perception when attacking prey. *Omnivores*, with the ability to eat both meat and plants, have a wider choice of food sources than strict *carnivores* or *herbivores*.

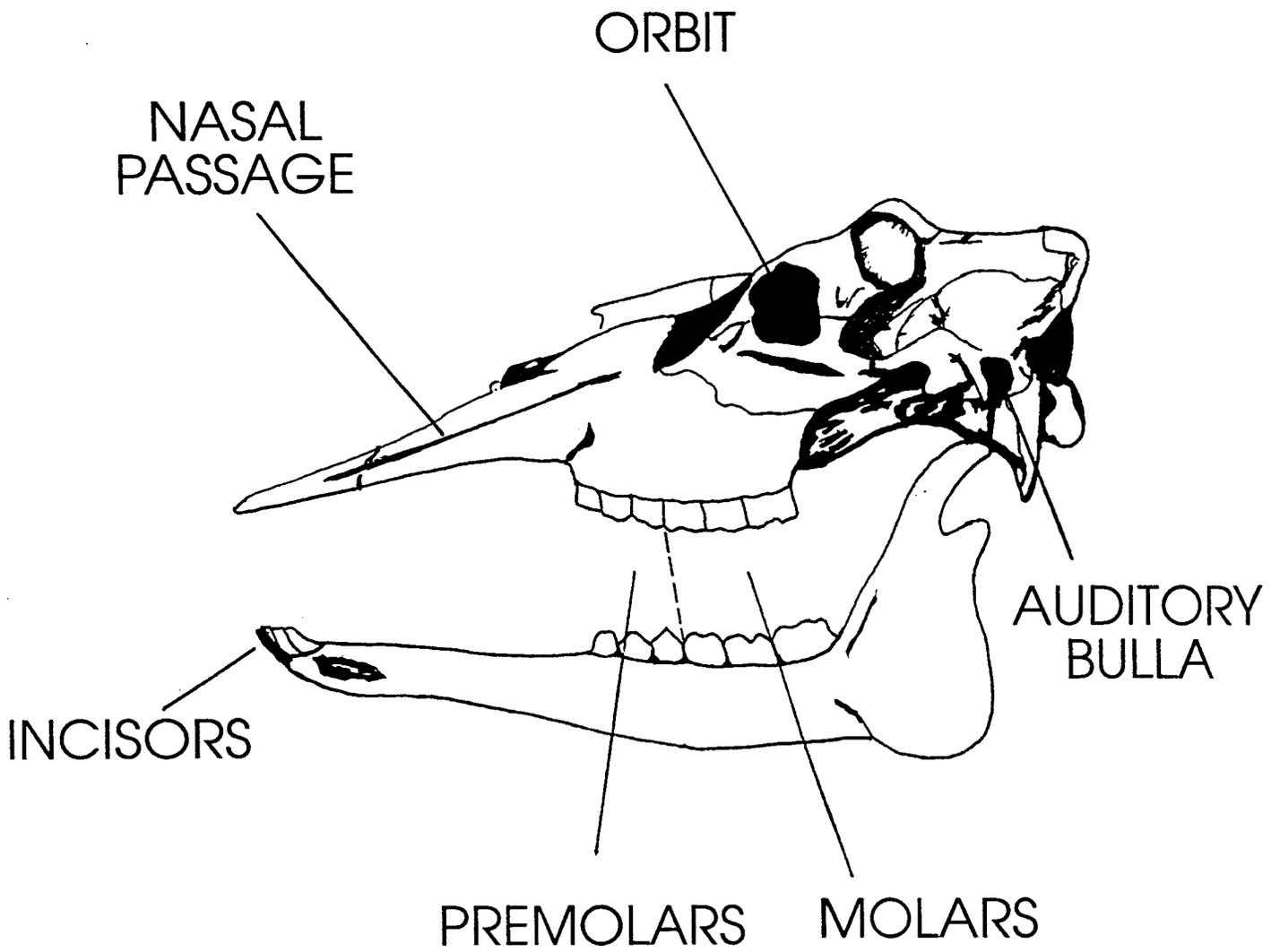
An example of one of the most successful animal survivors is the coyote. Coyotes are currently found in all the contiguous United States, throughout Canada, north to near the Arctic Circle and south to the Panama Canal. Within this extensive range of climates, this animal is found in remote wilderness and in large urban areas. The characteristics that play a role in this survivability include the combination of being an *omnivore* that can eat almost anything with excellent senses of sight, hearing and smell.



CAT



COYOTE



DEER

Wildlife Skull Activities

GOAL: To teach students some of the differences and similarities among animals and how an animal's skull can reveal certain characteristics about how that animal survived in its natural *habitat*. Later in the lesson plan, the students will have the opportunity to put this new knowledge into practice with a “hands-on” activity.

Instructions for Teacher/Leader

1. These activities are written to make extensive use of questioning as a teaching method.
2. Students, especially younger ones, could be disturbed by skulls — go slowly, gently. After the initial introduction, most students are eager to handle skulls and to learn about them.
3. Caution and closely supervise students when they are handling the skulls. Skulls are breakable and difficult to repair or replace. The children should be encouraged to touch the skulls and the features pointed out in this lesson, but the teacher/leader should retain control by holding the skull until the hands-on activity near the end of the lesson plan. If the students are seated in a circle on the floor, they can pass the skulls around the circle and there is less chance of the skulls being dropped.
4. The skulls used to describe activities 1 through 3 in this publication are: a mountain lion to represent a *carnivore*; a mule deer doe to represent an *herbivore*; and a black bear to represent an *omnivore*. The discussions and answers to questions presented here may need to be altered somewhat when different species are used.

Materials Required

- Skulls — A minimum of 1 *carnivore*, 1 *herbivore* and 1 *omnivore*.
- A large photo or poster of the live animal for each skull.
- Individual placards containing the words:
CARNIVORE PREDATOR
HERBIVORE PREY
OMNIVORE PREDATOR AND PREY
- One photocopy of the Mystery Skulls Worksheet for each student.

Objective 1

Students will learn some of the skull characteristics of several animals. They will learn how an animal's teeth can tell us what the animal eats, and they will learn the definitions of the words *carnivore*, *herbivore* and *omnivore*.

Activity 1a. What did this animal eat?

Invite guesses and discussion to the questions posed. Show the skulls separately, ask each question about each skull and point out the feature described in the answer. Do not identify the animal until later, in Activity 2.

Before posing questions, tell the students we will identify the animals later.

Skull 1. (*Carnivore* — mountain lion)

What did this animal eat?

Answer — This animal was a meat eater. We can tell what this animal ate by looking at the teeth.

Why are the *canine teeth* so long and pointed?

Answer — The canine teeth are used for piercing and holding other animals.

Why are the *incisors* (smaller teeth in front between the large *canines*) relatively small and short?

Answer — *Incisors* play a minor role for this animal — such as grooming.

Why are the cheek teeth (*pre-molars* and *molars*) sharp? Why do the upper and lower cheek teeth overlap?

Answer — The *molars* are used for cutting and shearing meat in a scissor-like action.

Could this animal *chew*?

Answer — The long *canine teeth* and the type of attachment of 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.

Skull 1. This animal is a **CARNIVORE**. (show placard with word). *Carnivores* eat meat. They kill and eat other animals.

Skull 2. (*Herbivore* — deer)

What did this animal eat?

Answer — This animal ate plants. We can also tell what this animal ate by looking at the teeth.

Compared to the *carnivore*, are these *incisors* relatively larger or smaller?

Answer — The *incisors* are relatively large and well developed.

What are these *incisors* used for?

Answer — They are used as blades for cutting plant parts and stripping away leaves.

Do these *canines* look like the *canines* in the *carnivore*?

Answer — No. The *canine teeth* in this animal resemble

and function as *incisors* because as a plant eater, this animal had no use for long, pointed *canine teeth*.

Do the cheek teeth (*molars* and *pre-molars*) look like the *carnivore's*?

Answer — No, they are large with high crowns and wide across the top for grinding and crushing plant materials.

Do the upper and lower cheek teeth overlap?

Answer — No. The upper and lower *molars* fit together to provide grinding and crushing surfaces.

Could this animal chew?

Answer — Yes. This animal had the ability to move its lower jaws in a side-to-side, chewing motion

Notice there are there no upper *incisors* or *canines*. Why not?

Answer — Most ruminant (cud chewing) animals (deer, sheep, cattle, etc.) Do not have upper *incisors* or *canines*. Where the upper *incisors* and *canines* would be, these animals 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.

(Note: See note on page 2 which describes upper *canine teeth* in American elk.)

Skull 2. This animal is a **HERBIVORE**. (show placard with word). *Herbivores* eat plants.

Skull 3. (*Omnivore* — black bear)

What did this animal eat?

Answer — This animal ate both meat and plants. We see in this skull, teeth features of both *carnivores* and *herbivores*.

Why are the *canine teeth* long and pointed?

Ans. The long, well developed *canines* are used for capturing and killing other animals.

How do the *incisors* compare to *carnivores* and *herbivores*?

Answer — The *incisors* are relatively large for cutting plants and stripping leaves.

How do the cheek teeth compare to *carnivores* and *herbivores*?

Answer — This animal has both high crowned cheek teeth with sharp edges for shearing meat, and cheek teeth with wider crowns to crush bone and plant parts.

Look closely at the back *molars*. They look very similar to ours. Humans eat both meat and plants.

Why don't we have long *canines*?

Answer — We do not kill and capture animals with our teeth.

Skull 3. This animal is an **OMNIVORE**. (show placard with word). *Omnivores* eat both plants and animals.

Activity 1b. What animal is this?

Skull 1. (*Carnivore* — mountain lion)

Look at the teeth. What did this animal eat?

Review the teeth characteristics of a meat eater:

Incisors — small

Canines — large, pointed

Cheek teeth — sharp with high crowns — some overlap like scissors

Answer — This animal ate meat.

Is this animal a *carnivore*, *herbivore* or *omnivore*?

Answer — A *carnivore*.

What animal is this?

Invite guesses. Give hints such as, “this animal hunts mostly at night”, or “notice the very large *orbits* and short *nasal passage*”.

Answer — This is a **mountain lion**. (show photo/poster).

Mountain lions live in rugged mountains, forests and swamps and are found in most of the western U.S., western Canada, northern Mexico and southern Florida. Mountain lions are chiefly *nocturnal* (active at night) and feed on deer, rabbits, mice and occasionally on domestic animals.

In Arizona — Live in desert or forest mountain ranges with rough canyons and rocky slopes. Found statewide, wherever deer are found. Occasionally crosses through non-deer *habitat*.

Skull 2. (*Herbivore* — deer)

Look at the teeth. What did this animal eat?

Review teeth characteristics of a plant eater:

Incisors - large

Canines - small, resemble *incisors*

Cheek teeth - wide crowns with surface contact between upper and lower teeth.

Ans. This animal ate plants.

Is this animal a *carnivore*, *herbivore* or *omnivore*?

Ans. A *herbivore*.

What animal is this?

Invite guesses. Give hints such as, “notice the absence of upper *incisors* and *canines*”, or “this animal can run very fast to avoid danger.”

Answer — This is a **mule deer**.

Is this a male or female mule deer?

Answer — This is a female mule deer (called a doe — show photo/poster). Male mule deer (called bucks) have antlers. Females do not.

Mule deer live in desert shrubs, semi-open forests, mountain meadows, foothills, plains and valleys. They are found in scattered areas of the western United States and Canada. The males have antlers which are shed each year. Deer are *crepuscular* (most active in early morning and late evening). They feed on browse plants, grasses, herbs, twigs and bark.

In Arizona — Found throughout the state except for the southwestern corner.

Skull 3. (*Omnivore* — black bear)

Look at the teeth. What did this animal eat?

Review teeth characteristics of an *omnivore*:

Incisors — relatively **large**

Canines — large, pointed

Cheek teeth — provide for both shearing and crushing

Answer — This animal ate both meat and plants.

Is this animal a *carnivore*, *herbivore* or *omnivore*?

Answer — An *omnivore*.

What animal is this?

Invite guesses. Give hints such as, “notice the long nose and relatively small orbits.

Answer — This is a **black bear**. (show photo/poster).

Black bears live in the mountainous areas of the western United States and in forested areas of the eastern United States. Black bears are also found in most of Canada. Bears feed on berries, nuts, roots, insects, eggs, honey, *carrion*, garbage, small animals and occasionally domestic animals. They are primarily *nocturnal* (most active at night.) Their color varies from black to cinnamon.

In Arizona — Found in mountain ranges of the north, east and southeastern parts of the state, usually above 5000 feet elevation.

Objective 2.

Students will now learn the definitions of the words PREDATOR and PREY and the skull characteristics that correspond with these classifications.

Activity 2. What do the words “predator” and “prey” mean?

Ask students to define the words predator and prey. Ask if an animal can be classified as both predator and prey.

After the students provide definitions, be sure each word is correctly defined. Give examples of each classification and show placard with the words “predator”, “prey”, and “predator and prey.” Place placards on table with the appropriate skull placed behind each placard.

- Predator = an animal that kills other animals for food. Some predators also eat *carrion*. Predators are *carnivores* or *omnivores*.
- Prey = animals that are eaten by other animals. Prey animals may be *carnivores*, *herbivores* or *omnivores*.
Example: A mountain lion kills a deer. The lion is the predator and the deer is the prey
- Predator and Prey = an animal that eats other animals but may also be eaten by other animals.
Example: An animal can be both predator and prey. A cat kills a mouse — the cat is predator. A coyote kills the cat — the cat is prey.

Objective 3.

Students will learn some of the skull characteristics of predator and prey animals.

Activity 3. Was this animal a predator? Prey? Both?

Using the skulls from ACTIVITY 1, describe and point out the characteristics indicated below.

Skull 1. — Mountain Lion

This animal, the mountain lion, is a *carnivore* and a **predator**.

Point out and review the skull characteristics that tell us this was a predator.

- **From looking at these teeth, how do we know this is a predator?**

Answers: Large *canines* in upper and lower jaw for piercing and holding prey.

Cheek teeth (*pre-molars* and *molars*) sharp and pointed for tearing flesh. Upper and lower cheek teeth overlap for shearing action to cut meat.

Long *canines* prevent side-to-side, chewing movement of lower jaw. Predators tend to bite, tear and gulp food without chewing action.

Teeth clean and white, not stained by plant materials.

- **From looking at the orbits in this skull, how do we know this is a predator?**

Answer: Orbits are forward for *binocular vision*. Forward eye placement is common in predators and helps them to judge distance (depth perception) when attacking prey. *Orbits* very large; providing for excellent eyesight. *Nocturnal* with good night vision.

- **What do the *auditory bullae* tell us about this animal's sense of hearing?**

Answer: *Auditory bullae* are inflated and large in relation to skull size. Cats have a very acute sense of hearing.

- **What does the *nasal passage* tell us about this animal's sense of smell?**

Answer: *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.

Skull 2. — Mule deer

Deer are *herbivores* and **prey** animals.

Point out and review the skull characteristics that tell us this was a *herbivore*.

- **From looking at these teeth, how do we know this is a prey animal?**

Answers: Large, well developed *incisors* for cutting plant material.

Canines resemble *incisors* in form and function.

Cheek teeth high crowned with grinding surfaces and often stained from plants.

Has side-to-side movement of lower jaw for chewing action.

- **From looking at the orbits in this skull, how do we know this is a prey?**

Answer: The placement of the orbits at side of head for wide field of vision to help this animal watch for predators. They can almost see behind them. This is common in *herbivore*, prey species.

Comparatively large *orbits*, but not as large relative to cats. Good vision.

- **What do the *auditory bullae* tell us about this animal's sense of hearing?**

Answer: Comparatively small, indicating a relatively moderate sense of hearing and more reliance on smell and sight to locate predators.

- **What does the *nasal passage* tell us about this animal's sense of smell?**

Answer: Very long in relation to skull size. Deer have an excellent sense of smell.

Objective 4.

Students will apply their knowledge of the primary characteristics of an animal skull that were used to determine if the animal was a *carnivore*, *herbivore* or *omnivore* and if the animal was a predator, prey or both.

Activity 4. Mystery Skulls

Additional skulls, that have not been previously examined in this lesson are numbered and placed at several different locations in the room.

Distribute worksheets (For original worksheet for photocopy see page 14.) Divide students into approximately equal groups with one group at each skull location. Ask students to examine the skull at their location and rotate to the next skull location. Students are to individually record their observations on the worksheets by skull number.

When worksheets are completed, ask for volunteers or call on individuals to tell the group/class what they have entered in a particular blank on the worksheet. Proceed through the answers for each animal represented. Show photos/posters of each animal as it is identified.

If no student is able to identify the species, tell the group what the animal is and, if desired, discuss where this animal is found, how the characteristics observed relate to the animal's survival and *habitat* and other facts we may know about the animal.

Teacher/leader may collect worksheets to evaluate the knowledge gained by the group.

Suggestions for further learning activities

1. Continue a discussion of how these characteristics help each animal survive. How do these characteristics fit with what we know about each animal? Other characteristics such as length of legs, claws and coloration may be discussed from the photographs.
2. Have students draw (or describe) a fictitious animal which has all of the “best” characteristics for survival. When finished, have them “show-and-tell” to the class. Give their animal a fictitious name. Students may work in small groups to encourage interplay of creative ideas.
3. Ask students to read about their favorite animal and report back to the class.
4. Ask students to bring a photographs and drawings of animals clipped from magazines or news newspapers and discuss the characteristics covered here for each of the animals.
5. Include vocabulary list in spelling and language arts program.
6. Include the geographic range of each animal in a geography program. Maps showing each species distribution can be found in the “Peterson Guide” and other references listed in the teacher/leader materials.

Vocabulary list

anterior — situated located before or toward the front.

auditory bullae (singular - bulla) — bony capsules which encase parts of the inner ear.

binocular vision — the ability of an animal to focus on an object with both eyes.

canine teeth — located between the incisors and premolars; usually large, conical and pointed when found in meat-eating animals; used to kill and hold prey;.

carnivore — an animal that eats meat nearly exclusively.

carnassial teeth — “scissor like”, cheek teeth in carnivorous animals used for shearing meat - very noticeable in both the cat and dog families.

carrion — the remains of dead animals.

crepuscular — most active in early morning and evening.

cusps — a point on the grinding surface of a tooth.

deciduous teeth — teeth that have an earlier form which is shed and replace by permanent teeth.

diurnal — most active during daylight.

habitat — an arrangement of food, water, cover and space that constitutes a natural environment for a particular species of animal.

herbivore — an animal that eats plants nearly exclusively.

incisors — teeth at the front of the jaw used for nipping or chiseling .

mandible — the entire lower jaw.

maxilla (maxillary) — the bone in the upper jaw that bears the canine, premolar and molar teeth.

molars — the non-deciduous, *posterior* teeth in the upper and lower jaws.

Monocular vision — the ability of an animal to individually focus on an object with one eye.

nasal passage — the anterior most pair of middle top bones encasing “flaky” thin bony structures (nasal turbinates) which provide the framework for the membranes in the nose that sense odor.

nocturnal — most active during darkness.

omnivore — an animal that eats both meat and plants.

orbit — the bony socket that contains the eyeball.

palate — the bony roof of the mouth.

posterior — situated behind or toward the rear.

pre-molars — deciduous teeth posterior to the canines and anterior to the molars..

Sources of animal skulls

Getting a supply of sufficient skulls for this lesson can be difficult. All skulls are all somewhat fragile and, some are very fragile. If this lesson is to be conducted a number of times, by several different people in a variety of situations, it is advisable to have a backup supply of skulls.

Some possible sources of cleaned skulls are:

- State or federal fish and wildlife agencies
- The Arizona Game and Fish Department, Regional Offices have “Bone Boxes” available for loan to educators. These boxes contain skulls, hide and fur samples, animal tracks, and lesson plan activities.
- College and university biology, zoology and wildlife departments
- Taxidermists
- Commercial suppliers

There are several, relatively simple, methods to clean and preserve skulls from intact animal heads. See The University of Arizona, Cooperative Extension publication AZ1144: *Cleaning and Preserving Animal Skulls*.

Some sources of animal heads are: ¹

- State or federal fish and wildlife agencies.
- College and university biology, zoology and wildlife departments
- Local hunters
- Shooting, hunting and related groups
- Farmers and ranchers
- Meat packing plants
- Carrion
- Road kills

¹ Note: There are state and federal regulations for the possession of certain wildlife species or parts of these species. Always check with your state game and fish agency before taking or possessing any carrion or road killed wildlife.

Skull talk references

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Acknowledgments

Information, materials and other resources for this project have been obtained from the following:

- Arizona-Sonora Desert Museum, Education Department
- Arizona Game and Fish Department
- John Stair, Extension Wildlife Specialist (Retired), The University of Arizona
- Allyson Baehr, State Office, Arizona 4-H Youth Development

Mystery Skull Worksheet

NAME _____ GROUP/CLASS _____

Skull no.	Side to Side Movement of Lower Jaw? (Y/N)	Teeth (Carnivore, Herbivore, Omnivore)	Hearing (Auditory Bullae) Relative Size (Large/Small)	Smell Nasal Passage Relative Size (Large/Small)	Eyesight Orbits Relative Size (Large/Small)	Eye Placement (Forward/Side)	Predator, Prey or both	Kind of animal
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								



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