



## LESSON 3:

# TOOTH SLEUTH MAMMAL PUZZLER

You can learn a lot about an animal by  
looking closely at its teeth...

# Part 1—Types of Teeth



# Types of Teeth

- All mammals can have four different types of teeth:
  - Incisors
  - Canines
  - Premolars
  - Molars



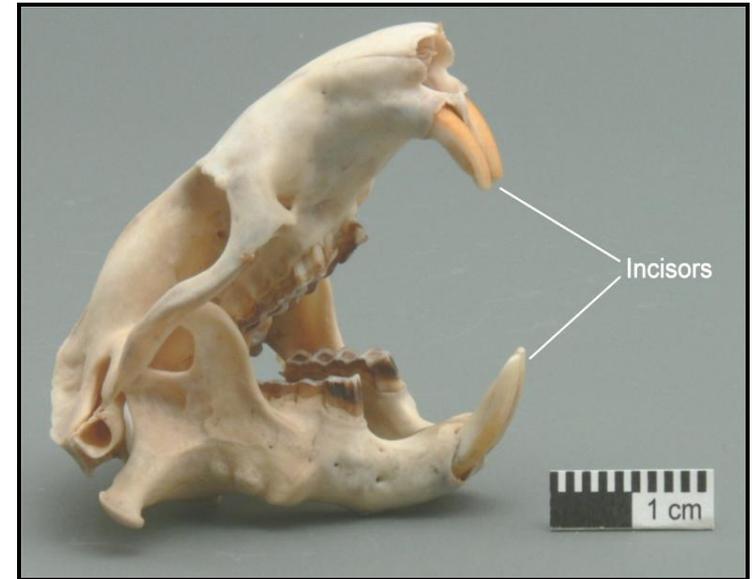
Herbivore Teeth



Carnivore Teeth

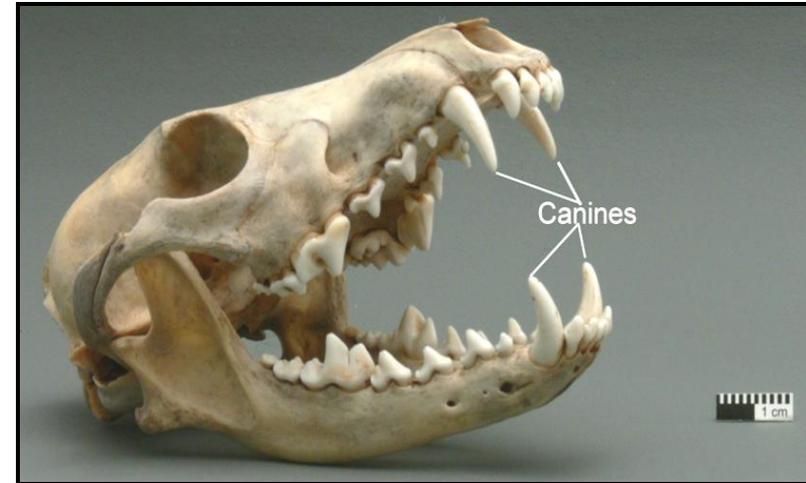
# Incisors

- **Incisors** are located at the very front of the mouth and they have a simple chisel-like shape.
- Incisors are most often used for biting, grasping and gnawing.



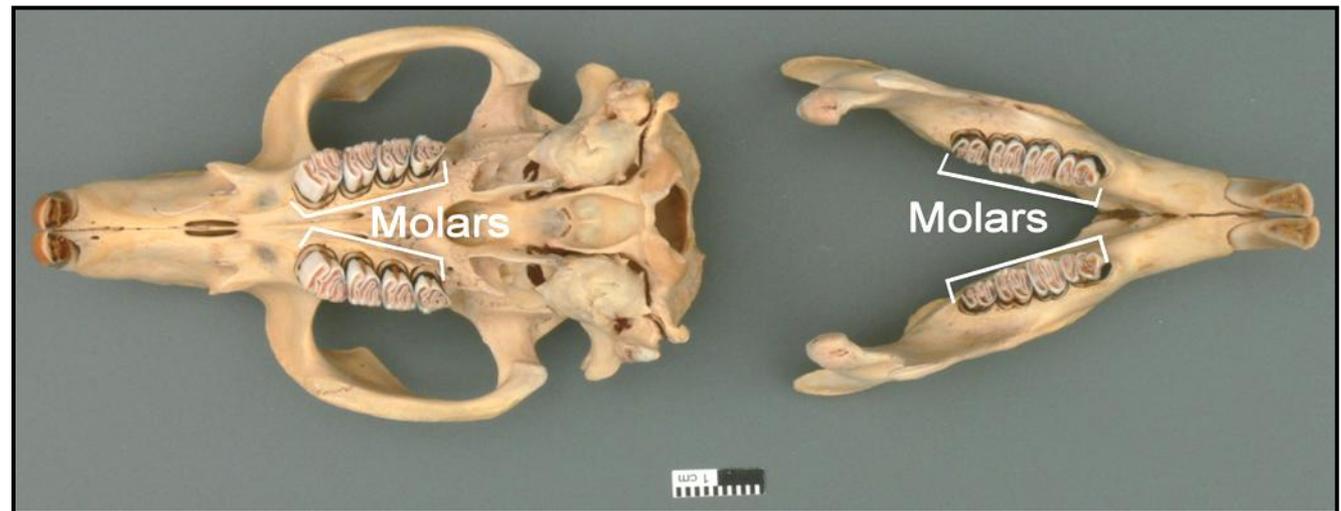
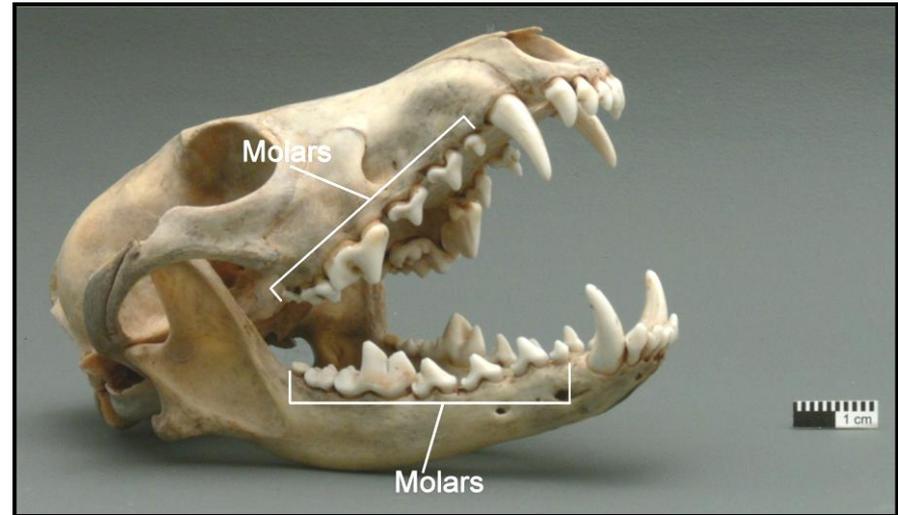
# Canines

- **Canines** are next to the incisors and are often the longest and sharpest teeth.
- Canines are used for stabbing and holding prey. They are usually small or missing in animals that eat mainly plants.



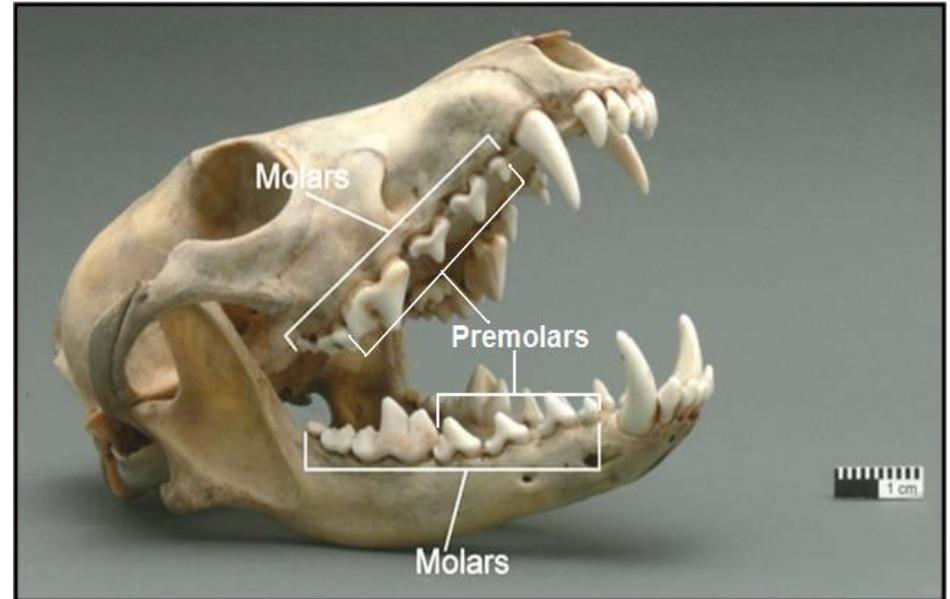
# Molars

- **Molars** are located at the back of the mouth.
- Molars are often wider and flatter than other teeth because they are used for grinding up food and breaking up tough material.



# Premolars

- **Premolars** are located at the sides of the mouth behind the canines and in front of the molars.
- They vary in shape and size.
- They are mainly used for chewing, gripping and tearing.



***Note: In this lesson, we have grouped premolars and molars together as “molars” to make it easier for you to count the teeth.***

# Why are Teeth Important to Scientists?

- The number and types of teeth an animal has are clues to what types of food it eats.
- Scientists can correctly identify animal skulls by counting types of teeth.
- Scientists need teeth to eat too!

## Part 2—Animal Facts



All of the skulls you have been observing come from mammals found in Tacoma...

# Coyote (*Canis latrans*)

mainly a carnivore

- Forward-facing eyes make it easier to find and track prey
- Large canines grab and stab prey such as rodents; sharp molars cut meat and crush bones



- Also eats berries, insects, pet food and...sometimes pets (feed Fluffy indoors!)

# Harbor Seal (*Phoca vitulina*)

carnivore

- Mainly eats fish—uses canines to grab slippery prey; uses molars to crush shells and crustaceans
- Feeds during high tide; “hauls out” to rest and warm up during low tide



- Dives to 1,500 feet and can stay under water up to 30 minutes
- Adults eat 5 to 6% of their body weight each day (10-18 pounds)

# Opossum (*Didelphis virginiana*)

omnivore

- 50 teeth—more than any other mammal: 18 incisors, large canines and many grinding teeth
- Too slow to be a good predator; eats mainly fruits, vegetables, carrion, earthworms and garbage



- Uses its long, prehensile tail for climbing
- North America's only marsupial, related to kangaroos it carries young in a pouch

# Raccoon (*Procyon lotor*)

omnivore

- Varied teeth for ripping, tearing and grinding
- Molars have an unusual crowned shape for crushing, not cutting
- Will eat almost anything—from crustaceans and mice to fruit and insects



- Extra-sensitive paws allow it to “see” with it hands as it feels for food underwater

# Black-tailed Deer (*Odocoileus hemionus*)

herbivore

- Without upper incisors or canines, it tears and shreds meals of leaves and twigs
- Wide molars for cutting and grinding
- Like cows, deer graze and have multi-part stomachs



- Eyes located at the sides of the head to watch for predators



# Eastern Gray Squirrel (*Sciurus carolinensis*)

mainly an herbivore

- Super strong jaw muscles and teeth to break nut shells and seeds
- Gap between incisors and molars is where they push out hard bits of shell, swallowing only the best morsels
- Spends about one hour each day cleaning teeth by gnawing on branches and nut shells



# Townsend's Mole (*Scapanus townsendii*)

mainly a carnivore

- Many small pointed teeth are great for snagging earthworms and breaking tough insect exoskeletons
- Finds food by smell and touch, and through vibrations picked up by sensitive whiskers



- Prey drops into the mole's tunnel and is then picked up by the patrolling mole
- Regularly eats more than 50 percent of its body weight each day

# Townsend's Vole (*Microtus townsendii*)

herbivore

- Incisors adapted for gnawing; these teeth grow continually
- Molars have a triangular shape adapted for constant grinding of plant material



- One of the few rodents with molars that never stop growing
- Active day and night, it feeds on the leaves of many plants



# Townsend's Chipmunk

(*Tamias townsendii*)

mainly an herbivore

- Incisors adapted for gnawing; these teeth grow continually
- Can hold up to nine nuts in a large cheek pouch used to carry food to storage places



- In Latin, *tamias* means “storer” — these hibernators cache seeds, nuts, fruits and sometimes insects
- On average, stores eight pounds of food in its burrow for winter

# Norway Rat (*Rattus norvegicus*)

omnivore

- Strong incisors work like chisels; these teeth grow continually
- Incisors wear off at an angle, making a sharp cutting edge on the teeth



- Extra strong jaw muscles makes the rat a “super gnawer”
- Eats anything it can find: animal or vegetable...can even gnaw through wood

# Beaver (*Castor canadensis*)

herbivore

- Using large incisors, can cut down a small tree in minutes
- Incisors never stop growing; iron content makes them orange
- Molars are used for grinding up bark and other food



- Eats water plants in the summer and tree bark in the winter



# Mountain Beaver (*Apolodontia rufa*)

herbivore

- Incisors and molars never stop growing
- Their preferred diet is ferns, which are not eaten by many other animals



- Uses incisors and forepaws to dig burrows
- Mountain Beavers are neither beavers, nor do they live in the mountains!

**Now, what do your teeth say  
about you?**

