

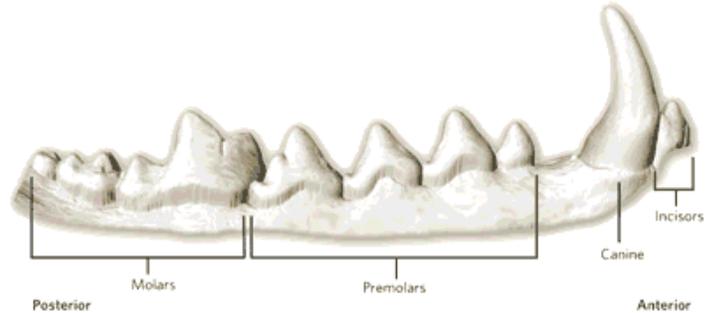
# Animal Teeth and Skulls Information

The skulls and teeth of an animal provide clues to the way it lived, how it sensed its environment, communicated, defended itself, what it ate, and how it obtained its food.

**TEETH:** hard, bony enamel-coated structures in the jaws of most vertebrates, used for biting and chewing.

## General types of mammalian teeth

- *Incisors* – Front teeth, used for biting, cutting and stripping.
- *Canines* – Immediately behind incisors, used for seizing, piercing, or tearing, or for defense and other aggressive behavior.
- *Premolars* – Behind the canines, used for holding, grinding, crushing, shearing, and slicing.
- *Molars* – In the rear, used for grinding and crushing.



## Types of animals

- **Herbivores:** an animal that feeds on plants.
  - *Grazers* – are equipped with tall molar teeth that are flat-crowned with horizontal ridges and grooves that allow the thorough chewing and grinding of tough fibrous materials such as grass.
  - *Browsers* – have teeth with pointed cusps on the crowns that are effective in chewing softer plant materials such as leaves and herbs.
  - *Gnawers* – chisel-like incisor teeth along with various different types of molars.
- **Carnivores:** Flesh-eaters have cheek teeth that are shaped like shearing blades (carnassial) that are effective in chewing and cutting chunks of meat.
- **Omnivores:** "General purpose" (non-specialized) teeth with low bumpy crowns suggest a diet that includes a variety of plant and animal food that is crushed and pulverized.
- **Specialists:** Some animals have unusual teeth that are used for a specific type of food, such as the sea otter which eats sea urchins, or the sea lion and the dolphin, which eat fish and do not chew.

**SKULL:** a framework of bone or cartilage enclosing the brain of a vertebrate; the skeleton of a person's or animal's head.

## Jaw attachment to skull

- Tight attachment restricts motion to simple up and down action, which is useful in a predatory, carnivorous habit. It also allows for a more forceful and strong cutting bite.
- Loose attachment allows side-to-side motion, as in many herbivores, which provides a grinding and crushing action.
- The space between the top of the mandible (lower jaw) and the skull proper is an indication of the power of the jaw muscles.

- The zygomatic arch includes the cheekbone and space for the jaw muscles to pass through and attach. A wide arch indicates large jaw muscles and a strong bite.

### Bony ridges

- Some animals may have pronounced ridges on the skull which indicate the attachment of powerful jaw or neck muscles.
- A pronounced sagittal crest – the bony ridge along the top of skull - indicates the animal has a powerful and strong bite.

### Eye sockets

- Large eye sockets may suggest a nocturnal habit or acute vision.
- Predators typically have eyes that face forward – useful for enhanced depth perception.
- Prey animals typically have eyes that face more or less sideways – well-developed peripheral vision for detection of danger.

### Smelling

- The size of the nasal passage relative to the whole skull indicates how important the sense of smell is to the animal.

### Hearing

- The auditory bullae are bony portions of a skull that encase the inner and middle ear. When these structures are larger and more inflated, this can indicate a greater sense of hearing.

### Attachment of skull to the vertebral column

- The "big hole" at the back of skull shows where the spinal cord connects to the brain. This is called the foramen magnum.
  - Hole in the rear of skull – animals that walk on all four with head facing forward
  - Hole more toward the bottom of skull – animals that tend to be in a more erect position
  - The human being, which has a bipedal habit (walking on two feet), has its hole right in the middle of the base of the skull, balanced on the top of a vertical spine.

