

Skull Study Sheets for Wildlife 5th – 8th Grades

All skulls are made of bone. Bone is one of those amazing materials that is both rigidly strong but flexible. Bone gives support and size to animals as different as an elephant or a mouse.

Bone helps a wolf run and supports a bear when it stands. Bones grow as the animal grows. Bones can also heal themselves when they break.

Bones like skulls are made of **composite material**. One material is **apatite or calcium phosphate**, which gives bones their strength. The other material is **collagen**, which gives bone its flexibility.

Teeth can be very helpful in identifying animal skulls. There are usually four types of teeth found in most mammal skulls: incisors, canines, premolars and molars.

Incisors – located in the front of the mouth, between canine teeth (if there are canine teeth). Used for nipping or pulling at food. A deer uses its lower incisors to yank leaves off a tree.

Canines – usually larger than incisors and located to the sides of the incisors. They are often long, curved and sharp conical teeth used for piercing. A coyote would use its canine teeth to tear the flesh or crush the bones of a jackrabbit.

Pre-molars – located behind the canines. Pre-molars can be sharp for grasping or tearing meat or flat for grinding plant food. A bear eats both animals and plants. The pre-molars of a bear are somewhat flat with a sharp edge to them.

Molars – located behind the pre-molars. These are larger than the pre-molars and used for crushing both animals and plants. The molars of an elk are large and flat. The molars of a cougar are large and sharp.

The shape of the teeth in a skull can help you determine the animal's diet and whether it was an herbivore, an omnivore or a carnivore.

Animals that feed on plants are called **herbivores**. The teeth of herbivores are usually flat or beveled so they can pull and grind the plants that they eat.

Omnivores usually feed on both plants and animals. The teeth of omnivores show a combination of sharp canines, moderately sharp molars, beveled incisors and flat molars.

Almost all the teeth of **carnivores** have sharp edges that help them to tear at their food.

The location of the eye sockets on a skull can help you decide if the animal was a prey species or a predator.

Predators (generally carnivores and omnivores) have large eye sockets placed so the eyes look forward and the vision of both eyes overlap. When the vision of both eyes overlap the animal has **binocular vision**. Binocular vision gives you **depth perception**. Depth perception helps the animal gauge how far it must leap or how fast it must run in order to catch its prey.

Prey species (such as herbivores and some omnivores) have eye sockets on the sides of their head. This gives them **monocular vision**. Monocular vision allows them to watch for an approaching predator from almost every direction.

Most prey species (the herbivores) also have eye sockets located relatively far from their mouths and nostrils. This allows them to bury their mouth in deep grass while grazing or stick their mouth into thick brush while browsing and still be able to watch for predators.

Sometimes it's hard to identify an animal's skull from a picture. Here are some tips to help you:

In pictures, all skulls look like the same size. When real skulls are in placed in front of you it will be clear that they are from animals of very different sizes.

Put the skulls into categories.

1. Try to identify your skull according to size.

- First think of the animals on your study list.
- Which animal is the largest? Which animal is the smallest?
- Keep in mind that not all black bears skulls are from an adult bear. But you can be pretty sure that a bat skull will be smaller than a fisher skull and a fisher skull will be smaller than a black bear skull.

2. Try to identify your skull according to teeth.

- Locate the incisors, the canines, the pre-molars and the molars on your skull.
- Ask yourself if the teeth are flat or sharp? Or are the teeth a combination of both flat and sharp?
- Is your skull from an omnivore on your study list? Is it from a carnivore? Or is it an herbivore?

3. Try to identify your skull according to eye sockets.

- Which of the animals on your study list are predators? Which are prey species?
- Look at the placement of the eye sockets to help you decide if you are looking at the skull of an animal that has binocular vision or monocular vision – or a bit of both.

Bobcat (not to scale)



Gray squirrel (not to scale)



Red fox (not to scale)



White-tailed deer (not to scale)

