

What is a Wolf?

A wolf is a type of **canid**, which is an animal in the dog family. Different types of canids can be found on every continent except Antarctica, though the species vary throughout the world.

Canid Family Reunion — Let's Learn About Some Cousins

Gray Wolf (*Canis lupus*)

The gray wolf is a canid that is devoted to its family. Different subspecies, or types, of gray wolves are found throughout the Northern Hemisphere. The famous recovery of Yellowstone National Park can be attributed to the Northern Rocky Mountain wolf (*Canis lupus irremotus*). The most genetically distinct subspecies of gray wolf is the Mexican wolf (*Canis lupus baileyi*), which is found in Arizona, New Mexico, and Mexico.

American Red Wolf (*Canis rufus*)

Did you know that North America has two main types of wolves? The most well known type is the gray wolf. The less well known type is the American Red Wolf, which used to live in the Southeastern United States. They are the most endangered species of wolf in the world. They live in packs just like gray wolves, but they have a unique howl that is more varied in pitch.

African Painted Dog (*Lycaon pictus*)

The African painted dogs have large rounded ears to help them hear and cool off in the hot African climate, and splotchy coats of tan, white, and black that help them to blend into their environment. Their pack sizes can range from a small family unit up to fifty members! They are very close to their families, which helps them to be successful hunters when competing with larger predators, such as lions and hyenas.

South American Maned Wolf (*Chrysocyon brachyurus*)

The South American maned wolf, nicknamed the “fox on stilts,” “skunk-fox,” and “fruit wolf” is actually not a wolf or a fox at all! They are their own unique species of canid. They have very long legs that help them to see over tall grass and urine that contains the same chemical compounds as skunk spray. They are solitary animals that hunt small prey, such as bugs, rodents and the pampas deer, but they also eat a large variety of fruits. In fact, their favorite fruit, the lobeira, is nicknamed the “wolf apple” or “fruit of the wolf.” And because maned wolves don't digest fruit seeds, they poop those seeds out as they walk around the forest, just like a stinky gardener!

Fennec Fox (*Vulpes zerda*)

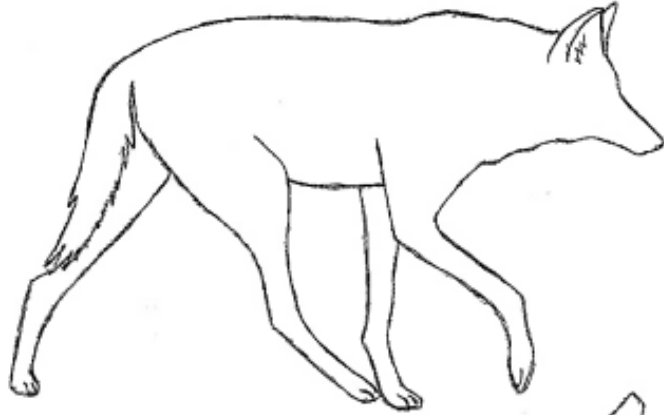
The fennec fox is the smallest member of the canid family, weighing between two and three pounds. They live in the Sahara desert, where they are specially adapted to the harsh, dry heat. They have the largest ears relative to their body size in the whole canid family, and this helps them to both regulate their temperature and to hear prey under the sand. They also have specialized kidneys that are adapted to having very little water. In fact, a fennec fox might not ever find drinkable water, so they are adapted to getting the majority of their liquid from the food that they eat, which includes insects, rodents, birds, snakes, and cactus fruit. They are omnivores, so they eat anything they can find.

Color in your Canids

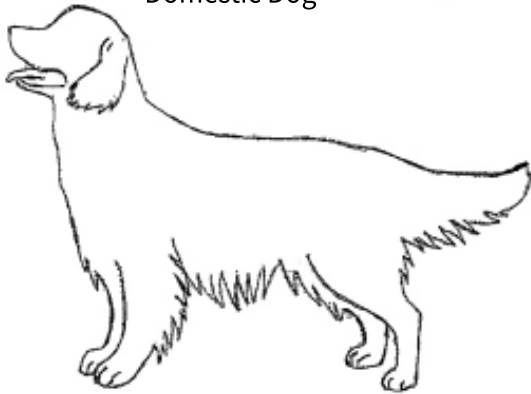
Red Fox



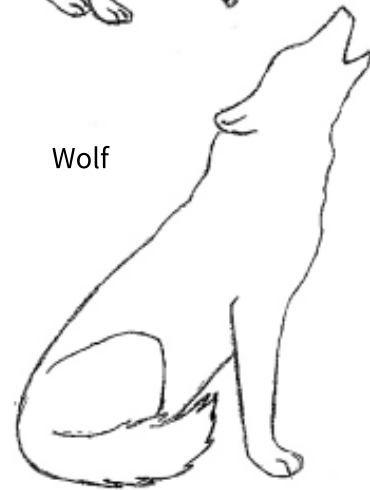
South American Maned Wolf



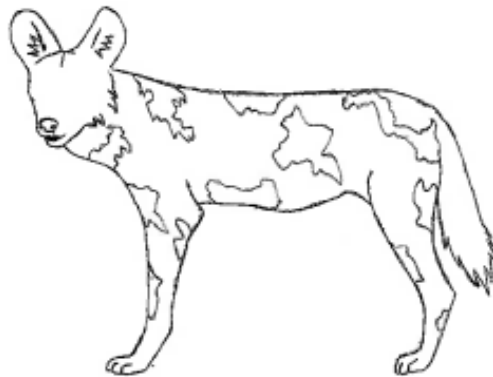
Domestic Dog



Wolf



African Painted Dog



Fennec Fox



The Wolf's Bad Rep

Wolves have had quite the controversial reputation. Folk tales like *Little Red Riding Hood* spur on misconceptions about wolves, and movies and stories have shown an image of an animal that is dominant, aggressive and unforgiving. But what is the truth?

The Wolf's True Personality

While all wild animals should be treated with respect and left alone, it turns out that wolves are actually quite shy! Humans are not part of a wolf's diet and in fact, wolves are most likely to run away and avoid us when they see or hear us coming. They are also gentle with pups and devoted to their families.

Why are Wolves Endangered?

From the late 1800s to the mid-1900s, the US government put predator extermination programs in place. Humans feared that wolves would eat all their livestock, and that fear spread like wildfire, despite it being heavily exaggerated. When there is enough food to go around, wolves prefer their native prey, such as deer and elk.

Humans also didn't understand the important role wolves play in nature. A bounty was placed on the wolf's head, encouraging humans to shoot wolves and other predators for a reward. Wolf hunters also placed carcasses laced with poison on the landscape, to trick wolves into eating the deadly poison. By the time the 1950s rolled around, gray wolves and Red Wolves had become critically **endangered**. An endangered animal is an animal that is close to becoming **extinct**, meaning there are no more living members of the species left on earth.

Why are Wolves Important?

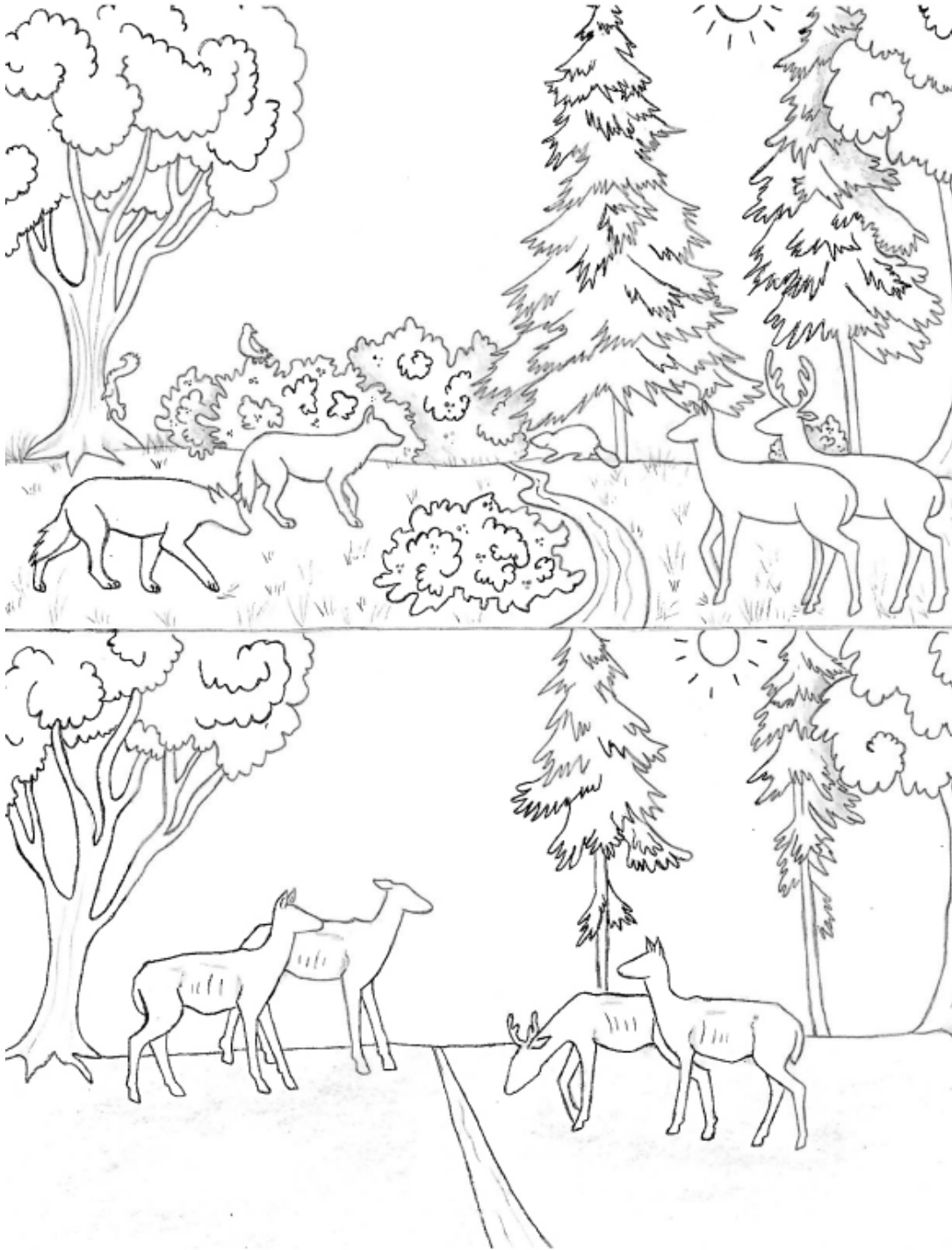
An **ecosystem** is the environment we live in and the relationships of all the living things that live there. Wolves balance the ecosystem and are what is called a **keystone species**, which is a species that many other species depend on to survive and thrive. And as a top predator, if wolves are removed, a ripple of effects can be seen all the way down the food chain, called a **trophic cascade**.

So how do wolves do this? Wolves' favorite prey are **ungulates**, which are hooved mammals such as deer and elk. But hunting is hard, and wolves only successfully make a kill one or two times out of ten tries. This means that wolves largely target the sick and the weak, such as deer with Chronic Wasting Disease, because they are much easier to catch than a healthy animal. And because wolves are carnivores, they have digestive systems that can handle eating sick prey. This stops disease from spreading to other deer and even to our livestock.

Wolves also change the behavior of their prey. When they stalk their prey, it forces the herd to move around to graze. Without wolves, the herds stay in one spot, eating every plant in sight. And when they

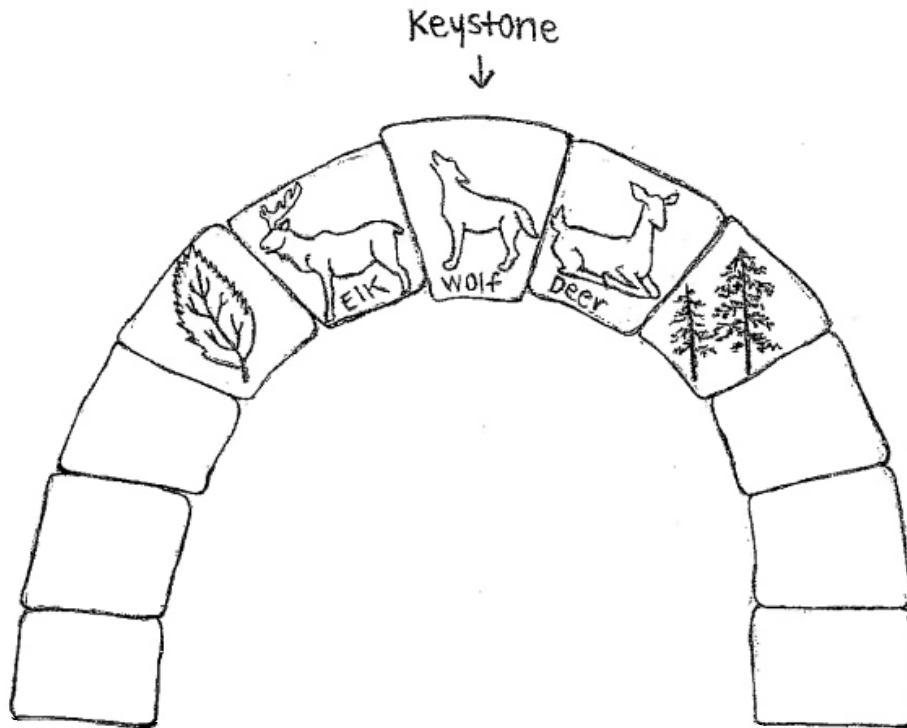
eat all the plants, other animals are left without food or shelter. Also, without the roots of these plants to hold it together, the soil isn't stable anymore. This can cause riverbanks to fall in, which can then affect the whole river. Scientific studies have shown that even fish suffer when the wolves are gone!

Check out the two pictures below, with and without wolves. What differences do you see?



Keystone Arch

Below is an arch. The stones in an arch lean on the keystone in the middle to stay upright. The wolf is a **keystone species** in this arch, which is a species that many other species depend on to survive and thrive. Next to the deer and elk are the plants that they eat. What animals rely on those plants? What animals eat those plant-eaters? **Select from amongst the possible options below or come up with your own and fill in the arch!**



Beavers

Mice

Rabbits

Foxes

Birds of Prey

Wolf Packs and Communication

Wolves are social animals that live in packs and they have many different forms of communication. In addition to their most famous vocalization, the howl, they communicate with body language and other sounds such as yips, growls, and barks.

Why Do Wolves Howl?

Wolves howl for many reasons. One reason is to communicate over long distances with pack members that are far away or that have been separated. Each wolf has a different howl, just like we all have different voices. They may also howl to announce their presence to other packs in the area and to get an idea of the size of other packs of wolves or coyotes.

Howling isn't just for communicating your size or location, however. Sometimes wolves will howl to convey emotion and have been observed howling to grieve. Other times a short bark-howl may be used as an alarm call. And sometimes a wolf will howl if they see something cool and they want their pack members to check it out!

Do Wolves Really Howl at the Moon?

Despite popular portrayals, wolves don't actually howl at the moon. Wolves are a **crepuscular** animal, meaning they are most active at dawn and dusk, so they are more likely to howl at night or early in the morning. They may also point their muzzle upwards to help sound travel farther and on flat land wolves can hear each other up to ten miles away! Before electricity was invented, humans usually avoided traveling at night unless there was a full moon to light the way, which may have led to the mistaken belief that wolves howl at the full moon.

Part of the Pack

A wolf pack is a family. The leaders of the pack, called the breeding pair, are the mom and dad, just like the head of a human family are the adults. The rest of the pack is made up of pups from the last few years and there may occasionally be aunts, uncles, and grandparents present. Wolf adults are quite lenient and gentle with pups, as it is understood that they are learning and growing, and they will teach the pups how to hunt and survive. Through play, pups will also hone their senses and hunting skills.

The average size of a wolf pack is six to seven animals. Wolves are social and family-oriented and there is rarely any fighting within the pack. When needed, they will work as a family to defend their territory. They all must rely on each other to survive. When pups grow up and want to start their own families, they will leave the pack and search for a new territory and a mate of their own.

Howling Word Search

E M F B V Q A E N J G R L U J
Z N H L Z V X B M R A H W B O
D E O M O T B S W L K R A C K
Z I L T I W P G U F P R E S M
K D N N S U M C E C J J N A L
Q M C A P Y S M D W Y Z D H S
N T D C C U E H A L G W A L I
L W O H P V R K C P O X N J R
E B S E U B Z J S T V O G C V
Y K R A Y B X G A R D O E J K
I C Z H B O V R C O D R R J C
E C O S Y S T E M P L N E K A
S P E C I E S Y W H D N D S P
S E T A L U G N U I U S K S X
J C H C Q J Y X M C S U I Q W

canid

cascade

crepuscular

ecosystem

endangered

extinct

howl

keystone

pack

pups

species

trophic

ungulates

wolf

E	M	F	B	V	Q	A	E	N	J	G	R	L	U	J
Z	N	H	L	Z	V	X	B	M	R	A	H	W	B	O
D	E	Q	M	Q	T	B	S	W	L	K	R	A	C	K
Z	I	L	T	I	W	P	G	U	F	P	R	E	S	M
K	D	N	N	S	U	M	E	C	J	J	N	A	L	
Q	M	E	A	P	Y	S	M	D	W	Y	Z	D	H	S
N	T	D	C	C	U	E	H	A	L	G	W	A	L	I
L	W	O	H	P	V	R	K	C	P	O	X	N	J	R
E	B	S	E	U	B	Z	J	S	T	V	O	G	C	V
Y	K	R	A	Y	B	X	G	A	R	D	O	E	J	K
I	E	Z	H	B	O	V	R	C	O	D	R	R	J	C
E	C	O	S	Y	S	T	E	M	P	L	N	E	K	A
S	P	E	C	I	E	S	Y	W	H	D	N	D	S	P
S	E	T	A	L	U	G	N	U	I	U	S	K	S	X
J	C	H	C	Q	J	Y	X	M	C	S	U	I	Q	W

What Makes a Habitat?

A **habitat** is the natural home of a living thing. There are four main components of a habitat: food, water, shelter, and space. **Can you circle the food, water, and shelter in this picture?**



Why might a wolf need a lot of space? In the wild, it can be really hard to find food, water, and shelter, so a wolf might need to travel quite a distance every day. This is why wolves establish a territory- so that they can secure enough resources to survive. But defending their territory from other wolf packs can be dangerous, so wolves often choose the smallest territory to defend that still allows them to have enough food, water, and shelter. This means the size of their territory can range from region to region and pack to pack based on how many resources are in the area. For example, wolf territories in the north tend to be larger, because there is less prey and they have to travel farther to find it.

Action item: How can we make our own neighborhoods a better habitat for animals? List one way to make your school yard a better habitat.

Apt to Adapt

Canids live in almost every **biome** on the planet. A biome is a community of plants and animals that have adapted to a specific climate and environment. Some examples of biomes are the Arctic tundra, the desert, or different types of forest, such as the rainforest. An **adaptation** is anything that a plant or animal develops to help them better survive in their environment.

So how have different canids adapted to their biomes?

Some canids have really big ears, which not only help them to hunt, but also help them to stay cool. Blood vessels in the ears lie very close to the skin and the large surface area helps them radiate more heat from the body. Their ears also catch the wind, just like a sail on a ship, which can further cool them down and circulate cooler blood from the ears throughout the body.

In contrast, canids who live in the Arctic have much smaller ears than many of their canid relatives, because smaller ears help them to conserve heat in a frigid environment. Canids who live up north also tend to be fluffier, because they grow an extra layer of fur to keep them warm.

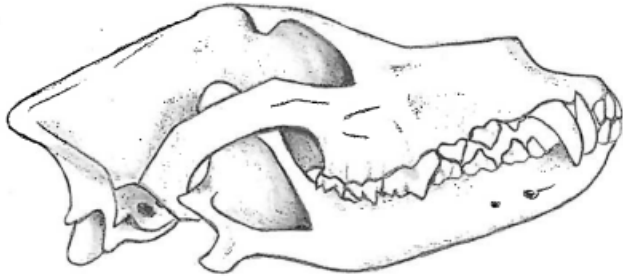
What Animals Roam These Biomes?

Write down an animal that lives in each biome and write down how you think they have adapted!

Biome	Animal	Adaptation
Arctic		
Rainforest		
Ocean		
Desert		

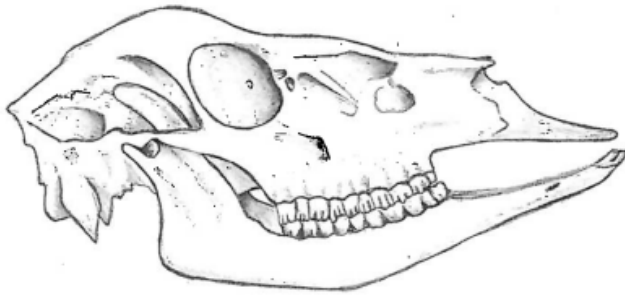
What Does a Carnivore Adore?

While animals will sometimes snack on food outside of their usual diet, there are three main categories of eaters in the animal kingdom. A **carnivore** is a meat-eater. Carnivores have a short and acidic digestive tract, which helps them digest meat and all the germs that come with it.



Like you can see on this wolf skull, carnivores have teeth that are perfect for puncturing and slicing meat.

The opposite of a carnivore is an **herbivore**, or a plant-eater. Herbivores have very long digestive systems that are designed to ferment plants and extract proteins from them.



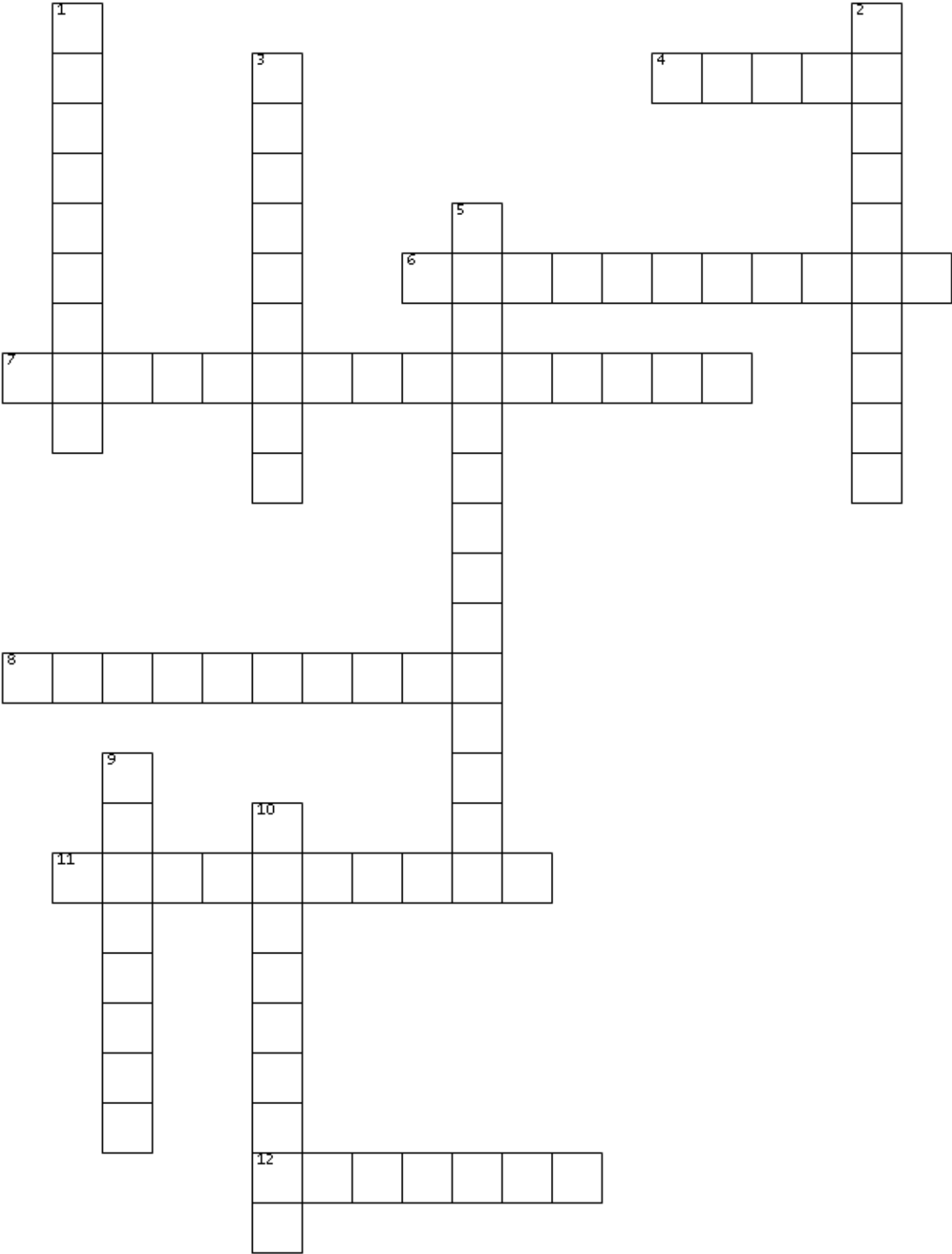
This deer skull has teeth that are perfect for crushing and grinding plants.

So what is a human? We are **omnivores**, which is an animal that eats both meat and plants in abundance. Our digestive system length is right in the middle of a carnivore and an herbivore.



Check out this human skull! We have teeth in our mouths both for crushing plants and slicing meat. Open your mouth and take a look! What do you see?

Howling Crossword: Test your knowledge and have a howling good time!



ACROSS

4. An animal in the dog family.
6. Most active at dawn and dusk.
7. A crucial species that many other species depend on.
8. A plant eater.
11. In danger of becoming extinct.
12. No living members of the species left.

DOWN

1. Environment we live in and the relationships of all living things in it.
2. A development that helps a plant or animal better survive in their environment.
3. A meat eater.
5. A ripple of effects down the food chain.
9. Eats both meat and plants in abundance.
10. Hoofed mammals such as deer and elk.

