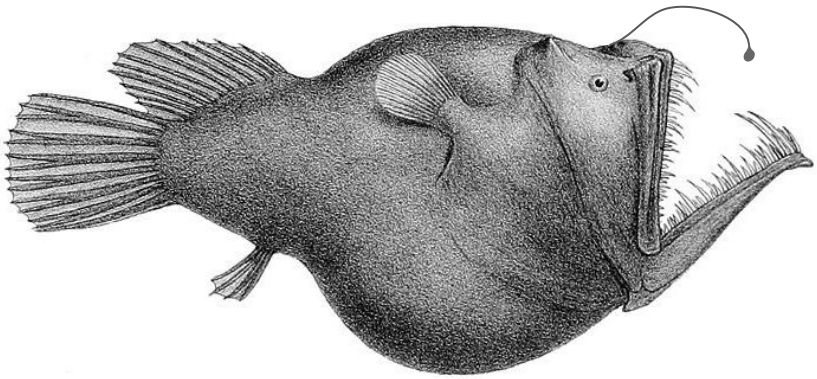
Name _____

Angler Fish

The angler fish lives more than a mile below the ocean's surface. It's dark down there, even in the middle of the day.



Length: 5 inches (13 cm)

The angler fish has a long spine sticking out of the top of its head. This spine acts like a fishing pole. The end of the spine glows in the dark. The light attracts hungry fish, just like the bait at the end of a fishing line.

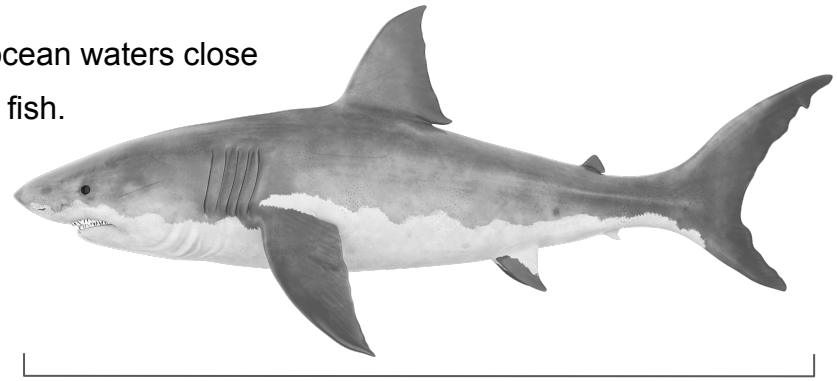
The angler fish's eyes aren't much use in the darkness. But this fish can always sense when other fish are swimming nearby. Fibers that grow from the angler fish's skin move when the water moves. When other fish swim nearby, they send ripples through the water. Those ripples make the fibers move. The fibers send signals to the angler fish's brain. Those signals let the angler fish know that another fish is near.

The angler fish waits until a hungry fish touches its glowing bait. That touch sends a signal to the muscles that control the angler fish's mouth. The enormous mouth snaps shut with the hungry fish inside. Instead of getting a snack, that hungry fish becomes a snack.

Name _____

Great White Shark

The great white shark lives in cool ocean waters close to the land all over the world. Young sharks eat fish. Older sharks prefer seals, sea lions, and even small whales.



Length: 15 feet (4.5 m)

The great white shark's amazing sense of smell helps it find its prey. If cookies are baking, you can smell them from the other end of the house. The shark doesn't care about cookies. But it can smell other animals from far away, because a great white shark can smell one drop of blood in ten billion drops of water!

The great white shark also has great eyesight. It can see well in daytime and in darkness.

The shark's ears are small holes right near the shark's eyes. They may not look like much. But those ears can detect tiny vibrations in the water. A swimming seal makes ripples that the shark can hear and feel from 800 feet away. That's twice the length of a football field!

When the shark is hunting, all its senses work together. The brain gets messages from the nose ("Hey, smells like seals are nearby!"), the ears ("Those vibrations sound like a swimming seal!"), and the eyes ("That dark shape at the water's surface looks like a seal!")

The brain tells the shark's muscles to sweep its tail from side to side. The tail pushes the shark through the water. The eyes tell the brain when to signal the jaw muscles. The jaws bite, and 300 sharp teeth grab that seal. Before the brain tells the shark to swallow, the shark's taste sensors signal the brain. Does that bite taste like a seal? If it tastes right, the shark swallows. Dinner time!

Name _____

Bat

This insect-eating bat sleeps during the day, hanging upside down in a cave or a tree. At night, the bat hunts for flying insects, snatching them out of the air.

The bat uses sound to find the insects it eats. As the bat flies, it makes loud clicking sounds through its open mouth.

The clicking sounds bounce off everything around the bat. Some bounce back to the bat's ears. Those are called echoes.

When you shout in a tunnel, you hear echoes. That's because your voice bounces off the tunnel walls into your ears.

Echoes of the bat's clicks enter the animal's ears. The ears send signals to the brain. Using those signals, the brain makes a picture of the world. The bat "sees" using echoes. This way of "seeing" with sound is called "echolocation."

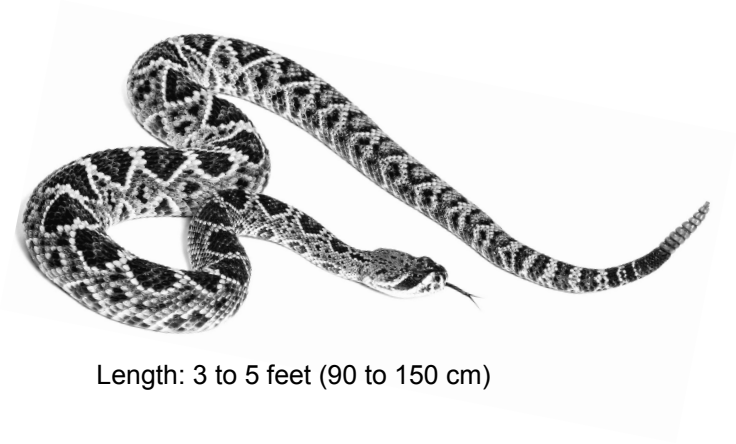
When the brain detects echoes from flying insects like moths and mosquitoes, that's good news! The bat's brain sends signals to the animal's wing muscles. The wing muscles make the wings flap. The bat flies to catch the insect. At just the right moment, the brain signals the bat's mouth to snatch the insect from the air.

The bat's brain not only has to listen for the echoes of the sounds the bat makes. It also has to know the difference between echoes of the bat's clicks — and the sounds of other bats hunting nearby. It's not easy being a bat!

Name _____

Rattlesnake

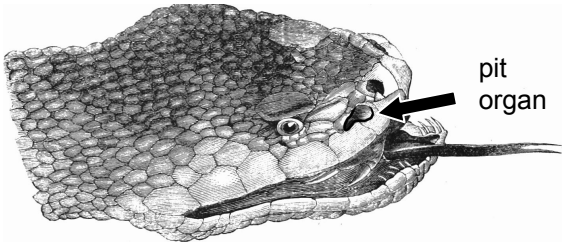
This rattlesnake lives in deserts, forests, and meadows. It eats mice, rats, and other small animals.



Length: 3 to 5 feet (90 to 150 cm)

Like all snakes, the rattlesnake uses its sense of smell to find food. It does not smell with a nose like you do. Snakes smell with their tongues. When a snake flicks out its tongue, it is smelling the air.

During the day, the rattlesnake can see its prey. In the dark, it uses a special sense to find its prey. In front of each eye, the snake has a small hole called a “pit organ.” The pit organs sense heat. You can see a pit organ marked with an arrow in the picture to the right.



Close up

If you held a mouse in your hand, you could feel that the mouse is warm. The rattlesnake does not have to touch the mouse to sense its warmth. With its pit organs, the snake can sense the mouse’s heat from three feet (one meter) away!

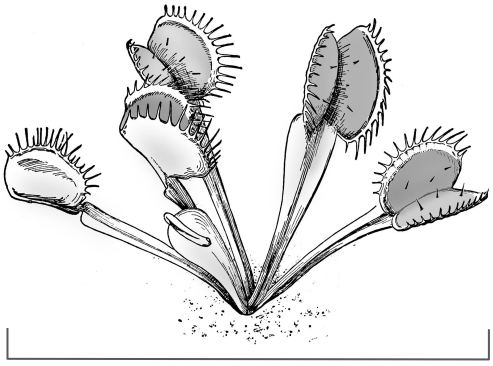
When the rattlesnake spots a mouse in the dark, the pit organs send signals to the brain. Using those signals, the brain makes a picture of the world. That picture shows where the mouse is.

The brain sends signals to the snake’s muscles. In the time it takes you to blink, the snake’s muscles propel its body forward. The jaws close on the mouse. Goodbye, mouse! Hello, lunch!

Name _____

Venus Flytrap

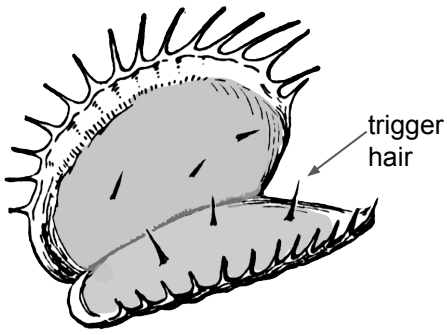
The Venus Flytrap is a strange plant that catches flies to eat.



Length: 6 inches (15 cm)

The trap of the flytrap is made of two special leaves. These leaves look like a pair of jaws. These leaves ooze sweet juice called nectar. When a fly lands in the trap to sip the nectar, the trap slams shut, catching the fly. Juices from the plant turn the fly's body into a liquid. The plant soaks up that liquid, then opens the trap again, ready for its next victim.

The Venus flytrap is a plant, not an animal. It doesn't have nerves to carry signals. It doesn't have a brain. It doesn't have muscles. So how can it catch flies?



Close-up

To answer that question, scientists studied the leaves that form the trap. Each leaf has tiny hairs, called trigger hairs. When a fly bumps two trigger hairs, an electrical signal travels through the leaf. That springs the trap!

Maybe you're wondering how this plant can move without muscles. Plants droop when they are low on water and then straighten up when you water them. Something like that is going on inside the flytrap. The electrical signal in the leaf causes water to shift around. Some parts of the leaf droop and others stiffen. That springs the trap, and it's flies for lunch!

Why does the flytrap catch flies? Like other plants, the flytrap makes the food it needs using carbon dioxide from the air and energy from sunlight, plus water and nutrients. The nutrients are like vitamins for the plant. Most plants get their nutrients from the soil. Where the flytrap plant grows, the soil is low on nutrients. Luckily, flies are packed with nutrients. And so tasty, too! Yum!