

Wildlife Express!

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Stealthy Shrew



Let's Look At...



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vagrant shrew

Shrews

Have you ever seen a little mouse with a long, pointed nose? If you have, you might not have been looking at a mouse; you could have been looking at a shrew. Shrews may look a bit like mice, but they sure are different.

Six species of shrews can be found in Idaho. One is the smallest American mammal. Pygmy shrews are found in northern Idaho. Pygmy shrews weigh between two to four grams. That's about what a pencil weighs! They tie with the bumblebee bat and the least shrew in Europe as one of the smallest mammals in the world. All shrews are small. Even the largest shrews are mouse-sized. Shrews have tiny eyes, pointed noses and small ears. Most shrews are brown, but they may also be black or gray.

Shrews are animals that eat a lot. Masked shrews eat their own weight in food every day! If they don't eat frequently, they could actually starve to death. Most shrews hunt during the night and store food in their nests. Shrews like fresh food. To keep food fresh, shrews crush their prey's skulls and bite off their legs but don't kill them. That way they always have fresh, live food to eat. Shrews love to eat insects, but they will eat just about any worm, spider, or small animal they can find. They will even eat dead things and each other. To help them catch food, shrews have good senses of smelling, hearing and touching. Their pointed snouts work like shovels, helping them burrow through soil after grubs. Some shrews even use echolocation like bats to find insects. A few shrews in other states are venomous! They paralyze their prey, so they can eat things that are twice as big as they are. Shrews eat a lot of insects, but most animals don't like to eat shrews. They stink like skunks!

Shrews live short, fast lives. Most shrews won't live longer than one and one-half years. Young shrews are born in a nest of grass under a rock, log or down in the ground. They are blind and naked when born but grow quickly. They drink mother's milk for about three weeks, and then they are on their own.

One interesting thing that some shrews do is make a conga line. If a shrew's nest is disturbed, it will leave the nest and take its babies. With mom in the lead, the family forms a line. One baby will grab onto mom's tail. The next baby will grab the tail of the first baby and on down the line. The line then snakes its way across the ground to another safe place. Mimicking the movement of a snake may help protect the family from some predators.

Idaho even has a shrew that can run on water! Water shrews have long, stiff hairs between their toes and along the sides of their feet. The hairs trap air bubbles which allow the shrews to run across water.

Shrews sure are sensational!

Let's Eat Insects!

Grasshoppers, beetles and crickets – Yum! You might not think that insects would be very good to eat, but many animals love to eat insects. Animals that eat mostly insects are called **insectivores**.

Scientists like to group animals together that have things in common. One group is called an Order. Any animal that eats insects might be called an insectivore, but science has a special Order called Insectivora. Animals in this Order love to eat insects.

Shrews are not the only animals found in this Order. There are six families in this group, but scientists now think two families are fairly different and should be moved to a different group. They are golden shrews and tenrecs. Golden shrews and tenrecs are found in Africa or Madagascar. Tenrecs are most common on the island of Madagascar. There are many different kinds of tenrecs. Some grow to be as large as a cat. All tenrecs have spines they use for protection. Some even use their spines to “talk” to each other. They rub the spines together to make a sound!

You might be familiar with one member of Insectivora – hedgehogs. Some people like to keep hedgehogs as pets. Hedgehogs are also covered in spines. When they get scared, they roll themselves up into a spiny ball. Not many predators want to fight their way through a hedgehog's spines to eat the treat inside.

Moles are also part of Insectivora. Idaho has one mole that lives in our state. It is the coast mole. Coast moles are only found in the southwestern part of Idaho.

Shrews are by far the largest group in Insectivora. There are over 300 different kinds of shrews. They are found everywhere except the Polar Regions, Australia and the southern part of South America.

Even though all members of Insectivora are a bit different, there are some things they have in common. They usually don't use their eyes to find food. They use their senses of hearing, smelling and touching. The part of the brain used for smelling is larger in insectivores than in other animal orders. Their brains are made to sniff out big, wriggly beetle larva.

You may think eating a wriggling beetle may be awful, but insectivores find them awfully tasty!

Echolocation

Echolocation is using sound to locate objects or orient yourself in your environment. Shrews use echolocation – so do whales, dolphins and some bats.

To understand how echolocation works, think about shouting at the edge of a canyon. If you shout “hello”, you will hear your own voice come back to you a few seconds later.

Here's how that works. You made sound by rushing air from your lungs over your vibrating vocal cords. The vibrations in the vocal cords caused the air to change into a sound wave. This sound wave pushes and pulls the air around it, passing on the sound and energy with it.

When you shout, you make a sound wave that travels across the canyon. The sound bounces off the hard rock on the opposite side of the canyon and travels back toward you. Sound travels at different speeds depending on how moist the air is and the air pressure. If you know how fast sound travels in the area where you are and you had a very good stopwatch, you could use the sound to figure out the distance across the canyon. If your canyon is at sea level, sound waves travel at 741.1 miles per hour or 0.2 miles per second. Let's say it took three seconds for your echo to come back. It would have traveled 0.6 miles. (3×0.2). This is the distance across the canyon and back to you. Divide the total by two ($0.6 \div 2$), and you will get 0.3 miles. This is the distance across the canyon. This is how echolocation works.

Shrews, bats and other animals make sounds the same way you do. They move air past something vibrating to make a sound wave. The sound either comes out the animals' mouths or noses. It all depends upon the animal. Whales actually send sounds out of their foreheads!

Being able to send out sounds to locate objects doesn't do an animal any good if it can't hear the sounds bouncing back to it. Animals that use echolocation also need to have great ears or other listening tools. Whales use their lower jaws! Their lower jaws feel the vibrations. The vibrations travel down the jaw and into their ears hidden deep in their heads.

Echolocation is an awesome way for animals to find food and travel through darkness.



owl

Nightshift

Do you know anyone who works during the night? Some doctors, nurses, and police work the nightshift. Some animals work the nightshift, as well. These animals are called **nocturnal** animals. As twilight deepens into the forests and fields, nocturnal animals begin to come out.

Working the nightshift can pose lots of problems for animals. These animals, like all animals, need to find food and keep away from predators. Why do you they choose nighttime to make their living? A lot of it has to do with competition during the daytime. If all the animals were trying to make their living during the day, it might be pretty crowded. Another reason might be that the animal is trying to keep out of the heat. This is especially true for desert animals. It might just be too hot during the day!

One of the most obvious problems for nighttime animals is the lack of light. Many nocturnal animals have specialized eyes to help them see in the dark. Other animals, like some bats and shrews, rely on sound and specialized hearing. They use echolocation to help them find their food. Scorpions have fine hairs on their legs that they use to sense vibrations.

Other animals that work the nightshift include crickets, owls, raccoons, skunks and mice. If you worked the nightshift, what special features would you need?



Dayshift

Most of us are creatures of the day. We do our best work during the day and use the night to catch up on our sleep. Animals that are active during the day are called **diurnal** (die-UR-nal) animals.

Just like us, diurnal animals have adapted to the daylight. They work best and get most of their work done when the sun is shining. What adaptations do diurnal animals have? Well, compared to nocturnal animals, diurnal animals rely much more on their sense of sight. Their eyes are not as large as nocturnal animals' eyes, but diurnal animals have vision that is much more finely tuned. They can see small details and see at longer

distances than nocturnal animals. During the day, a predator is less likely to be able to sneak up on its prey. Perhaps this is why hawks and falcons are faster fliers than owls. Many diurnal animals need speed to catch their food. Diurnal animals also tend to have colors that camouflage them a bit better than some nocturnal animals. Being able to blend in during the day is important for animals that need to hide from predators and protect themselves.

Some animals are most active at dawn and dusk. These animals are called **crepuscular** (kre-PUS-qu-lar) animals. Crepuscular animals include mule deer and river otters. Can you think of other animals that are diurnal and crepuscular?



cooper's hawk

Will You Be Mine?

Are you giving anyone a special valentine this month? It's fun to make valentines to send to friends or give to family. Animals sometimes give valentines to each other, but these valentines are not made out of paper!

Male shrews get a bit chubby to impress female shrews. Some male shrews double their weight before breeding season. Could you imagine eating so much food that you doubled your weight in just a few weeks or months? You would have to eat tons of food! Female shrews must like their special guys on the plump side.

Some animals will give food to each other. Barn owls offer their mates tasty mice as a gift. Before the female ever starts to lay her eggs, the male will bring her food. This may be his way of showing her that he is a good hunter. While the female barn owl sits on her eggs, the male will need to bring her food. He will also need to help bring food to the owlets.

Some animals offer their mates valentines of dancing and singing. Male crows can put on quite a display. They dance, bow and strut with their wings and tail feathers spread out. While dancing, crows sing a song that is a bit like a rattle.

Have you ever seen a peacock strut? They are beautiful with their colorful long tail feathers. Females really like long, bright feathers with large black spots on them. The black spots look a bit like eyes. The larger the spots are the more the female likes the male. There may be a reason for this. Scientists have found that males with long tail feathers with larger spots actually have young that are larger and healthier. Females might be able to tell this just by looking at the spots!

Animals may not give real valentines to their sweeties, but they offer other gifts to show they like each other.



Stingin' and Bitin'

Short-tailed shrews are animals you sure would not want a bite from, especially if you are a big juicy earthworm. Short-tailed shrews are venomous. They have toxins in their spit!

Many animals use toxins for protection or to help them catch food. You may hear people use the word venom or poison, but what is the difference between venom and poison? The biggest difference is where an animal stores its toxins and how the toxins are used.

Animals use venom to either protect themselves or to capture prey. Venom is injected into a victim. This is called an active delivery system. The animals themselves put the toxins in their victims. Venom is made and stored in glands, so the animal always has a supply of venom when it is needed. Venom is put into another animal by using fangs, pinchers, spines or any other sharp body part that is hollow, grooved or breaks the skin. Short-tailed shrews use their lower teeth. The lower, front teeth of short-tailed shrews are grooved. Venom is stored in their saliva glands. Saliva glands make spit. When a short-tailed shrew bites into something, spit flows from the glands into the grooves and into the short-tailed shrew's victim. Short-tailed shrews have venom that paralyzes its victim, but it wouldn't paralyze a human. If a person is bitten by a short-tailed shrew, the wound may swell and be painful for a few days.

Poisonous animals have a passive delivery system. Their toxins are used for protection only. They store toxins in their meat or skin. If something eats a poisonous animal, the predator may get sick or even die. Newts, jellyfishes and poison dart frogs are animals

northern short-tailed shrew



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Wonderful Whiskers

Shrews have whiskers on their faces that help them while hunting. Other animals depend on whiskers, as well.

Imagine you are a bobcat hunting during a dark, moonless night. Your eyes, although designed to work in low light, are having a difficult time seeing. It is so dark even a bobcat's eyes can't make their way through the darkness. You are hungry, and you know a mouse must be nearby. How are you going to find the mouse if you can't see it? Use your whiskers. Bobcat whiskers can feel vibrations caused by a mouse moving.

Whiskers are great tools for animals that hunt at night or in dark places like underground or underwater. Whiskers are special hairs that are very sensitive to touch and movement.

All mammals, except humans, have whiskers. Although men's beards are called whiskers, they are just body hairs. Men's beards cannot help them find their way around.

Whiskers are called **vibrissae** (vy-BRISS-ee). They are thicker and rooted deeper in the skin than regular hairs. Each whisker sits in a sack of fluid filled with nerves. The whiskers can turn in the fluid like a straw in a bottle. When something touches a whisker, the information goes down the hair to the nerves. The nerves tell the brain what the whiskers have felt.

Whiskers not only grow on animals' faces. Cats, foxes and squirrels have whiskers on their ankles. Some bats have them on their rumps, and underground burrowers, like moles, have whiskers behind their ears and on their tails and front feet. Flying squirrels use whiskers on their heads, feet and legs to help them find their way through trees at night.

Sometimes animals use whiskers to greet. When two rats meet, they rub their whiskers over each other. This helps them to identify the other rat.

Mammals would have a difficult time getting around and catching food without their whiskers. Whiskers help animals stay in touch with their environments.

Eating Like a Bird

Do you have a friend who can eat and eat and eat, but never seems to gain weight? Maybe you are that person. Some people seem to be able to eat a lot of food. While other people gain weight more easily. There are many reasons why this may be. How active a person is plays a big role, so does a person's **metabolism** (me-TAB-a-liz-im).

Metabolism is how quickly an animal burns energy. Usually, the smaller an animal is the faster it burns energy, and the more it needs to eat. Smaller animals, like mice, have a more difficult time keeping their bodies warm than, say a black bear. Cold weather pulls heat out of their bodies faster.

If an animal has a high metabolism, its heart usually beats quickly. A shrew's heart beats 600 to 1200 times per minute. That's fast! Water shrews can only live about three hours without eating. In some studies where shrews were kept in the cages, shrews were eating almost every 10 minutes!

Birds also have high metabolisms, especially hummingbirds. If you have a hummingbird feeder, you have seen just how much energy these zippers need.

Hummingbirds eat a meal of flower nectar and insects every 10-12 minutes. They eat twice their body weight in food every day. If a 150 pound man ate like a hummingbird, he would need to eat 1,000 Big Macs every day just to keep his heart beating! Now that's a lot of food.

So if someone tells you "you eat like a bird" when she thinks you don't eat much, you can set her straight. Birds and other animals with high metabolisms don't eat a little. They eat a lot!



Shrew Search

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

Shrews are _____.

Some shrews use _____ to help them find their prey.

Most shrews don't _____ longer than two years.

Water shrews can _____ on top of a pond.

_____ is injected into a victim and stored to glands.

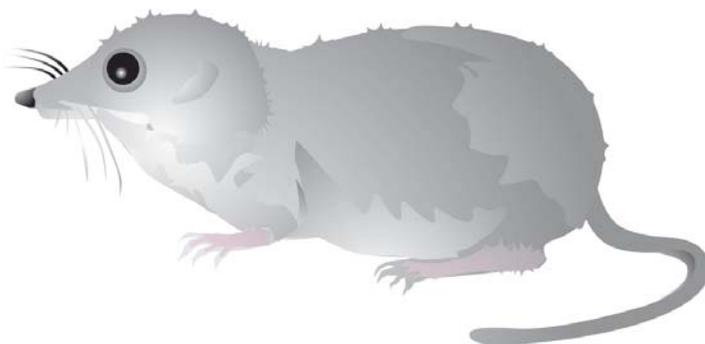
_____ is found in an animal's skin and muscles.

Shrews' _____ beat quickly.

Shrews need to _____ a lot of food to keep their bodies going.

Animals often offer their mates _____ to impress each other.

Many shrews are _____.



Words

Eat
 Echolocation
 Gifts
 Hearts
 Insectivores
 Live
 Nocturnal
 Poison
 Run
 Venom

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