



September/October 2018

Xplor



**EYE
SPY**

SHOW ME SIX SUPER-COOL
JUMPING SPIDERS

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ON THE COVER

Bold Jumper
by David Bruns

Fall times three: Water falls over Rocky Falls in the fall. This spectacular cascade, which tumbles 40 feet down during wet weather, is located north of Winona.

📷 by David Stonner

GET OUT!

FUN THINGS TO DO
AND GREAT PLACES
TO DISCOVER NATURE

Go ahead and TOUCH THE TOUCH- ME-NOT.

The plant, which is also known as jewelweed, has seedpods that explode when you touch them.



Rob Routledge, Sault College, Bugwood.org



WATCH FOR MIGRATING MONARCHS.

Many will travel 3,000 miles to their wintering grounds in Mexico.



CELEBRATE INTERNATIONAL JUMPING SPIDER DAY

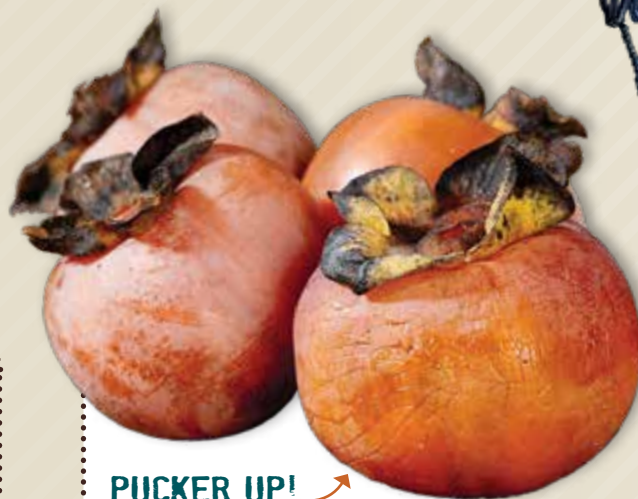
October 10.

Learn why jumpers rule on Page 12.



PUCKER UP!

Persimmons begin ripening in September. Wind-fallen fruits taste the sweetest.



GIG A FISH!

Gigging season starts September 15. Learn fish-spearing basics at short.mdc.mo.gov/Z4P.



Fall color peaks in mid-October, a great time to **HIKE A TRAIL** or **FLOAT AN OZARK STREAM**.



WHAT IS IT?

DON'T KNOW?
Jump to Page 20 to find out.



- ① My cousins catch food in their webs.
- ② I run down my dinners instead.

- ③ I carry my eggs in a sack.
- ④ My babies then ride on my back.

Into the WILD

big river sandbar

Summer may be over, but there's still time to hit the beach. Pack some sunscreen, and let's find a sandbar to explore.

What Happened Here?

A beaver removed this branch from a tree and then gnawed off its bark as a snack. When the tree-munching mammal tossed it away, the branch washed downstream and got stuck on this sandbar.

Take a Closer Look

Spiny softshell turtles often slide under the sand in shallow water, leaving just the tips of their snorkel-like snouts sticking up to breathe. Can you find the turtle in this photo?



LOOK

Keep your eyes peeled, and you may spot a tiny, shiny insect racing across the sand. **Tiger beetles** are harmless to humans, but bugs better beware. The six-legged predators use keen eyesight and amazing speed to find and catch prey.



LOOK

Puddle party! Swallowtails, sulphurs, and other butterflies often cluster together on wet sand. They do this to sip up minerals from the water that they aren't able to get from nectar.



Listen

Killdeer patrol sandbars along the water's edge, hunting for insects to eat. When they take flight, they call out their name: a high-pitched, wailing *kill-deer, kill-deer!*



Did You Know?

Tiger beetles are among the fastest animals on Earth — for their size. When a beetle wants to boogie, it can move 125 body lengths per second. If its legs were as long as yours, it could dash around at nearly 240 mph!

Do More

If you find fishing line litter, pick it up! Animals can get tangled or strangled by discarded line.

LOOK

Dense thickets of willows, cottonwoods, and sycamores often grow on sandbars. Here's how to tell these water-loving trees apart by looking at their leaves.



Willow

- Long, skinny, spear-shaped leaves
- Upper surface of the leaf is green and shiny; under surface is pale

Cottonwood

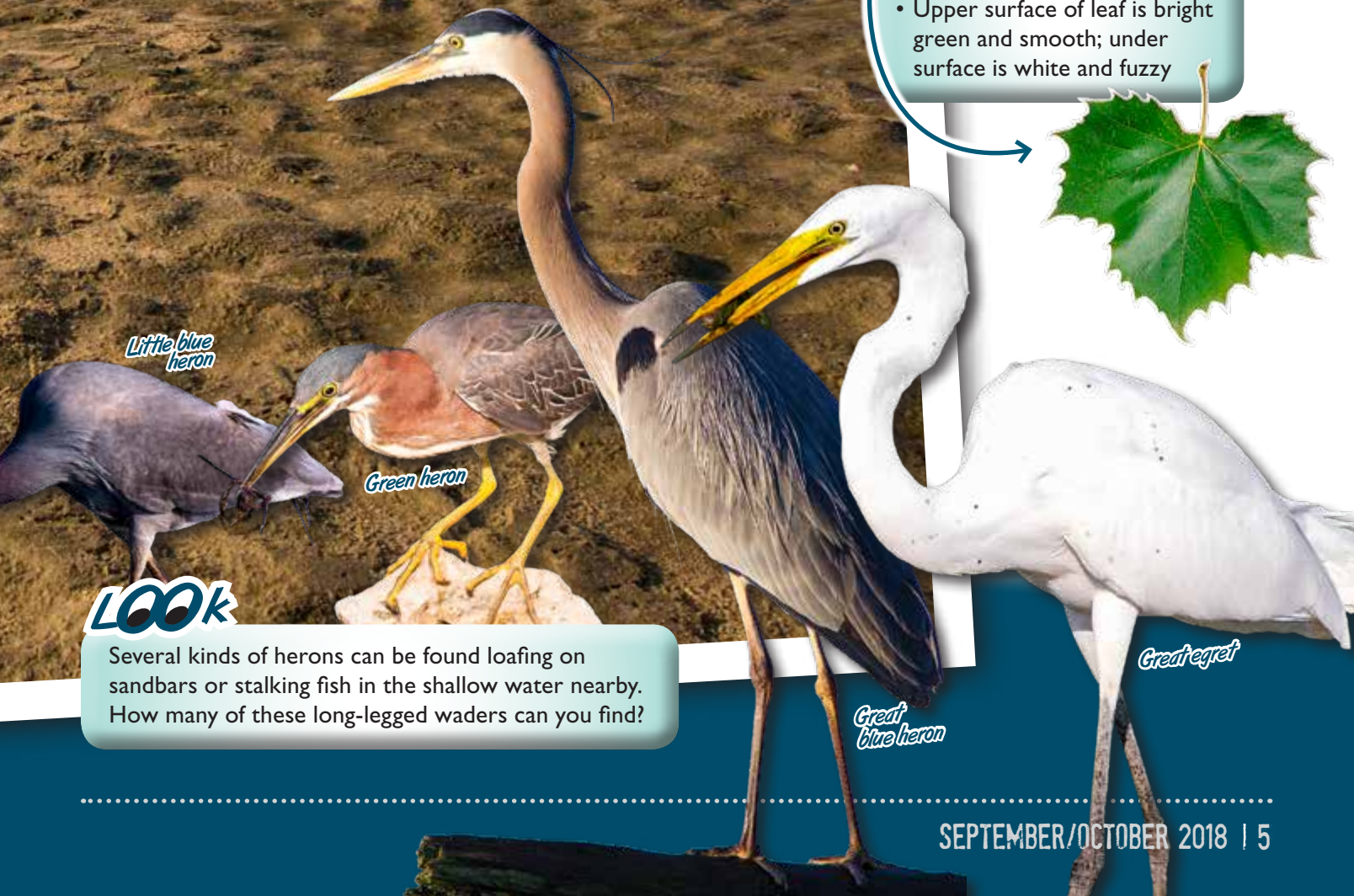


- Heart-shaped leaves with toothlike outer edges
- Long stems allow the leaf to flutter in the breeze
- Upper surface of the leaf is green and shiny; under surface is pale

Sycamore



- Large leaves with three to five pointy lobes (like a maple leaf)
- Upper surface of leaf is bright green and smooth; under surface is white and fuzzy



Little blue heron

Green heron

Great blue heron

Great egret

LOOK

Several kinds of herons can be found loafing on sandbars or stalking fish in the shallow water nearby. How many of these long-legged waders can you find?

NEST-DOOR NEIGHBORS

by Matt Seek | illustrated by Mark Raithel

It's 6 a.m. on a Tuesday, and the busybodies next door have already been snooping around. They've discovered that one of your neighbors forgot to put the lid on his trash can. They know that another left her cat outside all night. And they checked to see if the guy down the street refilled his bird feeder. Nope. It's still empty.

Whether you live in the city or country, it's a good bet that a family of American crows lives somewhere nearby. It's no *caus* for alarm. The brash, black birds can be nosy — and noisy — but if you know what to watch for, they make interesting neighbors.

Crow families are close-knit. Besides mom and pop, a crow clan usually consists of newborn crows, featherbrained 1-year-olds, and fully grown sons and daughters.

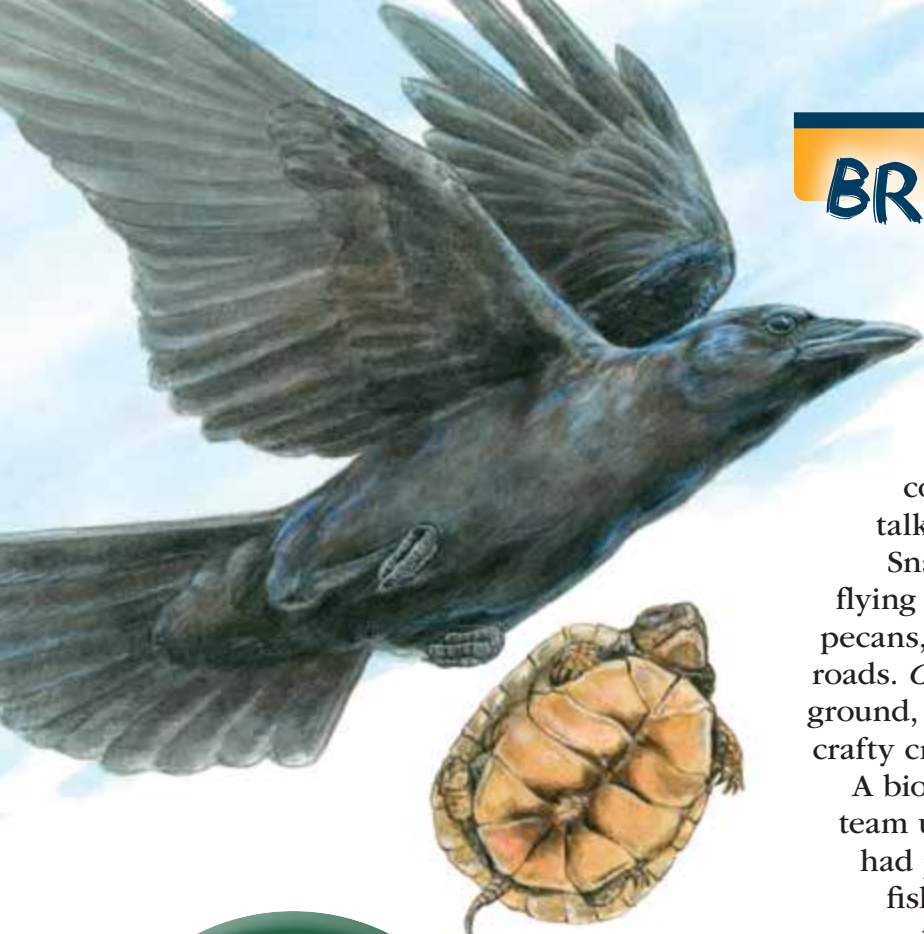
Crows may live with their parents for up to five years. The youngsters help their parents build nests, raise babies, find food, and watch for danger.



You may notice blue-eyed crows in your yard in the late spring. These are babies that have just learned to fly. Their eyes will turn dark brown in a couple of months.

Crows usually build their nests high up in the tops of evergreen trees. On a ship, sailors climb up the mast to reach the “crow’s nest,” a high place where they can get a good look around.

Crows will eat nearly anything: grains, nuts, fruits, insects, worms, mice, birds, eggs, fish, frogs, small snakes, young turtles, crayfish, and even garbage. Crows feed their babies mostly grains and insects, but youngsters may get other foods, too — even french fries!



BRAINY BIRDS

If you think “birdbrain” is an insult, you’ve never watched a crow. Crows are known for being creative and clever. In fact, they’re among the smartest birds on the planet.

Biologists have learned that crows can count, solve simple puzzles, be trained to talk, and use tools to gather food.

Snack attack! Crows have been seen flying high into the sky to drop walnuts, pecans, clams, and dead turtles onto paved roads. *Crack!* When these snack bombs hit the ground, their shells break open, allowing the crafty crows to eat the meat inside.

A biologist once watched a family of crows team up to outwit a river otter. The otter had just caught a fish. But before the furry fisher could snarf down its dinner, a crow flew in and began pecking on the otter’s tail. When the angry otter spun around to teach the cheeky crow a lesson, another crow swooped down and flew away with the fish.

FUN FACT

Crows often save their leftovers for later. They dig shallow holes, place food inside, and cover it with grass and leaves. While doing so, crows scan the sky to make sure other animals haven’t spied their hiding spots.



FUN FACT

Cities — with their buffet of trash cans and dumpsters — are ready-made crow cafes. Discarded human food may make up more than half of an urban crow's diet.



ROBBIN' A ROBIN

You may see songbirds dive-bomb a crow, swooping down to peck at the crow's back as it flies. The smaller birds aren't being bullies. They're trying to keep the crow away from their eggs. Crows sometimes follow mama birds back to their nests to steal an egg for a snack. The crow doesn't mean to be mean. It just wants to find enough food to survive.

FUN FACT

When crows feed on the ground, one member of the gang stays up in a tree as a lookout. If the watch-crow spots a cat or another predator, it caws loudly, and its fellow crows skedaddle.

CAWS FOR ALARM

If a crow spots a hawk or an owl in your neighborhood, it usually causes quite a *crowmotion*. The crow will scold the predator with loud calls. *Caw! Caw! Caw!* This attracts nearby crows, who join in on the scolding. The ruckus they raise usually drives away the bird of prey, and the crow mob often pursues the predator, harassing it as it flies.



PLAY TIME

Biologists believe there are more than 10,000 different kinds of birds on Earth. But play has been observed in only about 25 bird species, which must make all those feathered flocks incredibly b-o-r-i-n-g. Crows, however, love to have fun.

Young crows play tug of war with bones, twigs, and leaves. They also wrestle with their brothers and sisters and pull on tail feathers when their siblings aren't looking. Videos on the internet show crows rolling in the snow, sliding on their backs down icy car windshields, and using a plastic jar lid to sled down a snow-covered roof. When the wind blows, crows go surfing. They fly beak-first into the breeze and then flip over to let it fling them backward. Sometimes, apparently for no reason, crows grab a skinny branch with their feet and dangle upside down like a shiny black Christmas tree ornament.





FUN FACT

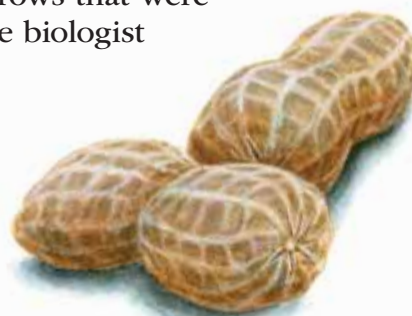
In winter, crow families gather with other crows to sleep. They arrive at their community roosts before sunset, sleep all night, and return home the next morning. Some roosts may contain 2 million noisy crows!

MAKING A TRADE

If you want to make friends with your crow neighbors, leave them something to eat, such as shelled corn or whole peanuts. People who feed crows are often surprised to find that crows sometimes leave “gifts” in return: bottle caps, shiny wrappers, shirt buttons, keys, coins, or Lego blocks.

If you feed crows long enough, they may learn to recognize you. A biologist who was studying crows learned that crows can even teach other crows to recognize people. The biologist wore a Halloween mask when he trapped and banded crows for his study. The crows hated being trapped and banded. So when the biologist returned to the trapping site wearing the mask, gangs of crows would dive-bomb him. But when he showed up without the mask, the crows ignored him. A decade after the study, nearly all of the crows that were originally trapped are gone. But when the biologist wears the mask, he still gets mobbed.

What’s the moral to this story? It’s best to stay on the good side of your nosy, noisy, nest-door neighbors!



Fall for Jumping Spiders

Get eyeball to eyeballs with these awesome arachnids, and you'll spy lots to love.

by Bonnie Chasteen

ACTUAL SIZE



Peppered Jumper

This little black-and-white jumping spider is less than $\frac{1}{4}$ inch long, about the size of a sunflower kernel. Look for it in meadows, old fields, and prairies. The female's abdomen may be more purple- than black-patterned.

Spider-Man seems to have gotten his superpowers from jumping spiders. They're strong, fast, agile, and almost supernaturally smart. They're also good dancers and just too cute. But if you're food or foe, they're **eight-eyed ninjas** that target small bugs and other spiders. Scientists have named 5,800 kinds of jumping spiders. Jumpers can live just about everywhere, even on the slopes of Mount Everest! Let's meet six jumpers that live right here in Missouri.



Mighty Sight-y

Get a look at those eyeballs. All eight of them. Jumping spiders have four pairs of eyes. Three smaller pairs appear like fixed running lights on either side of the two, large front-facing eyes. These are moveable, just like yours. With their ability to see nearly all the way around themselves, jumping spiders are hard to sneak up on. They're also really good at spotting prey.

Spidey Senses

Jumpers don't have ears, but they can "hear" just fine, thanks to their sensitive body fuzz. Scientists have discovered that jumpers' tiny hairs can pick up vibrations from 10 feet away.



Dimorphic Jumper

"Dimorphic" (*die-more-fik*) means "having two forms." In this case, the male can be either all black or all gray. Look for this small jumper (the female is about half an inch long) in bushes, small plants, wet areas, and possibly your house.

ACTUAL SIZE



Super Smarts

Studies show that jumpers can learn and remember colors. This helps them detect prey and navigate toward it, even if it's hard to reach. Some jumpers are known to pluck the edge of a spiderweb to trick the web-builder into crawling within reach. Then the jumper jumps onto the prey spider, avoiding the sticky web.

Bold Jumper

Fairly large as jumpers go, the male bold jumper can reach a length of half an inch, and females grow to a length of about $\frac{3}{4}$ inch. Look for them hunting along windowsills, tree trunks, deck railings, and stones. See if you can spot the large fangs, which flash metallic green or blue.



Harmless to Humans

Jumping spiders use their venom to stun prey, but their bite usually isn't harmful to humans. In fact, some people keep jumping spiders as pets.

Space Surfers

Although most jumping spiders don't spin webs, they do have silk-producing organs called spinnerets at the end of their abdomens. They use them mainly to anchor themselves to a surface before launching into space. The silk tether helps them surf the air and land safely. It can also be a lifeline, helping them to climb back to safety.

Bronze Jumper

Females don't have the males' white markings. Look for bronze jumpers this fall crawling on the sides of buildings. You may also find them gathering to overwinter under the bark of dead trees.



Fancy Dancers

Since spiders often eat each other, jumping spider males signal their sweethearts that they'd rather not be on today's menu. After all, jumper males are usually as much as one-third smaller than the females. They use flashy dance moves and rumbling rhythms to persuade their partners to accept their advances. If the female doesn't like the male's display, she eats him!



Hammerjawed Jumper

You might mistake this tiny jumper for an ant, which it closely resembles. Why is it called "hammerjawed"? Maybe because its face is so flat. Look for it on low-growing plants in open woods.

Power Pushers

Bigger spiders like tarantulas have large, powerful legs to help them hustle after prey. But jumping spiders use the power of hydraulic pressure to propel themselves through the air. They squeeze the fluid in their bodies and quickly release it to create a sudden push, allowing them to jump as much as 50 times the length of their own bodies.



Hammerjawed jumper: Ryan Kaldari/Wikimedia Commons; Tan jumper: www.tamstuart.com

October 10 is International Jumping Spider Day

If you've fallen in love with jumping spiders, jump on this chance to celebrate them. Jumper fans worldwide have set October 10 to show these special spiders how much they're loved. How will you celebrate?

Tan Jumper

It may be hard to detect this jumper in its natural setting. It lives on tree trunks, and its gray, tan, and brown color pattern helps it blend into the tree bark.

THIS
ISSUE:

SNOUT MITE VS SPRINGTAIL

Illustrated by David Besenger

Needle Nose

Once prey is down, the tiny mite can jab in its sharp, hollow snout and suck its victim dry.

Silk Shooter

Strands of sticky silk help the snout mite snare its prey.

Trigger Tail

At the slightest touch, the soil-dwelling springtail can flick its fast-action forked tail and flip out of the mite's reach.

AND THE WINNER IS...

STRANGE but TRUE!

YOUR GUIDE TO ALL THE
UNUSUAL, UNIQUE, AND
UNBELIEVABLE STUFF
THAT GOES ON IN NATURE



BLUE JAYS can whistle a hawk's shrill call. Biologists think they do this to alert animals about nearby raptors or scare birds off nests so the jays can eat the eggs.

Slimy safety goggles: When dining on ants, **NARROW-MOUTHED TOADS** push the skin on their foreheads over their eyes to protect their peepers from ant bites.



LITTLE BROWN BATS are better than bug zappers for keeping insects at bay. In an hour of hunting, a single bat can stuff its belly with 1,000 bugs!



Open wide. Biologists estimate the age of a **WHITE-TAILED DEER** by looking at the deer's teeth. Older deer have fewer baby teeth and their molars (chewing teeth) are more worn down than those of younger deer.



When an **AMERICAN WHITE PELICAN** wishes for fishes, it plunges its beak underwater like a dip net. In a single scoop, the brawny-beaked bird can gather 3 gallons of water — and several unlucky fish.



AMERICAN TOADS inflate their bodies like warty balloons to make it tough for snakes to swallow them. Got a frog in your throat? Nope, a toad.

Temperature decides whether **SNAPPING TURTLES** will be born boys or girls. Turtle eggs kept around 75 degrees hatch as mostly males. Eggs kept below 70 or above 80 hatch as mostly females.



A cottontail can raise 35 rabbits in a year. Whew! That's a bunch of babies. But it pales compared to a **PRAIRIE VOLE'S** output. Missouri's most prolific mama mammal can produce 83 babies a year!

HOW TO

Make a Dogbane Bracelet

Buying rope or twine from a hardware store or the internet is easy. But if you know what you're doing, you can also make twine from common plants that you find outside. To learn twine-making techniques, start by making this bracelet.

Dogbane and Milkweed

Native Americans made twine from hundreds of different plants. Two that were commonly used, dogbane and milkweed, are easy to find nearly anywhere in Missouri.

Look for dogbane and milkweed in pastures, prairies, along roadsides, and even in vacant lots. Pinching a leaf off of one of these plants when the plant is still green will cause milky sap to seep from the wound.

Collect dogbane and milkweed stems in the fall, when the plants are brown, dry, and dormant. Cut off the stems a couple inches above the ground. This won't hurt the plant. As long as you don't pull its roots out of the ground, the plant will regrow the following spring.



HERE'S WHAT YOU NEED

- Dogbane or milkweed stems
- Rubber mallet
- Spray bottle of water
- Scissors
- Clothespin

HERE'S WHAT YOU DO

1 Snip off the leaves and branches. Lay the stems on a hard surface and tap them with a rubber mallet to crack them open.



2 Peel away the tough outer fibers from the stem's spongy inner core.



3 Lay the fibers out in a skinny bundle, about 24-36 inches long. Spray the bundle with water to make the fibers easier to work with.



4 Grab the middle of the bundle with your hands 2 inches apart. Pinch the bundle with one hand and use the other to twist the fibers. Twist in only one direction. When the fibers are tight, bring your hands together, and a loop will form.



5 Hold the loop in one hand. With your other, twist one strand of fibers. When that strand is tight, bring it up and over the top of the other strand. Repeat with the other strand. Pinch the junction of the two strands to keep the twisting tight.



6 Continue the process of twisting and swapping strands until the twine is long enough to fit around your wrist. If you have to stop, use a clothespin to keep the strands from unraveling.

7 Tie an overhand knot in the end of the twine to keep the two strands from unraveling. Place the twine around your wrist and stick the knot through the loop.



Now that you know how to make twine, you can use it to make fishing line, rig up a snare, lash together branches to build a shelter, and all sorts of other useful things. To make rope, all you have to do is twist or braid together several strands of twine.

XPLOR MOR

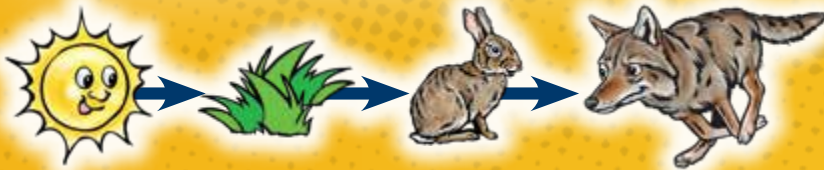
Food Chain Challenge



**We all run on sunshine.
Wait. What?**

It's true. The energy that powers nearly every living thing comes from sunlight. Plants, which are like leafy green energy factories, start the process. They use the sun's energy to turn water, air, and other materials into roots, stems, and leaves. When a rabbit nibbles a leaf off of a plant, the rabbit uses the energy stored in the leaf to hop, grow, and do other things. When a coyote eats a rabbit, the coyote uses the energy stored in the rabbit to howl, wag its tail, and do other things.

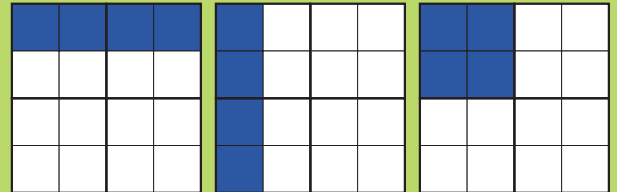
A **food chain** shows how energy passes from one living thing to the next. It's like a road map of who eats who.



Instructions

Let's have some fun with food chains. Fill in the squares so that ...

each row, each column, and each 2x2 block ...



contains each part of the food chain that is shown under the grid. You can write the name of each part or draw a picture. **Note: Each row, column, and block won't always follow the correct order of the food chain.**

WHAT IS IT?

— FROM PAGE 3 —

carries the pea-sized sac attached to her silk-spinning organs. When her babies emerge, they ride on her back until they can fend for themselves. You might see wolf spiders hunting at dusk. Learn more at mdc.mo.gov/field-guide.

Ground-dwelling wolf spiders don't spin webs to catch their prey — they chase it! When it's time to raise a family, the female has a trick that allows her to keep hunting. She wraps her eggs in silk and





Prairie Food Chain

Forest Food Chain

			Sun
	Coyote	Cottontail	
	Grass	Sun	
Coyote			

	Owl		Sun
Sun			
			Acorn
Acorn		Squirrel	

Sun > Grass > Cottontail > Coyote

Sun > Acorn > Squirrel > Owl



Marsh Food Chain

Stream Food Chain

Mink		Cattails	
	Muskrat		
		Sun	
	Mink		Cattails

	Algae		
Minnow			Algae
Sun			Heron
		Sun	

Sun > Cattails > Muskrat > Mink

Sun > Algae > Minnow > Heron



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FREE TO MISSOURI HOUSEHOLDS

CRITTER CORNER Deer Mouse



True to its name, this mouse leaps like a deer. In Missouri, it lives in open areas like pastures and field borders. It hunts for insects, seeds, and fruits at night, so don't look for it during the day. You may find its food stores, though, especially as the fall months approach. If you find an old bird's nest full of nuts and seeds, it's likely a deer mouse's stash. Learn more at mdc.mo.gov/field-guide.