Investigate mysterious and misunderstood wildlife to earn a Junior Ranger patch.

Junior Ranger

Get curious!

DEPARTMENT OF NATURAL RESOURCES

Best for ages 9 and up.
Under 9 years old? Check out the "Junior Ranger: Search for Superpowers" booklet.

Welcome! On this Junior Ranger adventure, use your curiosity to uncover the stories of misunderstood wildlife.

As you explore the park, keep these helpful tips in mind:

Stay safe.

- Stick together with your group.
- Stay on the trail to avoid ticks or irritating plants like poison ivy.
- Pack a map, water, snacks and the right clothes for the weather.
- Give wildlife space so they feel safe in their home.

Have fun and challenge yourself.

- Bravely try new activities.
- Treat everyone and everything with respect.
- Explore without breaking or taking anything.
- Keep the park clean for everyone.

Minnesota Department of Natural Resources
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mndnr.gov

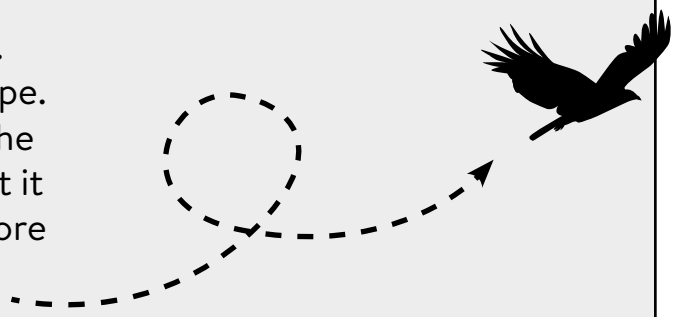
PAT_0016_26

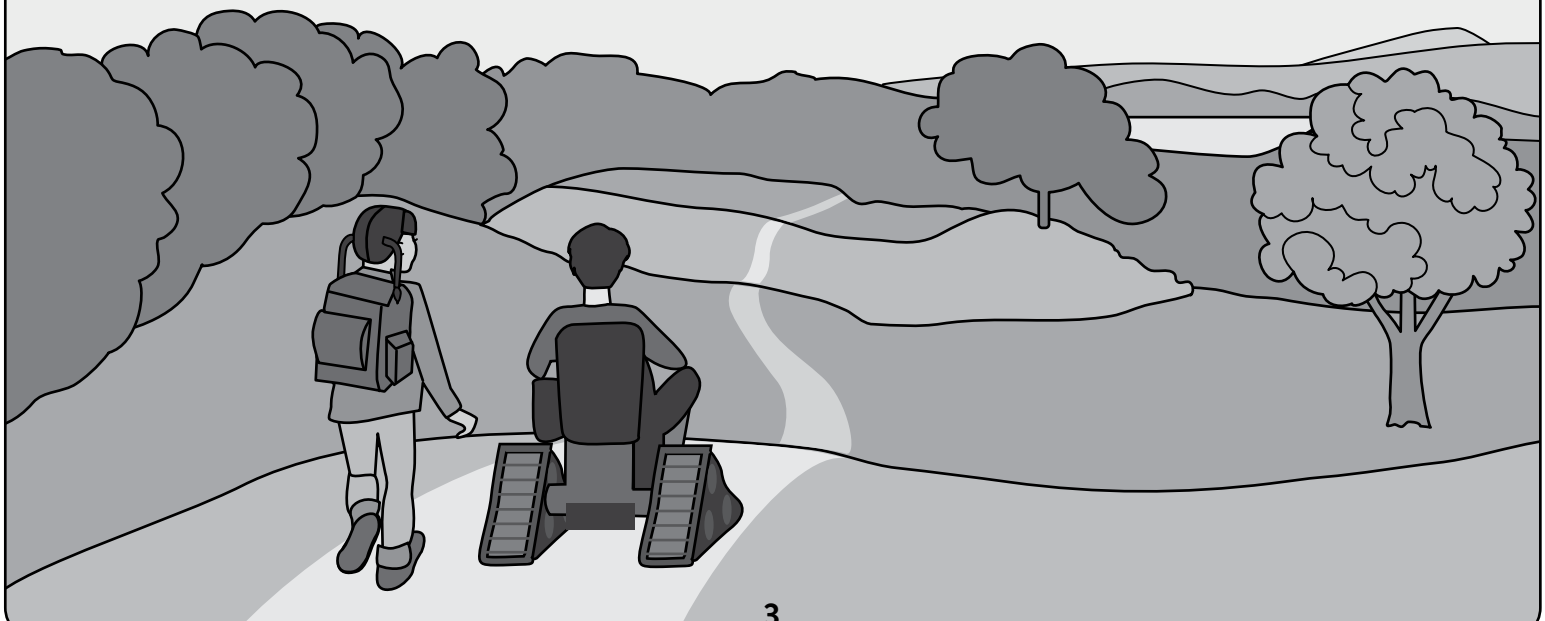
Earn your Junior Ranger patch.

1. Visit a Minnesota state park.
2. Finish all the activities in six challenges to reach the TRAIL'S END.
3. Bring your finished booklet to a state park ranger station or visitor center to collect your Junior Ranger patch.

Start your adventure here!

Your adventure begins on a sunny day at the park. You set out on a trail curving through the landscape. Up ahead, you spot a large bird soaring through the sky. You pick up the pace, curious to find out what it is.... Turn to page 4 for your first challenge and more clues about this bird.



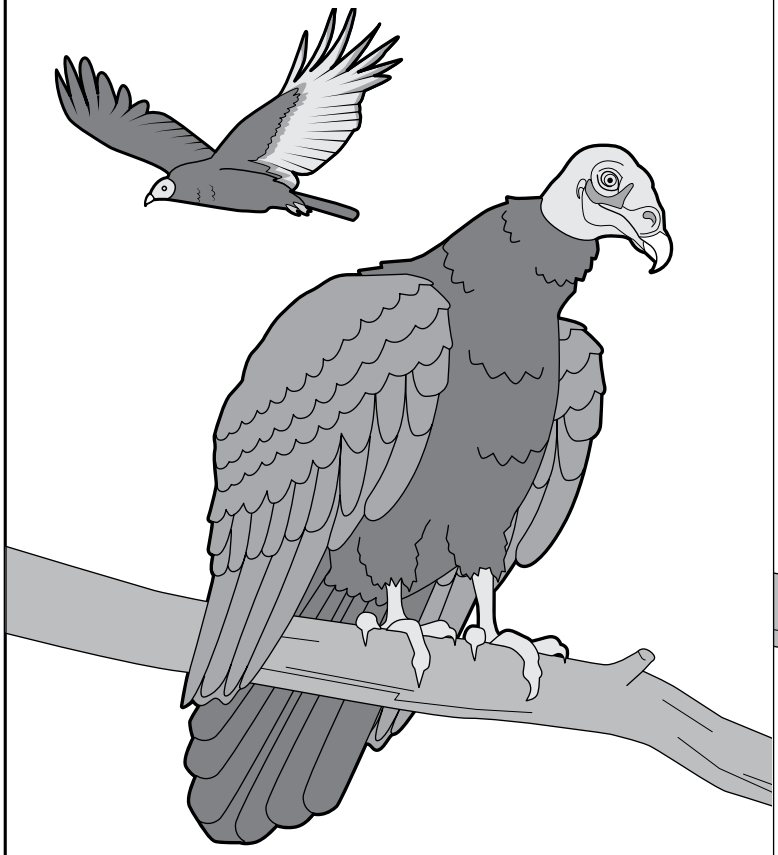


Mystery Bird

The bird you see looks like this.

You stop when the bird is soaring high above you. It seems to be searching for something, but what? It's bigger than a crow and you guess it is either a bald eagle or a turkey vulture.

Spot the differences between the two birds below to help solve this mystery.



Turkey vulture

Bald eagle

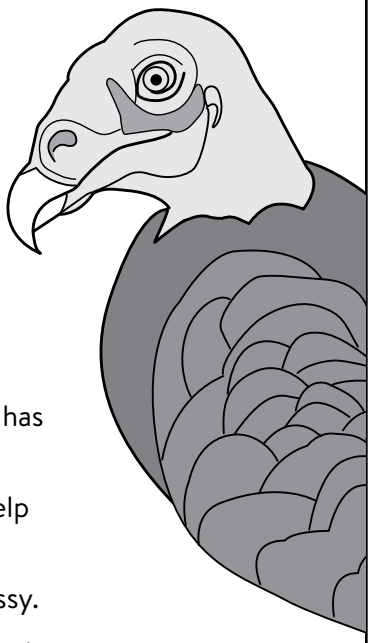
Circle three differences and then describe them below.

Difference 1 _____

Difference 2 _____

Difference 3 _____

What bird do you think you saw soaring in the sky? _____



Circle your favorite vulture fun fact below.

- A vulture's feet aren't as strong as an eagle's because they don't need to catch their food. Turkey vultures eat dead animals, also called carrion (sounds like care-ee-un).
- From high in the sky, a vulture uses its sense of smell to find carrion over a mile away.
- You need a special stomach to eat things that are already dead. A vulture's stomach has strong acid that kills bacteria, so the bird won't get ill.
- Nobody wants dead animals lying around, especially ones that were sick. Vultures help everyone by being part of nature's clean-up crew.
- A vulture doesn't want food stuck to its face. Its red, featherless head stays less messy.
- Ack! If a predator gets too close, a vulture will throw up at them. This startles the predator so the vulture can get away.
- A vulture doesn't waste much energy flapping its wings in flight. Its long wings, held in a V-shape, catch the air and let it glide like a kite.

Use your favorite fun fact to inspire a poem about vultures.

Line one, use four words _____

Line two, use three words _____

Line three, use five words _____

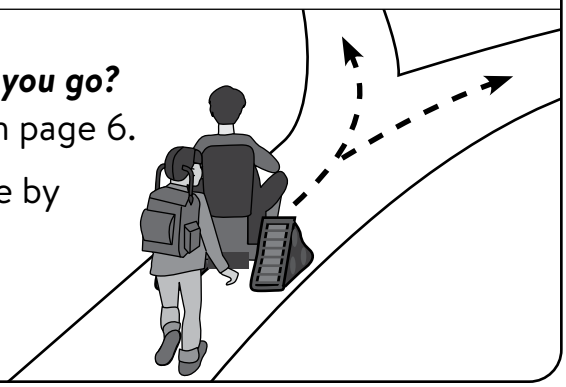
Line four, use four words _____

Shade me in when you finish all the vulture activities.

The bird flies away and you keep moving. Which way will you go?

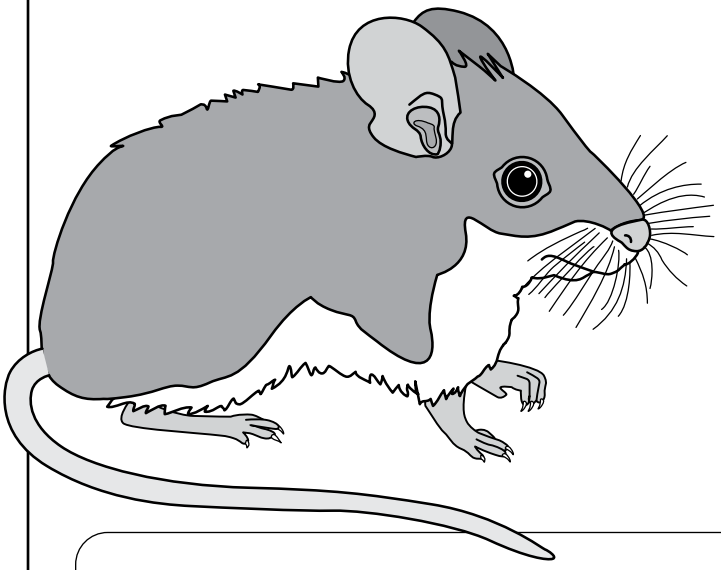
Head to a prairie where movement catches your eye on page 6.

Or, follow the trail toward something glittering in a tree by going to page 8.



Mighty Mice

On the path ahead, prairie grasses rustle. Suddenly, an animal darts through the plants. It is smaller than your hand, has big eyes and ears, and a long tail. It is so small and quiet, you almost didn't notice it. You wonder if any other animals spotted it.



Write three words that describe a mouse.

_____

_____

_____

Some of your words may describe a mouse's survival skills. A mouse needs to be quiet and stealthy so it doesn't get eaten, but this behavior can also startle people.

Use the word bank to fill in a mouse's top tricks for not getting eaten.

1. Large _____ for seeing at night
2. Long _____ to help balance
3. Many _____ to help feel when moving in the dark
4. Grippy _____ to help it climb
5. Big _____ to hear predators coming
6. _____ movements
7. Fit into _____ spaces, a mouse could squeeze through a hole this big!

Word Bank

ears	toes
eyes	quick
tail	whiskers
tiny	

Hear like a mouse!

Cup your hands behind your ears to create bigger ears (like a mouse). Have a conversation with someone in your group a few steps away with your "mouse ears" up and then take them down. How does this change your hearing?

_____

Mice use their skills to find food and avoid predators. However, many mice are caught by equally skillful owls, weasels, bobcats, foxes, hawks and snakes. For these predators, mice are an important food that helps them survive.

Circle foods that fuel a mouse: 1 acorn, 1 berry, 1 mushroom and 1 beetle.

Shade in 6 hidden mice (enough to feed one barred owl for two nights).

Owl Fuel Facts

Mice get energy from the food they eat. Predators, like owls, get their energy from eating the mice.

Just 1 barred owl needs to eat about 3 mice every night. How many mice does the owl eat in a week? _____.

Do you think an owl chick (owlet) eats more or less than an adult owl? _____.

Page 6 answers: 1. Eyes 2. Tail 3. Whiskers 4. Toes 5. Ears 6. Quick 7. Tiny

Page 7 answers: 21 mice. An owlet eats more than an adult! It takes lots of energy to grow.

Shade in the mouse when you have completed all activities.

The mouse scurries away and you get going too.

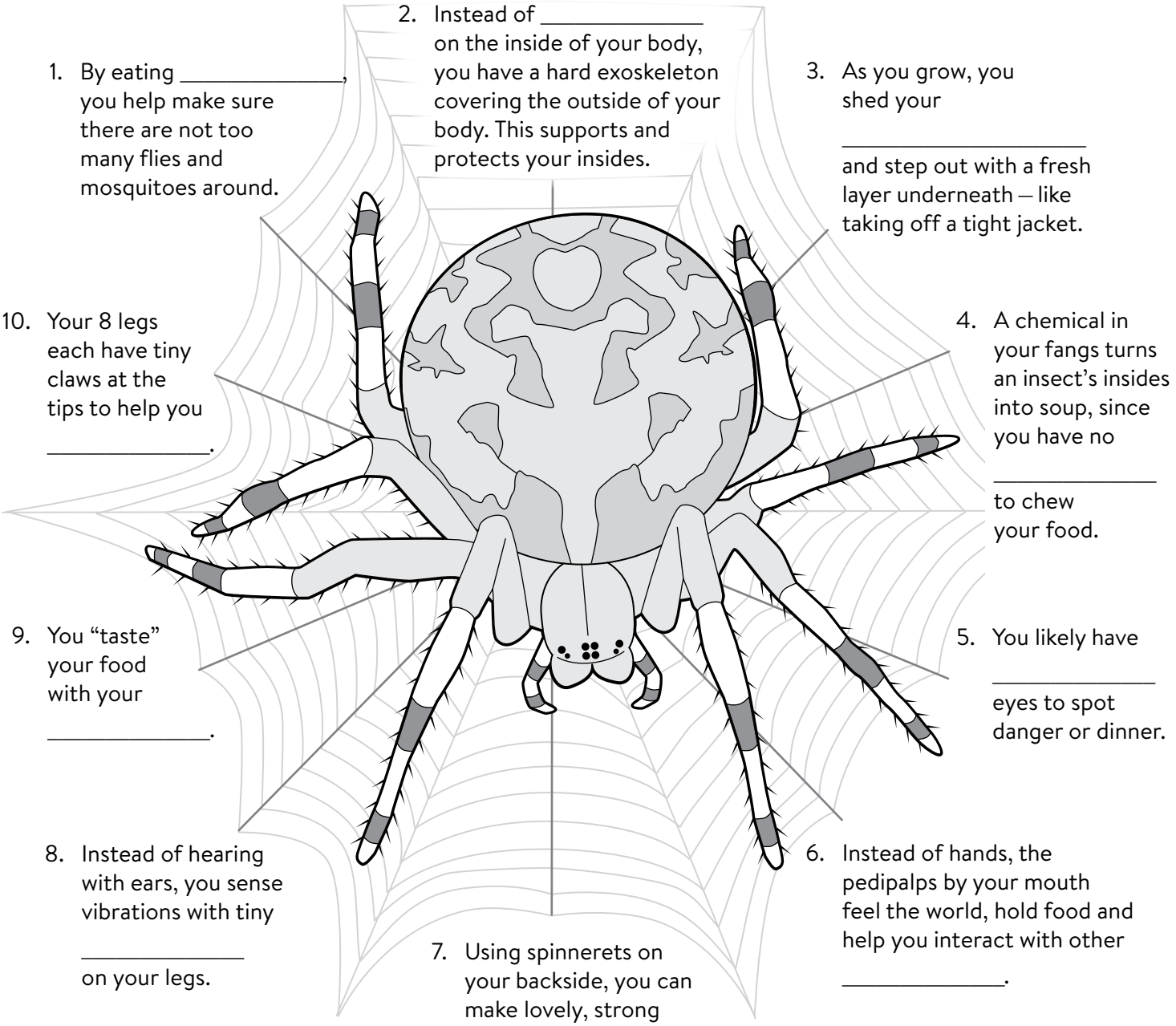
You head down the trail, stopping when you see another quick movement. You wonder if this creature is looking for a mouse meal. Turn to page 10 to find out.

Super Spider

As you get closer to the tree, you find a spider web shining in the sunlight. You wonder what life would be like as a spider.

Use these words to fill in the blanks and find out.

bones	eight	feet	insects	spiders
climb	exoskeleton	hairs	silk	teeth



1. By eating _____, you help make sure there are not too many flies and mosquitoes around.

2. Instead of _____ on the inside of your body, you have a hard exoskeleton covering the outside of your body. This supports and protects your insides.

3. As you grow, you shed your _____ and step out with a fresh layer underneath — like taking off a tight jacket.

4. A chemical in your fangs turns an insect's insides into soup, since you have no _____ to chew your food.

5. You likely have _____ eyes to spot danger or dinner.

6. Instead of hands, the pedipalps by your mouth feel the world, hold food and help you interact with other _____.

7. Using spinnerets on your backside, you can make lovely, strong _____ for your web.

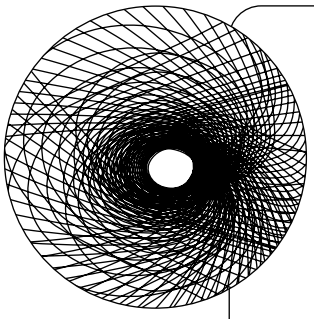
8. Instead of hearing with ears, you sense vibrations with tiny _____ on your legs.

9. You "taste" your food with your _____.

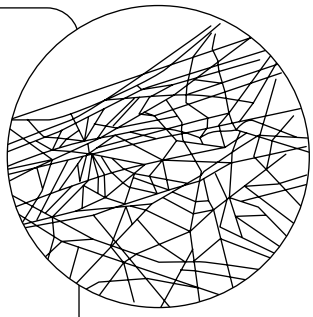
10. Your 8 legs each have tiny claws at the tips to help you _____.

All spiders can make silk, but only some use it to make webs. Different spiders create different web shapes.

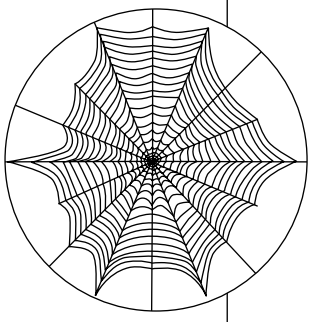
Take a short walk to look for webs on trees, in leaves or even on the sides of park buildings. In the box, draw a spider web you find. Check off any others you spot.



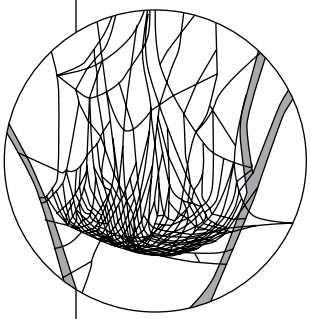
☐ Funnel web



☐ Tangle web



☐ Orb web



☐ Sheet web

Not all spiders make webs to trap food — some are hunters. Tiny jumping spiders pounce on their prey from far away.

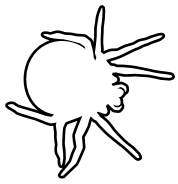
Draw a line from this spider to its match on the top of page 8.
That is how far a jumping spider can leap — over 20 times its body length!

Your turn! Go to an open space. Set this booklet down and take 40 big steps away from it.

Now, jump your way back to the booklet. How many jumps did it take? _____ jumps.
If you were a human-sized jumping spider, you could do it in a single leap!

Page 8 answers: 1. Insects 2. Bones 3. Exoskeleton 4. Teeth 5. Eight 6. Spiders 7. Silk 8. Hairs 9. Feet 10. Climb

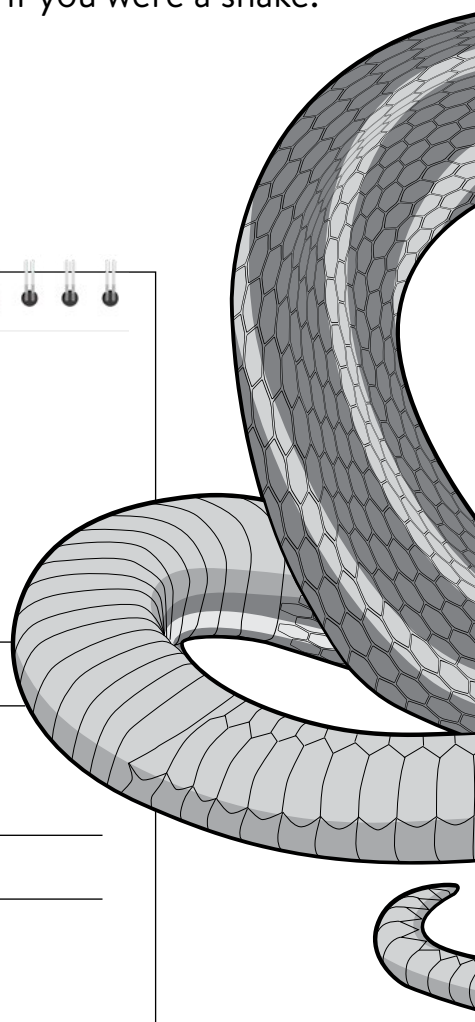
Shade in the spider when you have completed all activities.



You think you see something moving on the trail ahead.
Turn to page 10 to find out what it is.

Scales and Tales

Your eyes catch a flash of movement along the path. Peering down, you watch a small snake slither under a log. You wonder what the world would be like if you were a snake. Would people react differently to you?



Find out! Choose two people to interview.

They could be family or friends. You could even interview yourself.
Ask each person the interview questions and then write down their answers.

What is the first word that comes to mind when you think of a snake?

Person 1: _____

Person 2: _____

Have you ever seen a live snake in real life? Where?

Person 1: _____

Person 2: _____

What do you think is cool about snakes?

Person 1: _____

Person 2: _____

Is there anything about snakes you think is scary?

Person 1: _____

Person 2: _____

What is something you'd like to learn about snakes?

Person 1: _____

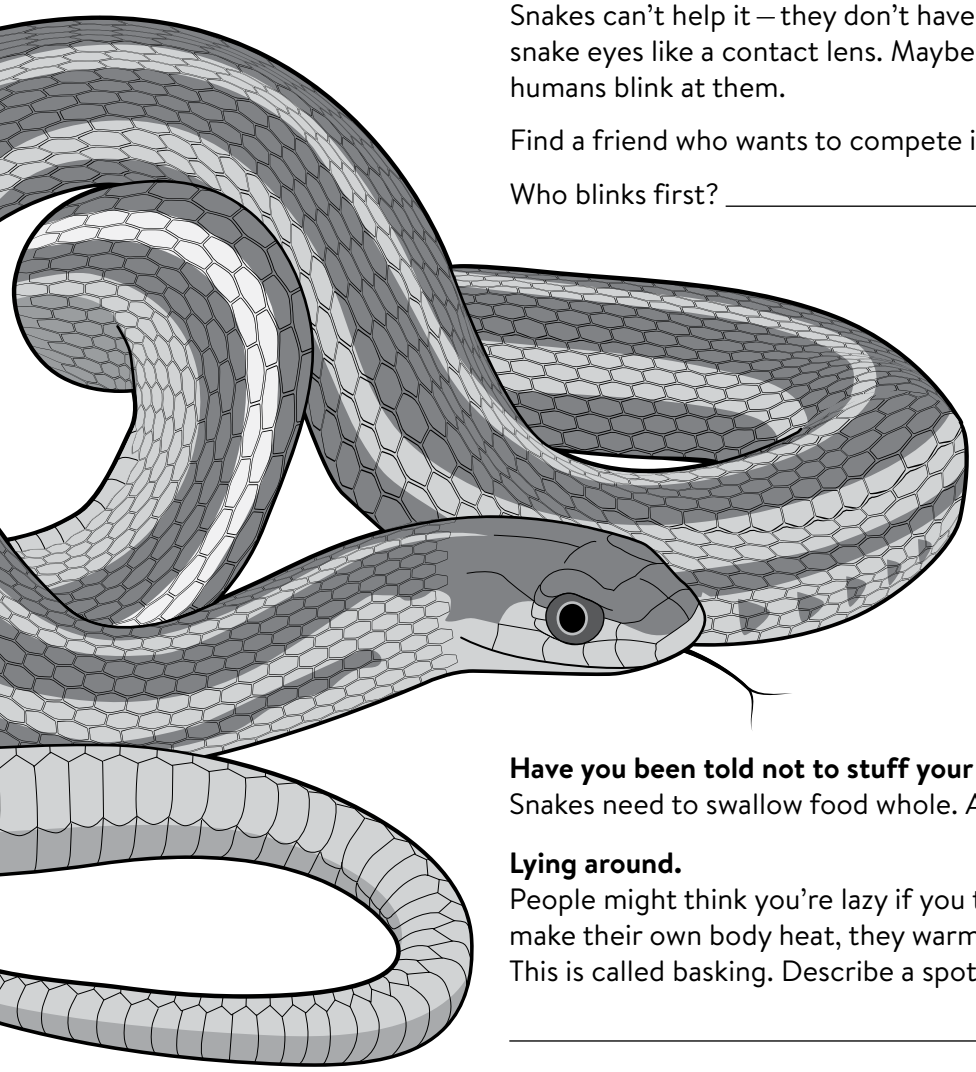
Person 2: _____

What do you think makes some people afraid of snakes? _____

_____

People can be afraid of things we don't know much about. Many don't realize how helpful snakes are. Rodents like mice and rats can be a problem for humans – getting into our homes, eating our food, and spreading diseases. Snakes eat lots of rodents, which means fewer problems. Snakes are important for other reasons too: they are food for hawks, owls, raccoons and foxes.

Snakes look and move differently than you. What could you do as a snake that might be rude as a human?



Staring.
Snakes can't help it — they don't have eyelids! A clear scale covers snake eyes like a contact lens. Maybe snakes think it is rude when humans blink at them.

Find a friend who wants to compete in a staring contest.

Who blinks first? _____

Sticking out their tongues!
A snake catches smells on its forked tongue. The special shape helps them figure out the smell's direction. An organ in their mouth decodes what the smell is from.

Stick out your tongue!
What nearby smells would you find if you were a snake?

_____

_____

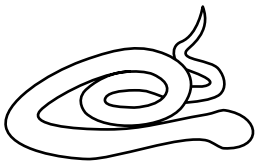
Have you been told not to stuff your mouth too full?
Snakes need to swallow food whole. A snake's jaw bones let them open extra wide.

Lying around.
People might think you're lazy if you take lots of naps in the sun. Since snakes can't make their own body heat, they warm up in sunny spots to recharge their energy. This is called basking. Describe a spot where you could bask nearby.

_____

_____

Sliding in the dirt.
Some people avoid getting dirty. Without legs, sliding on the ground is a snake's only option! They pull themselves along, gripping with their belly scales and winding their body back and forth. Their shiny scales are dry, not slimy.



Shade in the snake when you have completed all activities.

The snake stays hidden and you continue on. Which way will you go?

Head to a river dock to investigate movement in the water by turning to page 12.

Or, follow the trail toward a lake to find out what lives there by turning to page 14.

Aquatic Insect Match-up

Stepping onto the dock, you notice movement in the water. Small creatures skate on the surface and wriggle below. You've never noticed them before.

Young insects can look very different from the adults they become. They can even live in different places. The insects below are aquatic (live underwater) when young. Eventually, their bodies transform into winged adults that live on land.

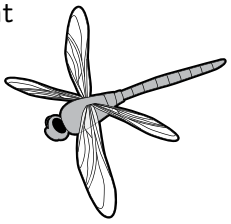
Use the hint by each winged adult to find and label its underwater young. Circle the one you were most surprised by.

Caddisfly
My young are masters of camouflage. Some use silk and tiny rocks to make a protective tube to hide in. Their hook-shaped legs cling to rocks.

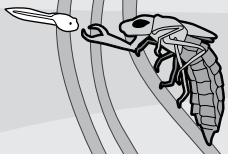
Dobsonfly
My young eat other aquatic insects. Their sides are covered in gills that look a lot like legs.

Mayfly
My young are sensitive to pollution, so finding one is a sign of a healthy stream. They have two or three long tails.

Dragonfly
My young are hunters. Each has a special lower jaw that shoots out to grab insects or tadpoles swimming past.

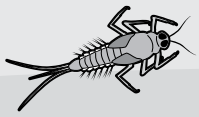


UNDERWATER YOUNG



1. Who am I?

_____



3. Who am I?

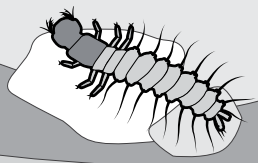
_____

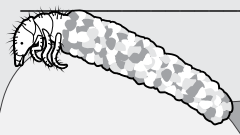
4. Who am I?

_____

2. Who am I?

_____





FUN FACTS

Most adult **mayflies** only live a few days and do not eat.

Colors and patterns on the wings of adult **caddisflies** help camouflage them.

An adult **dragonfly's** huge eyes help it find and hunt other insects.

Adult **dobsonflies** are one of Minnesota's biggest insects. They can be up to 4 inches long.

Use what you know to create your own insect, one that lives on land as an adult and underwater when young.

What is its name? _____

Draw a picture of your insect as an adult.

Draw a picture of what its aquatic young looks like.

Shade me in when you finish all the aquatic insect activities.

Page 12 answers: 1. Dragonfly 2. Dobsonfly 3. Mayfly 4. Caddisfly

The insects move away, and you are ready to keep exploring. Which way will you go?

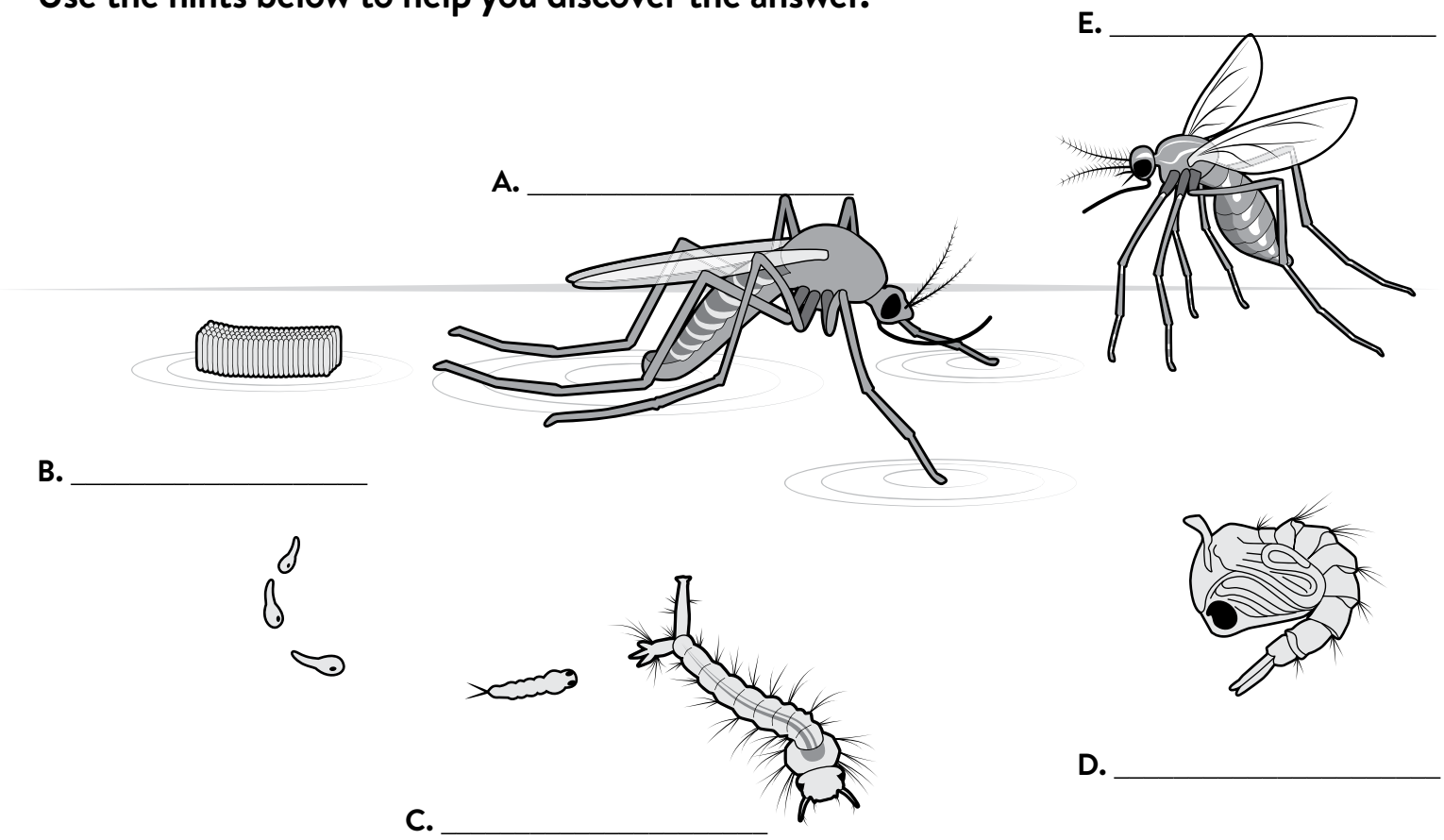
Attend a state park naturalist program in person. Ask your adult to check program options at **mndnr.gov/ptcalendar**. Turn to page 16.

Or, be a naturalist on your own by watching an animal at the park. Go to page 17.

Mosquito Mix-up

You walk through a thick forest on your way to the lake. In the shade of the trees, you stop to sip from your water bottle. As you do, you hear the whine of insects coming closer. You swat at a mosquito and wonder where it came from.

Fill in the name for each stage of a mosquito's life.
Use the hints below to help you discover the answer.



HINTS

Pupa
A pupa looks like a shrimp wearing a hockey helmet. It doesn't eat as it is busy turning into an adult mosquito.

Adult male
After a few days, the adult mosquito wriggles out of its old pupa skin and flies away to look for food. If it is a male, it eats plant nectar and not blood. Look for feathery antennae to find the male mosquito.

Adult female
A female mosquito feeds on blood. This gives her the nutrition she needs to lay eggs at the water's surface.

Eggs
A mosquito can lay over a hundred tiny, floating eggs. Each is smaller than the tip of a needle. Sometimes they stick together in a raft shape. They'll hatch in just a couple days!

Larva
A wriggly larva hatches from each egg. It has bristles along its body and a special breathing tube on its rear end. It tends to float upside-down so this tube can stick out of the water like a snorkel. It eats bits of algae and dead plants in the water.

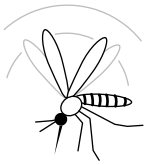
While we don't like itchy mosquito bites, mosquitoes do feed many creatures.

Circle these mosquito-eating animals in the word search (across, down, or diagonal).

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

Bats
Bass
Bluebirds
Bluegill
Dragonflies
Frogs
Hummingbirds
Spiders

Mosquitoes like some areas more than others. Test it out. As you explore the park, write the number of mosquitoes you find in these places.



_____ Sunny spot

_____ Shady spot

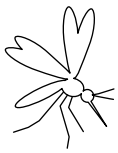
_____ Near water

_____ In the woods

_____ Where there was wind

_____ Where there was no wind

Minnesota has over 50 mosquito species! Watch for adults of different sizes and colors near ponds and puddles where they lay their eggs.



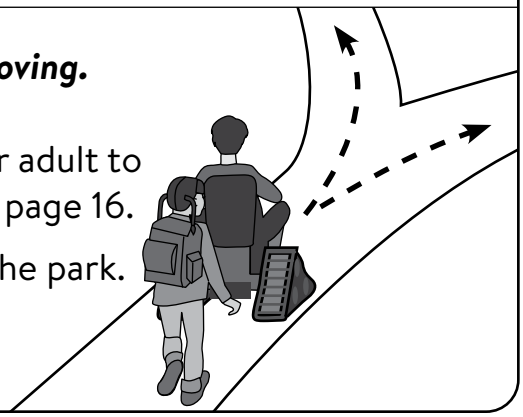
Shade in the mosquito when you complete all the activities.

Page 14 answers: A. Adult female B. Eggs C. Larva D. Pupa E. Adult male

You don't want to be a mosquito's next meal, so you keep moving. Which way will you go?

Attend a state park naturalist program in person. Ask your adult to check program options at **mndnr.gov/ptcalendar**. Turn to page 16.

Or, be a naturalist on your own by watching an animal at the park. Go to page 17.



Attend a Naturalist Program

The plants and animals that call state parks home are incredible. Some are familiar, some are mysterious, and some are misunderstood. Learn about them by going to a park program. Find one at **mndnr.gov/ptcalendar**.

After you attend, design a poster for that program.

Include these parts:

- ☐ The program name.
- ☐ Drawings or descriptions of what the program was about.
- ☐ A note about your favorite part of the program, how it made you feel, or a fun fact you learned.

Shade me in when you finish your poster.

You are ready for your last stop!

You return to a campsite along a lake. The sun starts to set and something swoops over the water. Turn to page 18 to find out what it is.

Be a Naturalist

A naturalist is someone who learns about the natural world by watching and paying attention. They notice new things about familiar animals and misunderstood ones. They give these wildlife space so they feel comfortable.

Try it! Quietly watch wildlife from your campsite or along a trail.

Maybe you'll spot a bird, a squirrel, a beetle or a butterfly. Pay close attention to what the animal is doing and answer the questions below.

Describe where you are: _____

What animal did you observe? _____

Use words to describe what the animal was doing, or draw a picture of it.

Is the animal like you in any way? How? _____

Does it have any special skills you wish you had? _____

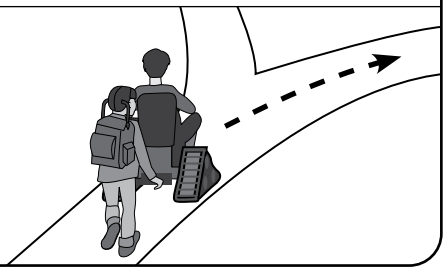
What is a question you have about the animal and what it was doing? _____

_____

Shade me in when you finish your observations.

You are ready for your last stop!

You return to a campsite along a lake. The sun starts to set and something swoops over the water. Turn to page 18 to find out what it is.



Nocturnal Hunter

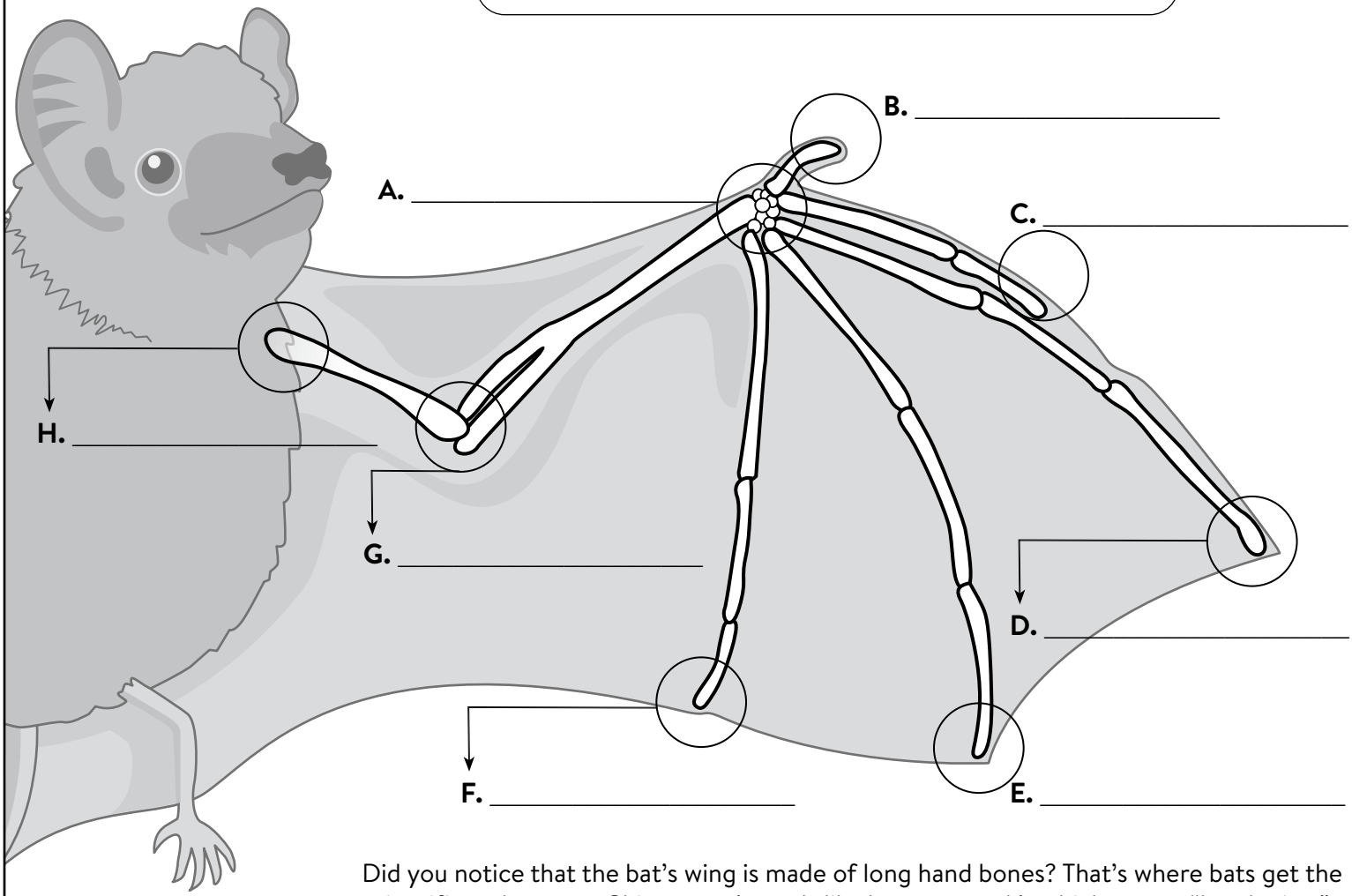
It's getting dark. A movement above the lake catches your eye. Swoop! A little bat is hunting insects in the distance. It seems very busy. As it flaps its wings, you wonder how different you and the bat are.

Test it out! Stretch out your left arm and compare it to the bat wing below. Can you find the same parts on each?

Use the word bank to label each part of the bat's wing.

Word Bank

thumb	shoulder	elbow	wrist
pinky finger	ring finger	index finger	middle finger



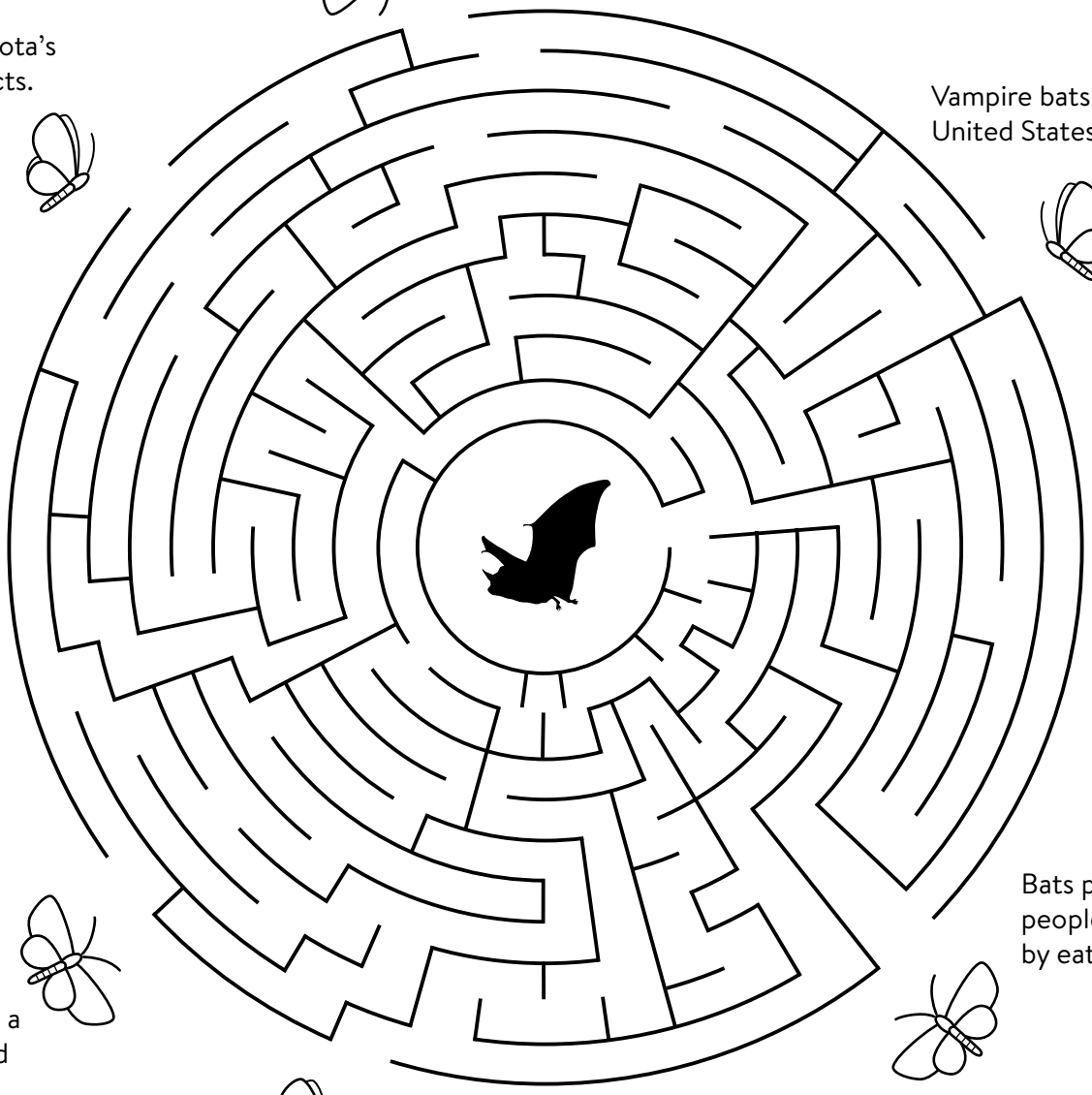
Did you notice that the bat's wing is made of long hand bones? That's where bats get the scientific order name Chiroptera (sounds like ky-rop-ter-uh), which means "hand-wing."

The bat above is the actual size of a hoary bat, the largest of Minnesota's bat species. The other seven are even smaller!

Answers: A. Wrist B. Thumb C. Index finger D. Middle finger E. Ring finger F. Pinky finger G. Elbow H. Shoulder

Can you sort bat fact from fiction in the maze below?

Try to get each moth to the bat inside the maze. A moth next to a **true** sentence will reach the bat. A moth by a **false** sentence won't. Find out which is which and shade in every moth by a true sentence.



Bats can't see.

All of Minnesota's bats eat insects.

Vampire bats live in the United States.

Bats protect people and crops by eating insects.

You should never pick up a bat, since wild animals can carry diseases.

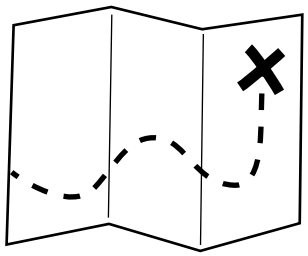
Bats like to land in people's hair.

Answers: True sentences are "All of Minnesota's bats eat insects," "Bats protect people and crops by eating insects," and "You should never pick up a bat since wild animals can carry diseases."

Congratulations! You have reached the TRAIL'S END.

Think about all the strange and fascinating animals you've discovered along the way. Keep your sense of curiosity powered on. Nature is full of amazing stories if you stop to look, listen and wonder.

Go to page 3, step 3 to find out how to claim your Junior Ranger patch.



Junior Ranger Certificate

This certifies that

_____

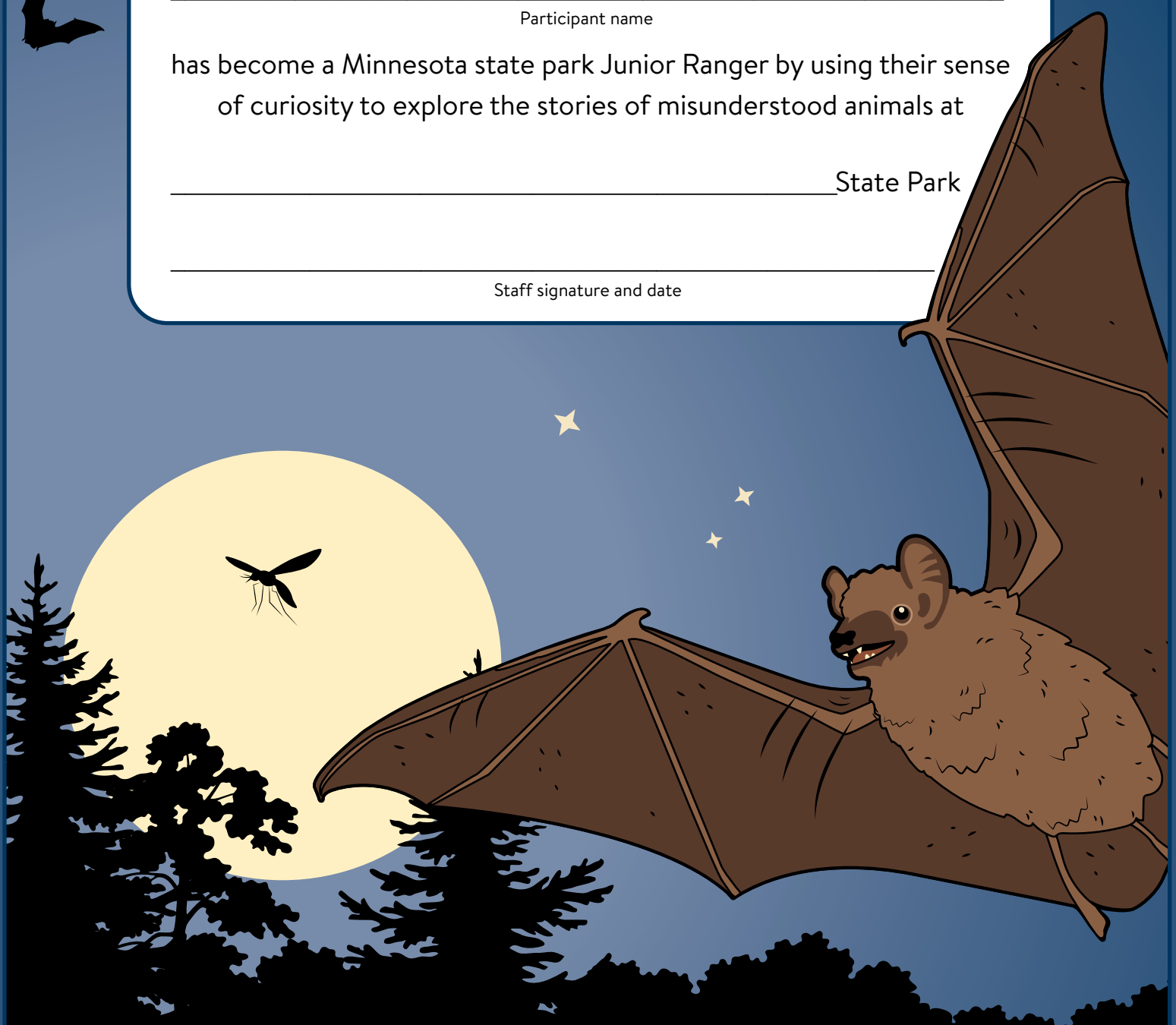
Participant name

has become a Minnesota state park Junior Ranger by using their sense of curiosity to explore the stories of misunderstood animals at

_____State Park

_____

Staff signature and date



DEPARTMENT OF NATURAL RESOURCES

CLEAN WATER LAND & LEGACY AMENDMENT