



WHAT IS A NATURE HERO?

Being a Nature Hero means that you enjoy but also help to protect and look after the environment around you – it means you are a good steward. A great way to help take care of nature is by learning as much as you can about it and working every day to make sure you are doing what is best for the planet. As you work through the various Nature Heroes activities, you will learn how your actions will help protect Alberta's special animals and plants.

HOW DOES NATURE HEROES WORK?

Nature Heroes encourages you to observe, investigate, and experience nature, on your own time and at your own pace, and then rewards you for the nature activities you participate in. Look through all of the activities and pick one to start with. You can do the activities in any order you want. Some activities include answers that can be checked on the Answer Key on page 19. Keep track of your activity completion on the Tracking Sheet provided. Once you have finished all the activities in the Nature Heroes booklet, send your tracking sheet to Nature Alberta at

naturekids@naturealberta.ca... you will then have become an official Nature Hero, just like Stuart the Swift Fox, and will be awarded your Nature Heroes certificate!

NATURE ALBERTA'S NATURE KIDS PROGRAM

Nature Alberta's Nature Kids program encourages families to observe, explore, and investigate nature to create a positive, lasting connection. While it's primarily geared towards children ages 4-12, anyone with a sense of curiosity and wonder can learn something about nature in Alberta. You can explore even more nature-related resources and events on our website at naturealberta.ca/nature-kids.

You can contact us at:



Phone: 780-427-8124
Email: naturekids@naturealberta.ca
Mail: 3rd Floor, Percy Page Centre
11759 Groat Road

Edmonton, Alberta T5M 3K6

This project is financially supported by:





TD Friends of the Environment Foundation



I'm Stuart the Swift Fox.



I am the Nature Kids mascot, and I want to welcome you to Nature Heroes! My friends Oakley the Owl, Shameena the Snake, Buzz the Bee, and I are here to help guide you through the Nature Heroes activities. We will be cheering you on as you work towards becoming a Nature Hero — a steward of nature just like us — and receive your official Nature Heroes certificate.

WHO AM I?

Swift foxes are smaller and lighter coloured than their more common cousin, the red fox — with whom they do not get along. A swift fox is about the size of a house cat. The word "swift" means to move with great speed. As the name suggests, swift foxes are fast! Individual swift foxes have been clocked at more than 60 km per hour. That is faster than the speed of cars driving past your house! The swift foxes' small size makes it seem that they are going even *faster*. This trickery can help swift foxes escape from a bully coyote.



WHAT DO I EAT AND WHAT EATS ME?

Being super-fast helps swift foxes catch their food. They often hunt by sneaking up on mice, grasshoppers, frogs, and small birds, but they can also use their speed to catch a jackrabbit on the run. Their speed also helps them quickly take cover in a den when an eagle or hawk soars overhead, to keep from becoming their breakfast.

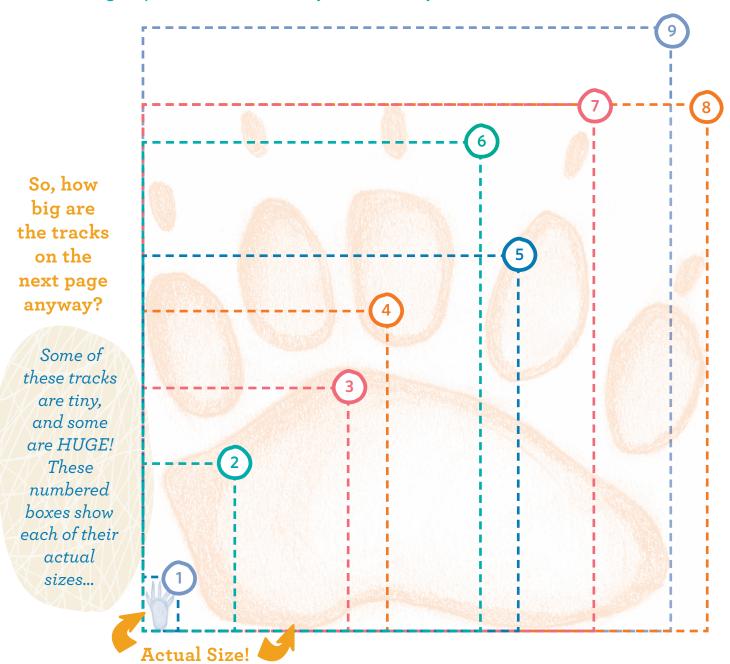
WHERE AM I?

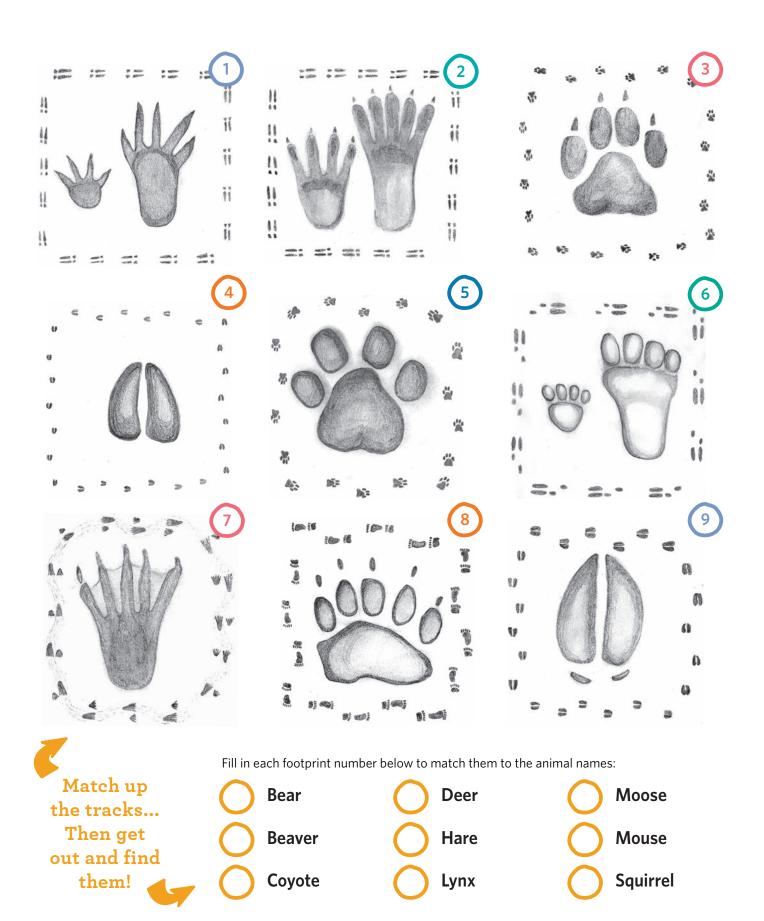
Swift foxes were once common in the Canadian Prairies. Unfortunately, swift fox numbers declined when their grassland habitat was changed and used for farmland. Swift foxes were extirpated (meaning they completely disappeared) from Canada in the 1930s. Thankfully, people cared. To help save them, fox pups were raised in zoos. Once the zoo pups were old enough to run super-fast and catch their own mice and grasshoppers, they were released into the wild. This reintroduction program was successful. Yay! You can once again find swift foxes in the Canadian Prairies, including southern Alberta. Swift foxes are now listed as Threatened under the Species at Risk Act. This means they are likely to become endangered if nothing is done to reverse the factors leading to their extirpation. Lots of work still needs to be done to protect the swift foxes' grassland home to make sure they never disappear again.

Mammals

Mix and Match Tracks

Although Alberta has lots of animals, some are very hard to see. You can learn lots of information by being a nature detective, looking for and examining wildlife tracks (footprints). Match up the track sketches with the animal names (answers on page 19) and then go explore outside and see if you can find any of these tracks!





Mammals

On the Right Track

Sometimes it can be hard to find wildlife tracks in your neighbourhood or community. You can make your own tracks with this fun craft and activity!

YOU WILL NEED:

- An old pair of flip-flop sandals
- Coloured craft foam
- Scissors
- Marker

- Hot glue gun and glue stick (you will need an adult to assist you with this)
- Mix and Match Tracks Activity page

INSTRUCTIONS:

- Take a look at the Mix and Match Tracks activity
 on the previous page of the Nature Heroes book
 and pick a set of tracks that you want to create.
 Note: The mammals we've included have four
 feet, but because you only have two, you will only
 create two tracks instead of four. (Unless you have
 another pair of flip-flops you can use that you want
 to wear on your hands to make all four tracks!)
- 2. Copying your chosen animal tracks, draw out two animal footprints on your foam with your marker.
- Using your scissors, cut along the outline of your tracks.
- 4. Using a hot glue gun and glue stick, attach one foam track to the bottom of each of your flip-flops. Let the glue cool.
- 5. Put your new flip flop tracks on your feet and take them for a walk in a damp area. Have fun making animal tracks wherever you go! Try walking and then running. Try going in a different direction. Circle back and look at all of your tracks!

Can you tell which direction you were going by looking at your tracks?





Mammals

Bat Echolocation

In Alberta, we have 9 species of bat. Bats are nocturnal, meaning they are active at night. They can see with their eyes but not very well in the dark. Bats have a special adaptation called echolocation to help them navigate at night. Bats emit sound waves that bounce (or echo) back when the sound wave hits an object. This helps the bat make a sound map to find bugs to eat and a safe path to fly. For this activity, partner up with a friend, sibling, or adult to understand how a bat's echolocation works.

YOU WILL NEED:

- Foil pie plate
- Tape

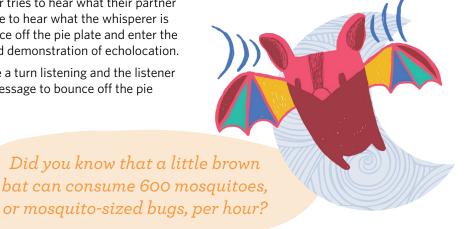
Two cardboard paper towel rolls

INSTRUCTIONS:

- 1. Find a flat surface in the room such as a table that is close to the wall.
- 2. Tape the pie plate to the wall, low enough to catch sound waves at the table's surface.
- 3. Tape the two cardboard paper towel rolls to the flat surface (table) so that they are facing the pie plate but are pointing as far away from each other as possible. The paper towel rolls should be taped at the edge of the table so you and your partner can put either your mouth or ear directly against the roll.



- 4. Decide who will listen (put your ear up to your roll) and who will whisper (put your mouth up to your roll) to start.
- 5. Have the whisperer quietly whisper three words that rhyme with "bat" into their roll while the listener tries to hear what their partner is saying. The listener should be able to hear what the whisperer is saying because the sound will bounce off the pie plate and enter the other paper towel roll. This is a good demonstration of echolocation.
- 6. Switch! Now the whisperer can take a turn listening and the listener can come up with a special batty message to bounce off the pie plate.



Hi!

I'm Oakley the Owl.

I am here to help guide you through the bird-related Nature Heroes activities. First, read this page to learn all about me and then complete the fun and interesting bird activities.

WHO AM I?

Owls are mostly nocturnal birds of prey with large eyes, a hooked beak, and sharp talons. An owl's large eyes help them see at night, but they cannot move their eyes around in their sockets like humans can. Instead, owls move their whole head to look in a different direction. Owls can turn their heads 270 degrees, which is almost all the way around! The feathers on their faces are arranged in a circle called a facial disc to help direct sound waves to the owls' ears. There are 11 owl species in Alberta, including our provincial bird, the great horned owl.



WHAT DO I EAT AND WHAT EATS ME?

Owls are incredible hunters that use their talons to catch their prey, which includes bugs, frogs, snakes, mice, jackrabbits, and even other owls! Owls swallow some prey whole, allowing their stomach to absorb all of the nutrients possible. However, the owl cannot digest the fur, bones, teeth, and claws. These indigestible parts of the prey are formed into a pellet in the owl's digestive system and regurgitated (puked up) later! Scientists examine these pellets to learn more about what owls eat.

WHERE AM I?

Different owl species are adapted to live in all sorts of habitats. Great horned owls are found just about anywhere in Alberta, from forests to grasslands and even city parks! Tiny northern saw-whet owls live in forests and nest in abandoned woodpecker holes inside of a tree. There is even an owl that lives in the prairies and nests in burrows left by ground squirrels or badgers. This owl is called a burrowing owl. It also eats bugs, just like Stuart the Swift Fox does in the prairies! You can help protect owls by never poisoning mice in your house (trap them instead). When mice eat poison and then get caught by an owl, the owl gets poisoned too.

Birds

Bird Protecting Window Decal



Have you ever looked at a window from the outside and seen the trees and sky reflected in it? Birds see it too! Except, they don't understand it is a reflection. They will fly towards the reflected trees and smack right into the window. Ouch! In Canada, millions of birds are seriously injured each year by flying into windows. You can help birds avoid hitting your windows by breaking up the reflection — cover your windows with ribbons, decals, or crafts like this one!

YOU WILL NEED:

- Cardstock paper
- Scissors
- Pen/Marker
- Tissue paper, feathers, sequins, or anything else you want to use for decorating

 Clear, self-adhesive plastic (like contact paper, Mac Tac, or clear shelf liner)

INSTRUCTIONS:

- Draw the outline of your favourite bird on a piece of cardstock paper. Make sure the shape takes up at least half of the page. Trace along the inside of your shape so there is approximately a 1-inch border of the entire shape.
- 2. Cut along the outside line and inside lines of your bird, so there is an open area in the middle.
- 3. Cut out 2 pieces of contact paper big enough to cover your entire shape plus at least an additional 1-inch border. Peel the backing off of one piece and place it down, sticky side up. Lay your bird outline in the middle.



- 4. Next: decorate! Tear up little pieces of tissue paper and stick them in the middle of your bird outline. You can also use feathers, sequins, or anything else you want! Try to keep your decorations inside the cardstock paper border.
- 5. Now seal your bird protector. Peel off the backing on your second piece of contact paper and carefully place it overtop of your decorated craft. Smooth out any air bubbles by sliding your hands over the entire craft.
- 6. Cut off the excess contact paper, but leave a little bit of an edge around your bird outline so it stays sealed.
- 7. Hang your beautiful bird protector in your window to help keep birds safe!

Birds

Observe and Record

Plan to go for a walk in your neighbourhood, nearby park, or favourite natural area. Before you go, download and/or print off your free Birds Canada Identification Guide for your trek! Visit <u>naturecounts.ca/apps/checklist/index.jsp</u> and follow the instructions to generate a photo identification guide for common birds in the region at the appropriate time of year.

PART 1: **BIRDING TALLY**

While on your walk, tally all of the birds you see, using Nature Calgary's Bird Counting Checklist. If you see a bird pooping from a tree branch, mark a single tally in the "Upper Canopy" row, under "Something Else". If you see a duck diving under the water, mark a single tally in the "Water" row under "Eating" (since ducks who dive or bob under the water are doing this to eat).

WHAT WERE THEY DOING?

		WHAT WERE THE FORMS.		
		Eating	Singing	Something Else
WHERE DID YOU SEE THEM?	In the Sky			
	Up High in a Tree (in the Upper Canopy)			
	On Lower Plants like Shrubs or Cattails (in the Lower Canopy)			
	On the Ground			
	In the Water			

When watching birds, please follow good birding ethics, including:

PART 2: BIRDING SCAVENGER HUNT

Keep your eyes open during your birding walk. See how many boxes you can cross off from **Nature Calgary**'s Bird Scavenger Hunt!

- Give birds space by looking from a distance and standing still when they are close by.
- Do not interrupt what the birds are doing and do not interfere with a nesting bird.
- If you want to view from a yard that is not yours, get permission from the owner before entering.





I'm Shameena the Snake.

I am here to help slither you through the reptile and amphibian-related Nature Heroes activities. First, read this page to learn all about me and then complete the fun and interesting reptiles and amphibians activities.

WHO AM I?

Reptiles and amphibians are cold-blooded, meaning they obtain their body heat from their environment. Amphibians, such as frogs and salamanders, have thin, smooth skin with a moist mucous layer and spend at least part of their life cycle in water (for example, as a tadpole). Reptiles, such as lizards and snakes, have scales with dry skin and do not spend part of their lives in water. Snakes have long scaly bodies with striped and blotchy patterns to help camouflage. They shed their skin as they grow bigger. In Alberta, we have 7 species of snakes: 3 types of garter snakes (red-sided, wandering, and plains), plains hog-nosed snake, bullsnake, eastern yellow-bellied racer, and the venomous prairie rattlesnake.

WHAT DO I EAT AND WHAT EATS ME?

Snakes are predators that hunt living prey. They eat mice, birds, birds' eggs, frogs, toads, other snakes, fish, insects, slugs, worms and other small creatures. The prey they catch is often bigger than their heads, and they do not have arms or legs with claws to help tear their food into bite-sized chunks. So, with the help of their special mouths with hinged jaws, they swallow their food whole. Other animals, including bobcats, weasles, skunks, crows, hawks, and owls eat snakes. So, Shameena needs to watch out for Oakley the Owl!

WHERE AM I?

Many of Alberta's resident snakes live in the southern part of the province, but in the northern part of the province you may still get to see species such as the red-sided garter snake. In the summer, snakes are continually on the move, and in the winter they hibernate in dens called hibernacula. Hibernacula are typically located along river valleys, coulees, and transition zones between water and upland habitats. We can help snakes by slowing down and watching out for and avoiding snakes on roads — especially where you see "snake crossing" signs on Alberta roadways.



Amphibians and Reptiles Slithering and Hopping

Snakes slither on their bellies. The small rounded scales they have on their back and large wide scales across their stomach help them slither quickly and efficiently across the ground. Frogs can hop a long distance in a single jump using their hind legs to thrust, launching forward. They do this by stretching the tendons in their legs, which snap back in place in a spring-loaded motion.

PART 1: SLITHER LIKE A SNAKE, HOP LIKE A FROG

YOU WILL NEED:

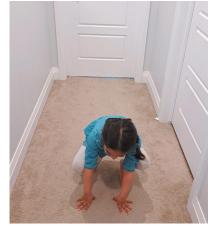
- Clothes that are okay to dirty (as this activity might make your clothes dirty)
- Pylons or similar obstacles that can be found around the house

INSTRUCTIONS:

- 1. Find a flat floor surface or flat stretch of ground outside, if the weather permits.
- 2. Make sure the clothes you are wearing are not new clothes. Your clothes may get dirty as you squirm on the floor or ground.
- 3. Squirm like a snake. Stretch out on your tummy on the floor with your arms out in front. Then squirm and wiggle like a snake. Hiss like a snake as you slither "Sssssss." See how far you can slither.
- 4. Next, hop like a frog. Place your feet on the floor, in a deep squat position with both your hands touching the floor. Then, push your legs from the ground and leap into the air, jumping as far as you can. Use your arms as leverage on the leap. And don't forget to say "Ribbit!" like a frog when you make the jump. See how far you can hop along.
- 5. Next, you can level up the activity by placing obstacle items along your path. Try to squirm and wiggle like a snake and hop like a frog around the obstacles that you placed on the floor or ground, without touching or bumping into them.







PART 2: PREDATOR SNAKE VS. FROG PREY GAME

Snakes are predators who eat frogs. Frogs can quickly escape their predators by using their powerful hind legs for jumping. Sometimes snakes will hide and wait to ambush their prey while other times they are quick, active hunters! You will need at least 3 people to complete this activity. This game is just like tag, with a few fun rules to learn more about reptiles and amphibians.

YOU WILL NEED:

- Clothes that are okay to dirty (as this activity might make your clothes dirty)
- Chairs or floor mats to use as your safe spot (lily pad)

INSTRUCTIONS:

- Identify a safe spot (chairs or floor mats) inside or outside, if the weather permits, to be the lily pad for the frogs. Pick boundaries to make a small area for your game.
- 2. Make sure the clothes you are wearing are not new clothes. Your clothes may get dirty as you do this activity on the floor or ground.
- 3. Decide among your group of friends who will start as the snake and who will be the frogs. The snake will slither on their belly and try to eat (tag) the frogs, who will be hopping like frogs.
- 4. Ready, set, go! Frogs can jump onto the lily pad (safe spot) but only remain there for 5 seconds at a time. Frogs must count their 5-second safety out loud "1, 2, 3, 4, 5" and then must hop off the lily pad for at least 5 hops before being allowed to return to the safe lily pad.
- 5. Once a frog is tagged (pretend eaten) by the snake, they will become part of the snake by holding on to the ankles of the person who is the snake. These friends will now squirm together on the floor as one snake. Each person in the snake train can reach out a hand (as long as one hand is still on the ankle of the person in front) to tag a frog.
- 6. The game will last until all the frogs have been eaten and there is one big slithering snake. Once that happens, you can start all over again with a new person starting as the snake!

Is it easier for you to slither like a snake or hop like a frog? Why?





Amphibians and Reptiles Nature Sketch

Sketch your favourite reptile or amphibian, its habitat, and food. Visit the Alberta Amphibian and Reptile Conservancy website at <u>savingalbertasherps.org/species</u> for inspiration. Find out where it lives and what it eats to add to your nature sketch.

Where does your chosen animal find food in its habitat?



I'm Buzz the Bee.

My name is Buzz and I'm a bee. I am here to help guide you through the bug-related Nature Heroes activities. First, read this page to learn all about me and then complete the fun and interesting bug activities.

WHO AM I?

Bees are insects. Insects have six legs and three body parts: head, abdomen, and thorax. Bees fly with their two pairs of wings. Bees are closely related to ants, wasps, and sawflies. There are about 320 different types of bees native to Alberta. When you think of a bee, you are probably envisioning a bumble bee with yellow and black stripes. But not all bees are black and yellow. Some bees are all black. Other bees are metallic green. And some are even red and blue! Some species are super small, measuring only 3 mm, while other bees are bigger, measuring 2.5 cm.

WHAT DO I EAT AND WHAT EATS ME?

Bees eat pollen and nectar from flowers. Female bees are responsible for collecting pollen and bringing it back to their nest or hive. Bees don't have backpacks so most females have special hairs on their legs that form a scopa to help trap and carry pollen. Many bees can also use their long tongue to drink nectar from flowers. Bees with longer tongues can drink from longer tube flowers. Bees beware! Crab spiders camouflage inside flowers waiting to eat bees.

WHERE AM I?

Bees are found all across Alberta. Many will emerge in the spring at the same time their preferred flowers begin to bloom. Most bee species in Alberta don't live with other bees in a hive. Those that don't live in a hive are solitary bees, meaning they live alone. The female will dig a nest by herself to lay her eggs and leave a bit of pollen and nectar for the larvae to eat when they hatch. Most bees in Alberta nest in the ground in old mouse or beetle burrows. Some also nest in holes in dead trees called snags. You can help bees by planting native flowers in your yard to give them food. Or even set aside a bee corner in your yard to give them somewhere to live. This can include a stump, some exposed dirt, and wild plants.

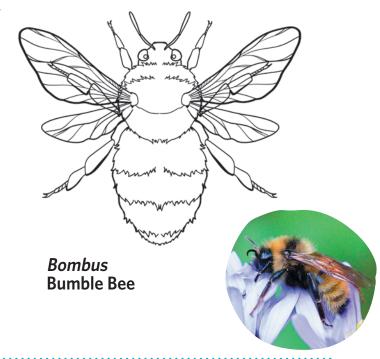
All insects have some features in common. Insects have three body parts called the head, the thorax, and the abdomen. They have six legs that are jointed, and antennae. And all insects have compound eyes, which means their eyes are made of hundreds of smaller eyes.

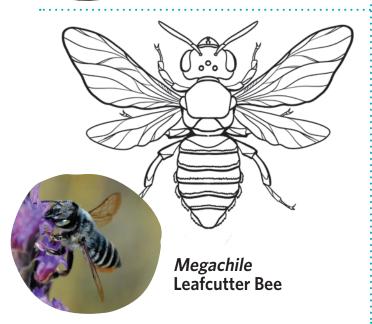


Bugs Bee ID

There are about 320 bee species native to Alberta! Examine the **Alberta Native Bee Council**'s drawings and photos of four common species, then colour them. Next, head outside to see if you can find any of the species you learned to identify!







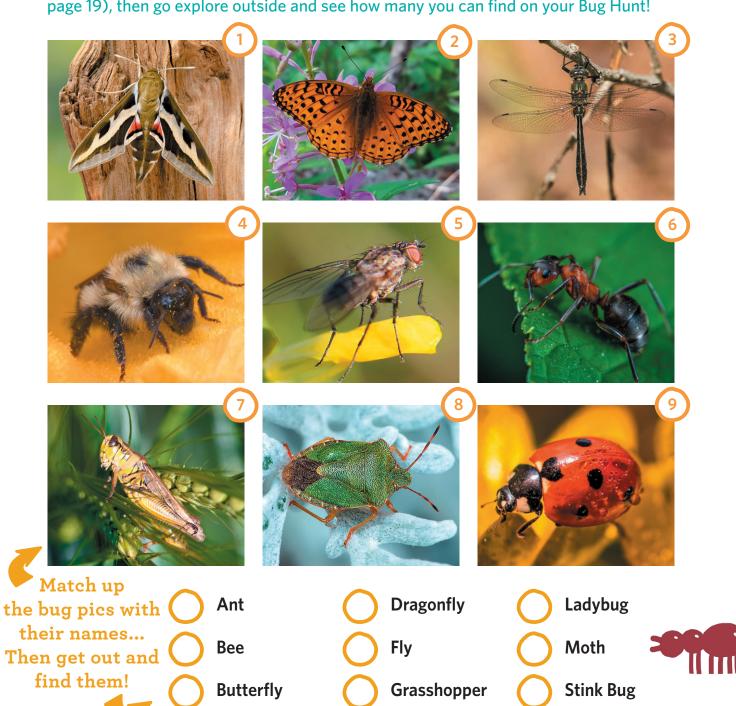


Bugs

Scavenger Hunt



Fill in the numbers from the photos beside the insect names below (answer key on page 19), then go explore outside and see how many you can find on your Bug Hunt!





Bugs

Host a Moth Ball

Some insects are more active at night, including most species of moths. This activity can be done almost anywhere there are trees that you can visit after dark *and* during the day.

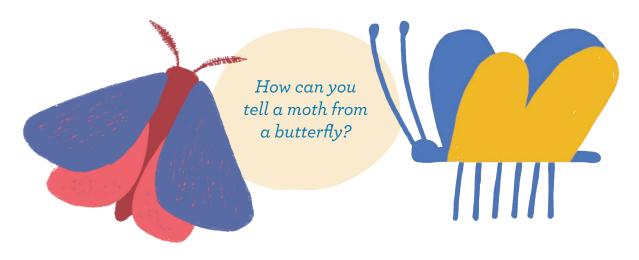
YOU WILL NEED:

- Sugar or molasses
- Real fruit juice
- Spoiled, mashed fruit
- A bowl and spoon
- A paintbrush
- A flashlight

INSTRUCTIONS:

- 1. Mix the sugar, juice, and fruit in the bowl.
- 2. Late in the day, paint the mixture on the trunk of one or two trees.
- 3. Return to the painted trees later when it's dark. Use your flashlight to see who has flown in.
- 4. Go out again in about half an hour and see who else has come by.
- 5. You can look at the tree trunks again in the daylight to see what other types of insects have come by to your moth ball.
- 6. Use your **Bug Scavenger Hunt** from the previous page to see if you can identify some of the insects that have been attracted to your "paint".
- 7. It is best to look at the insects and not to touch them. A moth's wings are made up of thousands of tiny scales that are easily damaged by our fingers.





Nature Bonus

Observe, Investigate, and Explore Nature

Investigating nature can be a fun treasure hunt when you use **Seek by iNaturalist** to learn about nature around you. The app can help identify your neat nature find. And you can learn about the species you just identified! Follow these easy steps to get started...

INSTRUCTIONS:

 Install the Seek by iNaturalist app on your device or visit inaturalist.org/pages/seek_app on your computer.

2. Head outside to explore nature and find a species of interest: plant, fungi, insect, bird, mammal, or any living thing!

3. Turn on the Seek Camera by clicking the green circle with the camera icon.

4. Point the camera at the species of interest and follow the instructions on the screen, including changing the angle of the camera to help it identify the species.

5. If the camera is able to identify your find, it will say "Species" at the top. You can now click the green camera icon button to take a photo and add it to your observations.

6. Click on "View Species" to learn about the new species you identified.

7. Identify 3 species on the Seek by iNaturalist app to level up to "Cub."



Did you learn to identify a new species while uploading observations to Seek?

How did you do?

Answers



ACTIVITY 1

(page 3):

MAMMALS
MIX AND MATCH

TRACKS

ACTIVITY 9
(page 16):
BUGS SCAVENGER
HUNT

ACTIVITY 10 (page 17):
BUGS HOST A MOTH BALL

- 8 Bear
- 7 Beaver
- 3 Coyote
- 4 Deer
- 6 Hare
- 5 Lynx
- 9 Moose
- 1 Mouse
- 2 Squirrel

6 Ant

- 4 Bee
- 2 Butterfly
- 3 Dragonfly
- 5 Fly
- 7 Grasshopper
- 9 Ladybug
- 1 Moth
- 8 Stink Bug

Q: How can you tell a moth from a butterfly?



A: An easy way to spot the difference is that in general, butterflies have clubbed antennae with a little ball at the end, and moths have feathery or threadlike antennae.

IMAGE CREDITS

Photos: Arianne Cope (page 4), Megan Evans (page 15), Kethu Mendis (page 11), Rick Schneider (pages 12, 16), Stephanie Weizenbach (pages 5, 16, 17, 18), Sydney Worthy (page 15)

Illustrations: William Weizenbach (page 3), Sydney Worthy (page 15)

Activity Tracking Sheet

Use this page to record and track all of the Nature Heroes activities you complete.

Once you have completed at least eight (8) activities (we encourage you to do all 11), email the completed form — and any fun photos or art you want to share — to the Nature Kids Coordinator at **naturekids@naturealberta.ca**. We will be pleased to send you your personalized Nature Hero certificate!

Participant's name:					
ACTIVITY 1: Mammals – Mix and Match Tracks					
ACTIVITY 2: Mammals – On the Right Track					
ACTIVITY 3: Mammals – Bat Echolocation					
ACTIVITY 4: Birds – Bird Protecting Window Decal					
ACTIVITY 5: Birds – Observe and Record (Parts 1 and 2)					
ACTIVITY 6: Amphibians and Reptiles – Slithering and Hopping (Parts 1 and 2)					
ACTIVITY 7: Amphibians and Reptiles – Nature Sketch					
ACTIVITY 8: Bugs – Bee ID					
ACTIVITY 9: Bugs – Scavenger Hunt					
ACTIVITY 10: Bugs – Host a Moth Ball					
ACTIVITY 11: Observe, Investigate, and Explore Nature					



Nature Notes	



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Nature Kids is a program of Nature Alberta,

A Community Connected by a Love of Nature

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