

CONTENTS

Getting Ready to Explore Nature	04
Staying Safe	05
What Is in My Backpack?	06
The Riparian Zone	08
Resilient Shorelands	09
Activity #1	10
Who Lives Here?	12
Activities #2-7	14
Meet the Northern Prairie Skink	22
Activities #8-20	23
Lake Winnipeg Watershed	39
How are People Impacting Nature?	40
Ways to Help Nature	41
Resources for Parents	42
Shoreline Lighting	43



ACKNOWLEDGEMENTS

Educational programs in the Winnipeg area take place on ancestral lands, on Treaty One Territory. Treaty One Territory is the Homeland of the Red River Métis and the ancestral lands of the Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene Peoples. This land is the homeland of many winged, four-legged, crawling, and water creatures.

This acknowledgement stems from a deep respect for the knowledge and rights of the First Peoples who have stewarded these lands and waters since time immemorial. The Manitoba chapter of the Canadian Parks and Wilderness Society (CPAWS) recognizes the harms caused by colonialism and the need to work toward social and environmental justice.

This workbook was created together by Watersheds Canada and CPAWS-Manitoba with the goal to educate students and families about the benefits of healthy waterways, lakes, and the surrounding environment for our collective future. This book is linked to the Manitoba curriculum for grades K-8. Additional photography is provided by Simon Lunn and Dr. Mary Ann Perron.

Watersheds Canada is a federally incorporated charity (863555223RR0001) committed to providing education and stewardship programs to communities and individuals across the country to enhance and protect the health of their lakes, rivers, and shorelines.

CPAWS is Canada's voice for wilderness. They have played a lead role in protecting over half a million square kilometres! Their mission is to protect at least half of Canada's lands and waters for future generations of people and wildlife. CPAWS-Manitoba has helped establish 22 parks and protected areas in the province, an area larger than Lake Winnipeg at nearly 26,000km²! CPAWS-Manitoba has been a champion of wilderness and parks in Manitoba since 1991, giving a voice to the wild about issues affecting local parks and wilderness areas.

This Nature Discovery Backpack program is made possible because of support from:





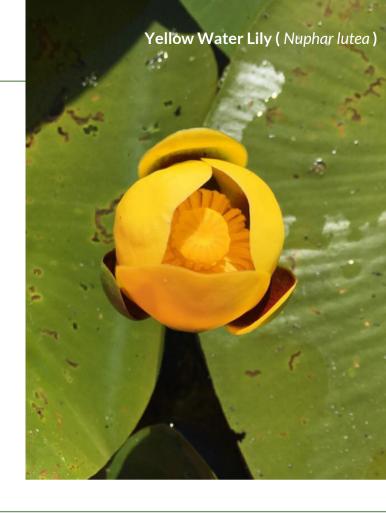


TD Friends of the Environment Foundation





GETTING READY TO EXPLORE NATURE



We are so excited for you to explore the Winnipeg area. You will learn about different local species and how to protect the health of our local rivers, lakes, and beyond!

You can keep this workbook! This workbook will give you tips to safely explore nature, as well as information about different animals and plants that are found in this region. You will learn about watersheds and understand the role of the riparian zone. The workbook will teach you what you can do to help nature, with fun activities along the way!

Please return to CPAWS-MB all field materials in the backpack.



STAYING SAFE



Here are some things to keep in mind when exploring outside:

- Bring a hat, snacks, reusable bottle with water, sunscreen, and bug spray. Make sure to bring back your garbage so that you can properly get rid of it at home. With the help of an adult, you can also pick up any garbage you find in nature and bring it home for disposal!
- Tell someone where you are going and when you will be back.
- Watch wildlife from a safe distance. Do not try to handle wild things!
- Please leave nature for everyone to enjoy. Do not pick any wildflowers, fungi, or plants.
- Be tick aware. Wear long sleeves and long pants if walking in a wooded area. Learn more about tick safety: https://www.gov.mb.ca/health/publichealth/cdc/tickborne/prevention.html

WHAT IS IN MY BACKPACK?

Water Rangers tiny test kit

- This water quality test kit is a perfect introduction to water testing!
- The kit includes:
 - a thermometer to measure water and air temperature
 - test strips to measure pH (how acidic or basic the water is)
 - guides to understand test results







Binoculars

- What do the numbers of binoculars mean? For example, if binoculars are 8x21mm, they will help you see things 8 times closer and each lens is 21mm wide.
- Turn the knob to make it clearer to see.
- Use a cleaning cloth if you need to clean the lenses (glass).



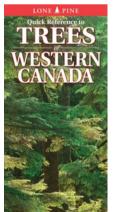
Observation Tools

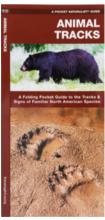
 Use the collection jar and magnifiers to closely look at insects and small aquatic invertebrates (fun fact: they have no backbone!).



Identification Guides

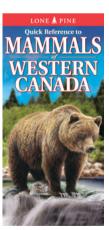
Use the identification guides and books to learn more about different types of local biodiversity, including species of trees, birds, and mammals (and even their poop!). Each type of guide shows photos and information about each species like their size and where they live (their habitat).







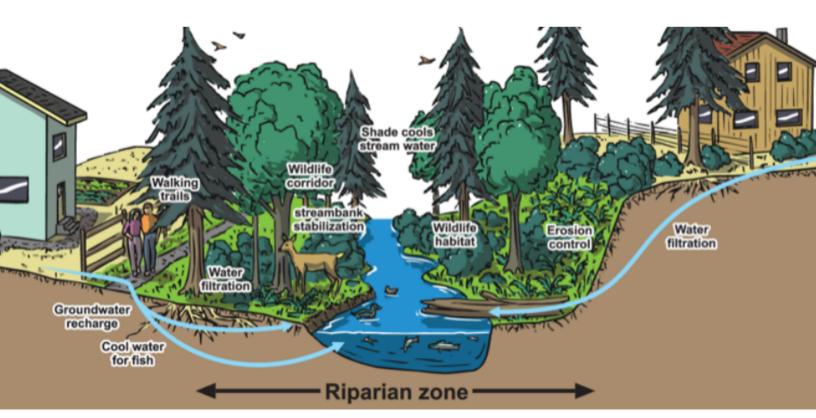




Looking for even more fun tools to explore nature with? Attend an upcoming CPAWS-MB education event to learn about constellations, insects, mushrooms, lichen, wildflowers, or aquatic life.

THE RIPARIAN ZONE

- Shoreline ecosystems, or riparian zones, are very important and are valuable habitat for land-based and water-based wildlife.
- The shoreline area includes the first 30 metres of land around a lake or river. It is considered the "ribbon of life" because it supports 70% of land-based wildlife and 90% of aquatic species at some point in their lifetime.
- Native wildlife species like birds, mammals, insects, fish, reptiles, and amphibians depend on shoreline habitat for food, water, shelter, and breeding.



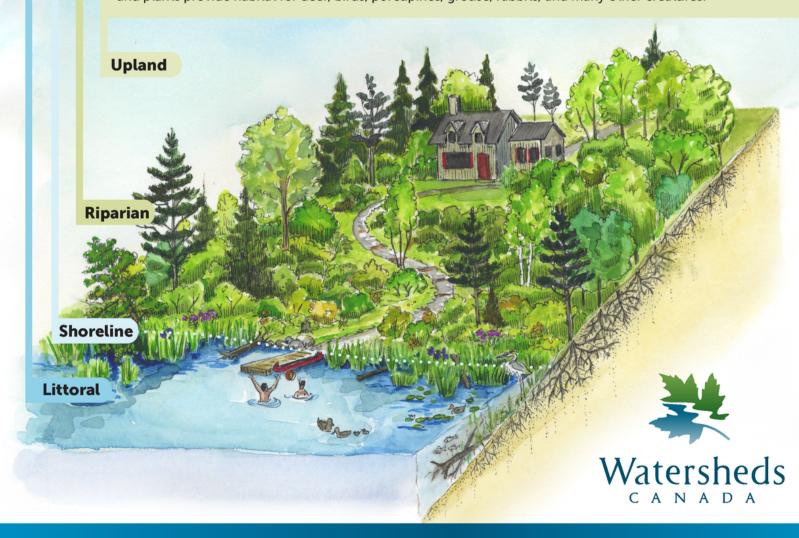
Resilient Shorelands

The **Littoral Zone** extends from the water's edge to where sunlight no longer penetrates to the bottom of the water. This is where docks are built and people swim. However, we share this area with an incredible array of biodiversity as up to 90% of lake species (e.g., pike, ducks, otters and turtles) are born, raised, fed, or live in the littoral zone.

The **Shoreline** is the edge where the land and water meet. The mix of plants, shrubs, and trees form an intricate web of roots, foliage, and fallen limbs that hold the waterfront together and fend off erosion from wind, rain, boat wakes and ice.

The **Riparian Zone**, also known as the Ribbon of Life, extends inland from the shoreline for at least 15 metres and may be flooded during high water periods. It is a natural buffer protecting the shoreline, water quality, and natural habitat both on land and in the water. It is made up of trees, shrubs and grasses that absorb excess nutrients (e.g., fertilizers) and pollutants (e.g., seepage from septic systems, oil, gas and pesticides) before they can contaminate the water.

The **Upland Zone** is a drier forested area with better drainage compared to the riparian zone. The deep roots of trees stabilize the slope, the foliage buffers the effects of wind, the canopy cools its surroundings, and plants provide habitat for deer, birds, porcupines, grouse, rabbits, and many other creatures.

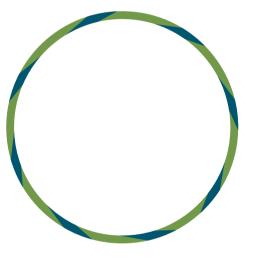


ACTIVITY #1: LIFE IN A HULA HOOP

In this activity, you will discover the diversity of living (biotic) species and non-living (abiotic) factors in a specific spot.

Find an area that seems to have a lot of biodiversity present. Your area should be about the size of a hula hoop.

On the next page, draw a top view of the area. Draw in any plants, rocks, insects, pollution, leaves, and other features you find.





Kneel next to one side of your spot, and look around carefully. Use your identification guides to label what you have found.

If you do not know the name of a species or rock, snap a picture and try to find it online using a website like <u>iNaturalist</u>. Or, ask a trusted adult.

Date:	Time:
Air temperature (use	your thermometer):
Water temperature,	f you are near water (use the thermometer):
Weather conditions:	
Location:	

Follow-up questions:

- 1. How would you describe the diversity of your spot: high or low? Did you find LOTS of different things (high diversity), or just a few (low)?
- 2. What non-living (abiotic) factors might affect what lives in this spot (e.g., rocks, water, slope, pollution)?





ACTIVITY #2: TALK TO THE BIRDS

You may hear birdsong in a forest or your backyard, but have you ever tried to have a conversation with these birds?

Try to whistle and mimic (copy) their noises and use your binoculars to see if anyone comes to see you!



White-breasted Nuthatch

- Small blue-gray backed bird with a white face and underparts and black/gray cap on its head and neck. It has a short tail and long, narrow bill that is straight.
- Habitat: mature woods and woodland edges.
- Songs and calls: a loud, nasal "yank-yank" or a fast series of nasal, low pitched "wha-wha-wha".



Eastern Screech Owl

- Either mostly gray or mostly reddish-brown and have yellow eyes. Pairs are usually monogamous and remain together for life.
- Are cavity nesters and are usually active at night.
- Habitat: wooded areas that are also near water.
- Calls: adult may screech when defending nests or fledglings.

Blue Jay

- Large crest on head with a broad, rounded tail.
 They are easily recognized by their brilliant blue colour. They are known for their intelligence and strong family bonds.
- Diet: acorns, nuts, seeds, berries, and fruits.
- Habitat: near the edge of forests, in woodlots, towns, cities, and parks.
- Calls: loud "jeer", clear whistled notes.



Pileated Woodpecker

- Large woodpecker with a long neck and chisellike bill. They have a triangular red crest that sweeps off the back of the head.
- Habitat: forests with standing dead trees and downed wood.
- Calls: typically make a high, clear, series of piping calls that last for several seconds.



Black-capped Chickadee

- Small bird with a short neck and large head.
 Their black (on cap and bib), white (on cheeks and underside), and grey (on back, wings, and tail) colours are distinctive.
- Songs: pure 2 or 3-note whistled "fee-bee" or "hey, sweetie".
- Calls: "chicka-dee-dee-dee".



Keep practicing your bird call identification skills with these Apps:





ACTIVITY #3: BECOME A BIRD NERD!

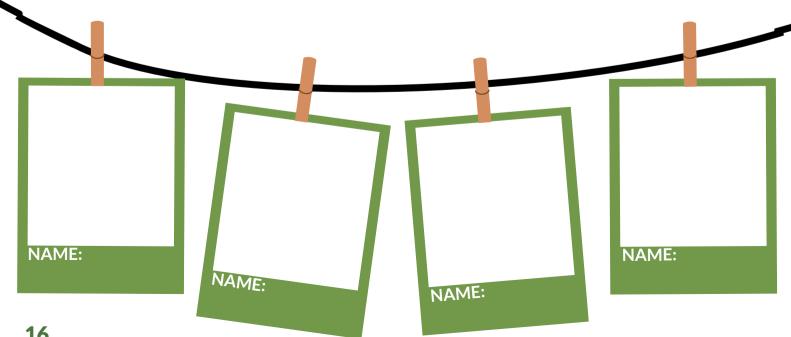
Using your binoculars and bird guide, spot four different birds and identify them with your bird guides. Then draw their picture and write their species name below. Can you call to them?

When identifying a bird, consider its...

- Beak (what does it eat?)
- Feet (where does it live?)
- Wing type
- Colours
- Possible adaptations





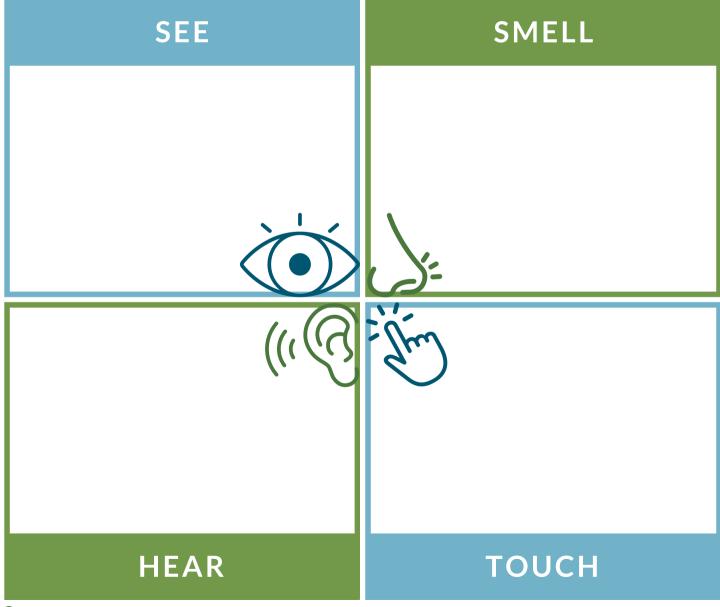


ACTIVITY #4: BIRD BINGO



ACTIVITY #5: SENSES CONNECTION

Find a spot in nature. What do you find? What can you see? What other senses can you use while forest bathing (simply spending time in nature)? Use your senses and record what you see, hear, smell, and touch.



ACTIVITY #6: POETRY

List six things that describe what you love about nature using the first letter of each line. This will make an acrostic poem. Lines do not have to rhyme.

N.	
A	
T.	
U _	
R	
E	

ACTIVITY #7: MAKE FRIENDS WITH A TREE

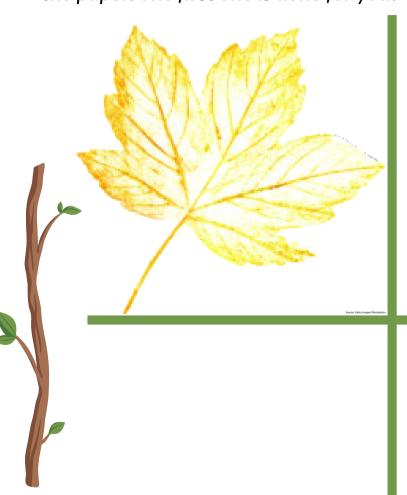
Using your tree guide, identify and sketch four different trees. Then describe the trees in words and write what you love about each tree.



- TREE NAME:
- TREE NAME:
- TREE NAME:

Give the trees a hug and experiment with tree leaf and bark rubbings! Holding your paper tightly, gently rub a crayon on its side over the surface of your paper on the tree leaf or bark. With just enough pressure, the texture will begin to show on the paper. The first one is done for you!



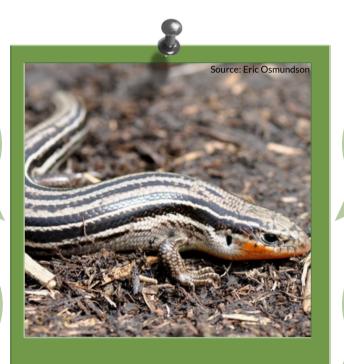


Tip: Try rubbing different tree barks and leaves to reveal new textures and compare patterns using different colours!

MEET THE NORTHERN PRAIRIE SKINK

Hibernation: spend 7+ months underground

Habitat: sandy soils and mixed-grass prairies



Only lizard native to Manitoba!

Appearance: brown with 4 pale stripes down its back

Food: insects and other small invertebrates

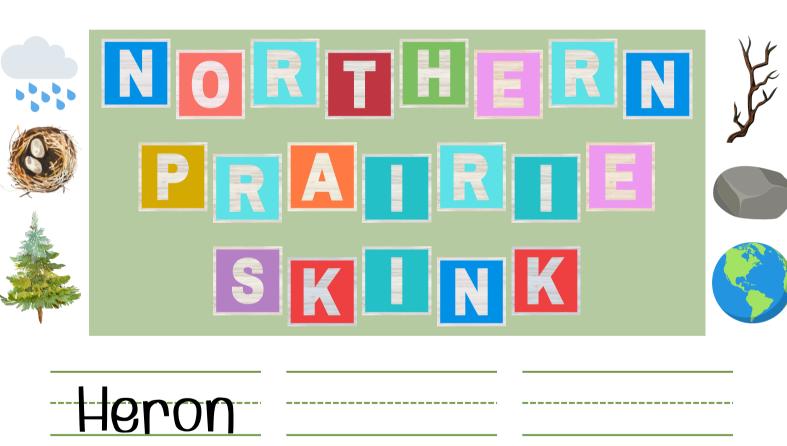
When threatened, the Northern Prairie Skink drops its tail.

The tail can twitch for up to 15 minutes, distracting predators and giving the lizard time to escape.

Did you know? Juveniles (young) have a bright blue tail!

ACTIVITY #8: REPTILE LETTER MIXUP

Make nature words using the letters of Manitoba's only native lizard, the **Northern Prairie Skink.** Hint: Look at the pictures for clues!



Heron	

ACTIVITY #9: COLOURING TIME!

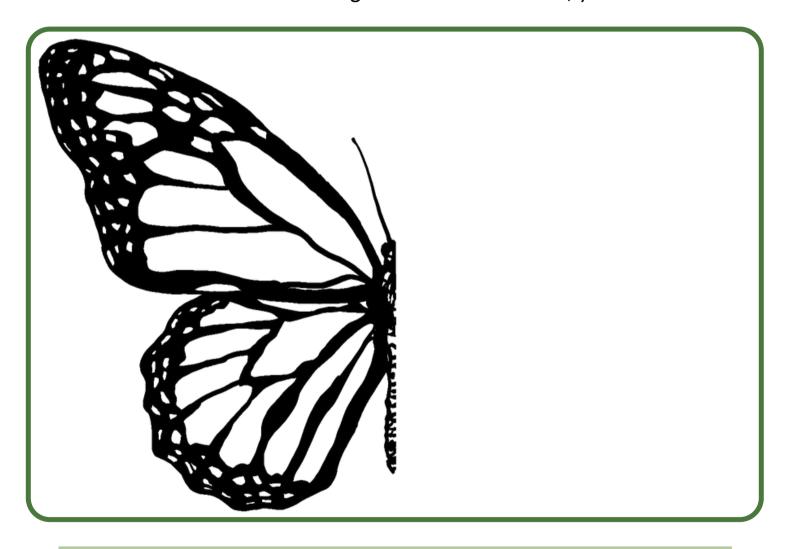
One way Watersheds Canada works with communities to restore their local fish habitat is by building and putting brush piles back in the water. Woody debris piles (brush bundles) made up of branches, snags, and root balls give fish like pike, bass, perch, and sunfish a safe place to eat, lay eggs, rest, hide from predators, and find shade from the sun.

Colour in this pike in its new home!



ACTIVITY #10: MONARCH BUTTERFLY DRAWING

Finish the drawing then colour the butterfly!



Monarch Butterflies are a type of pollinator species that need milkweed wildflowers for their food and for a place to lay their eggs.

ACTIVITY #11: SQUIRREL BEHAVIOUR

Common behaviour	Make one tally mark each time you see the squirrel activity	Total
Tree climbing		
Limb leaping		
Roof hopping		
Daring jumping		
High-wire acrobatics		
Fence running		
Seed stalking		
Gathering & stashing		
Quietly munching		
Chasing & playing		
Zigging & zagging		
Dray building		
Crazy crossing		
Running & hiding		
Churring & chattering		
Tail flicking		
How many squirrel be	ehaviours did you observe in total?	

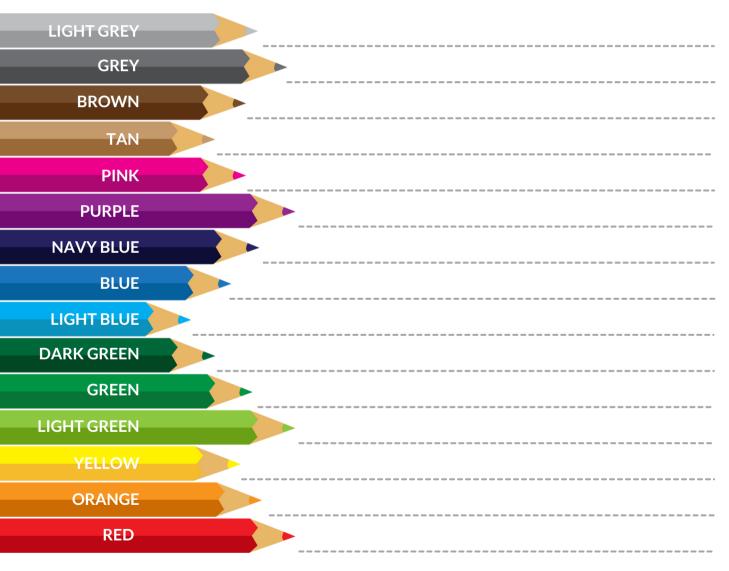
BONUS: Write a fraction for each squirrel behaviour observed!

Remember: Fractions are number of parts total number

ACTIVITY #12: I SPY

Using your binoculars, how many different colours can you spot outside? Write what you see next to the pencil crayon matching its colour.

I spy, with my little eye and binoculars something that is...



CHALLENGE! What is the furthest thing alive that you can see?

? ACTIVITY #13: ? ? WHO AM I?

Using your nature guides, examine the photos and clues below to identify and write the name of the species living in Assiniboine Park.



When they sense danger, they raise their white tail to alert other members of their herd.



They hibernate underwater in ponds, lakes, or deep streams that do not freeze to the bottom in the wintertime.



They are excellent climbers and swimmers and can even climb down trees headfirst!



They are named for their bright coloured underside. You can count the rings on their shell to see their age, just like a tree!



They have a well-developed sense of sight, smell, and hearing making them efficient predators.



They rarely leave their homes on windy days as it interferes with their hearing of nearby predators.



The sound of their hammering travels a long distance through the woods where they live.



They produce large pale to dark yellow flowers. Both the stem and leaves are covered in thin hairs.



This beautiful perennial is known for its silver-white foliage.



They have the nickname 'snowbird' because they love winter!

ACTIVITY #14: WATER QUALITY EXPERIMENT

The guideline for pH (potential Hydrogen) is a range of 7.0 to 10.5 in finished drinking water. Generally, a range of 6.5 to 8.2 is preferred for most life in the water. Different things can affect the pH of the water like an algal bloom or increased pollution (e.g., road salt, car wash soap).

Some aquatic animals are very sensitive to changes in pH, and are often used as living indicators ("bioindicators") of an ecosystem's health. One example is dragonflies because they have a biphasic lifecycle, meaning they spend part of their life in the water as aquatic nymphs and part of their life in the terrestrial environment as adults.







Band-winged meadowhawk (Sympetrum semicinctum).

¹Health Canada (2015). Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – pH. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. (Catalogue No H144-28/2016E-PDF).

Getting started

Open your Water Rangers test kit. Take out a water test strip. Look at the pH chart. Before you begin testing, guess the pH levels of your water sample (make a hypothesis - an explanation of what you think will happen). Do you think the sample will be preferred by life in the water?



Where and why do you think you will find different conditions for air temperature, water temperature, and pH?

Record your findings each time on the Water Rangers data sheet in the test kit, or below on this page. What did you find?

ACTIVITY #15: BECOME A COMMUNITY SCIENTIST

Using the information you gathered in activities #2 and #3, consider submitting your sightings to one of the many free and open access community science programs.

When you enter your animal or plant observations online, it can help scientists and nature groups keep track of different populations over time as they see local and regional impacts from climate change, increased human development, and pollution. Here are just a few community science programs you can pick from:









Merlin Bird ID









The Canadian Lakes Loon Survey is a program of Birds Canada, delivered in partnership with QuébecOiseaux.

FOLLOW IN THEIR FOOTSTEPS

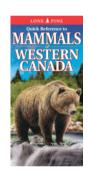
Not seeing any wildlife? You may have just missed them!

Here are some tips for finding animal tracks and scat:

- Look for tracks and scat in areas with wet sand and soft mud, like beaches, creek beds, trails, and puddles.
- Look in the early morning or late afternoon as the sun better illuminates shaded areas.
- Look off the trail as people's shoe prints will make it hard for you to find animal tracks.
- If you have never tracked an animal before, a good way to get started is to watch an animal make a track and then go look at the track right away.
- Remember that you will not always come across a track or scat that perfectly matches what is shown in your guides! You will have to do some detective work to figure out which animal left behind the clue.

Want more practice before you go in the field?
Try this Scout Life animal track quiz: scoutlife.org/quizzes/6662



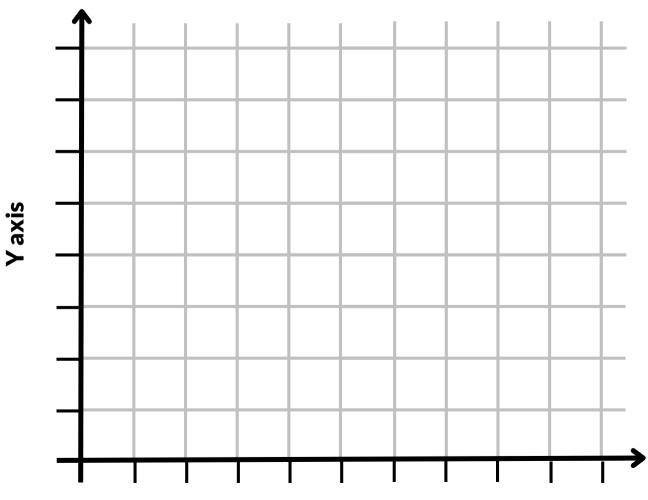




ACTIVITY #17: CREATE * A CONSTELLATION *

A constellation is a group of stars that form a shape and has a name (Orion, Ursa Major/Big Dipper, etc.). Many cultures use constellations to tell the stories of their ancestors and their beliefs. Constellations can be used to navigate the globe, and they connect us to the place we live.

Create your own constellation on the grid below, making sure to put your dots where two lines come together!



34 X axis

What is the story, teaching, or meaning behind your constellation?

Next, take your field guide out at night and along with a trusted adult, see how many constellations you can find. Make a list of the ones you find:

1.

2.

3.

4.

5.

6.

7.

8.

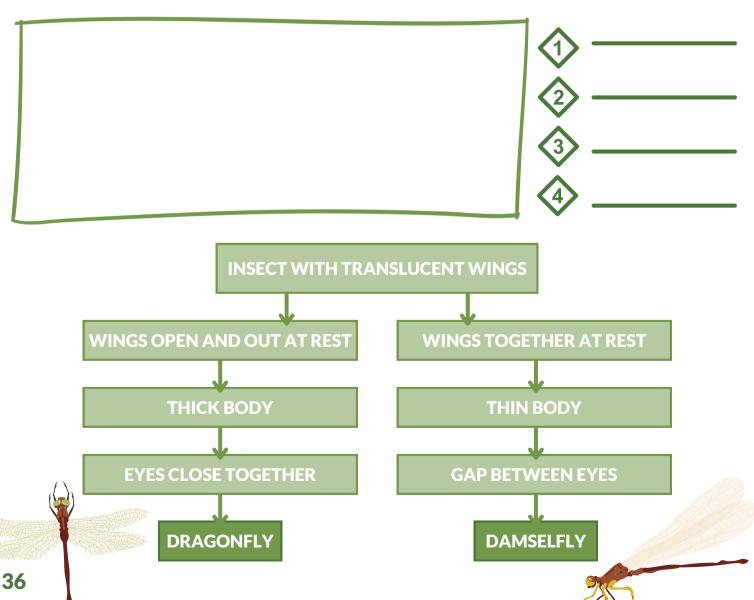
9.

10.



ACTIVITY#18: DRAGONFLIES AND DAMSELFLIES

Design your own dragonfly using the Guide to Northeastern Dragonflies & Damselflies and describe its habitat needs.

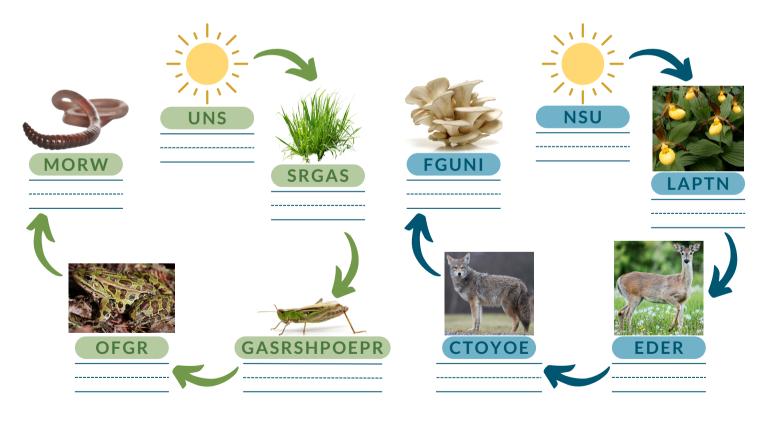




Unscramble the words using the pictures to complete the food chains.

Sunlight helps producers like plants to make their own food.

Primary consumers eat the plants and may be eaten by other animals called **secondary consumers**. When living things die, they become food for **decomposers** who recycle the nutrients back into the soil.



Did You Know?

A food chain shows how each living thing gets its food by depending on each other.

ACTIVITY #20: THE ROCK CYCLE

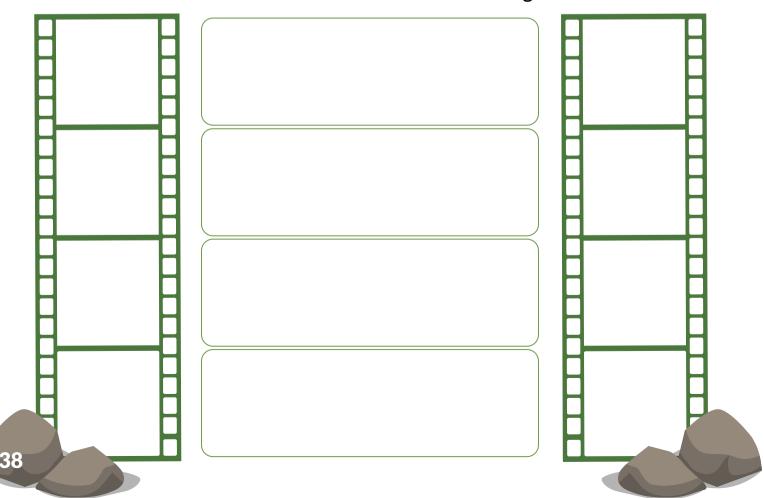
Find a rock outside to study.

Using your senses, investigate your rock up close to determine how it feels (its texture), what it looks like, and what it smells like.



Then, describe the adventure of your rock!

Draw a timeline of your rock's life so far with key milestones including where it has travelled over time and how it got there.



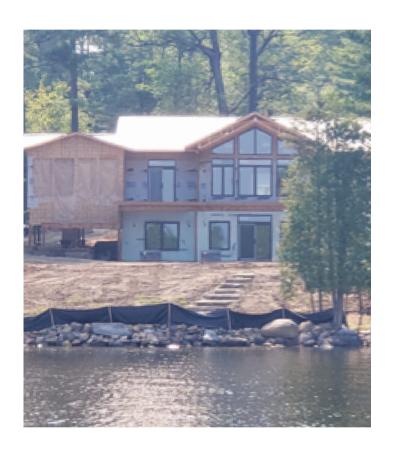
LAKE WINNIPEG WATERSHED

- Lake Winnipeg is about 436 kilometres long! It is a part of the Lake Winnipeg watershed. A watershed is an area of land that water flows through or across on its way to a particular water body, like a stream, river, wetland, lake, or coastline. It is the land where precipitation — like rain — falls and flows to a common, watery place.
- The Lake Winnipeg watershed is the second largest watershed in Canada and includes parts of four provinces and four U.S. states.



Source: "Lake Winnipeg watershed". Environment Canada, www.ec.gc.ca/doc/publications/eau-water/COM1167/image1 e.htm

HOW ARE PEOPLE IMPACTING NATURE?



As shorelines become more developed, humans are changing the way shorelines look and the species that can live there.

Some threats to wildlife and water health include: plastic pollution, introducing nonnative (invasive) species, road mortality, and habitat removal and fragmentation.

One way to help is to replant a shoreline with native plants along the edge. This buffer helps to filter and stop things like fertilizers and pesticides from entering the water. Plant roots also help keep soil together in heavy rainstorms which prevents erosion.



WAYS TO HELP NATURE

Gather data. Take photos and observations of different animals and plants you see in nature and submit them to an online database like <u>iNaturalist</u> , <u>eBird</u> , <u>MonarchWatch</u> , or <u>Water Rangers</u> to become a Citizen Scientist.
Get involved. Volunteer with a local lake association or nature group to learn more about local wildlife and spend time in nature with like-minded people. Organizations like Watersheds Canada and fish and game clubs can assist with educational materials on enhancing your shoreline.
Be natural. Consider adding native plants to provide habitat, food, and stabilization to your property for pollinators, mammals, and birds. Learn more about native plants: naturaledge.watersheds.ca/plant-database
Keep it clean. Prevent invasive species like giant hogweed from spreading by cleaning all equipment after boating and staying on trails while hiking.
 Explore. Join CPAWS Manitoba on one of our Nature Club Events. These are community-building programs designed to inspire people to: Explore Manitoba Gain the confidence to get out into the wilderness Develop new skills
• Develop new skills
• Learn about Manitoba's wildlife, birds, plants, and natural environment We host hikes, webinars, community events, litter cleanups, after school programs, in-person workshops, and more! Visit our website for more information on upcoming events at cpawsmb.org/nature-club
• Learn about Manitoba's wildlife, birds, plants, and natural environment We host hikes, webinars, community events, litter cleanups, after school programs, in-person workshops, and more! Visit our website for more

RESOURCES FOR PARENTS

Fireworks

Noise and light from fireworks can have a negative impact on wildlife, including nest desertion. The particulate left in the sky after an explosion contains heavy metals, including lead, which can land directly on the lake or be washed into the lake following a rain storm. This has harmful effects on the aquatic food chain. Also, fires and injuries to people and pets are possible.



Be 'Wake-Aware'

Fish, wildlife habitat, shorelines, and docks are vulnerable to damage from boat wakes. Be aware of the size of your wake while operating a boat. Adjust your speed and directions to minimize your impact on shorelines. Distribute passengers throughout the boat to reduce time spent in transition speed. Wakeboard and water ski away from shorelines. If possible, opt for an outboard motor which gives the driver more control over the amount of water being forced downwards.

Light Pollution

Plants and animals have evolved to rely on Earth's natural cycles of light and dark. These daily cycles manage important behaviours like sleep, reproduction, eating, and protection from predators. Light pollution has a negative impact on lake property owners and local wildlife. Glare and light trespass can reach great distances to unintended destinations.

SHORELINE LIGHTING

Many of us have likely sat out at night and noticed the lights at properties across the way. Take a moment to reflect on how this made you feel and consider if light from your property is also trespassing. This does not mean we have to get rid of all our outdoor lights, though! Perhaps we simply do not need as many lights, or they can be retrofitted to reduce the glare.

Ask yourself:

- Does this specific area on my property really need to be lit?
- Does it need to be this bright?
- Is the light transmitted further than it needs to be?

Not Recommended: Glare Lights







Recommended: Shielded Lights

