

# Save the LaHave.

Learn about the LaHave Watershed in southwestern Nova Scotia: the plants and animals who live there, the activities that affect it, and how we all can help make it a better, healthier place to live.



**Inside Front Cover**

**Blank Page**



# What Exactly is a Watershed?

A watershed is an area of land that catches rain and snow and drains into a stream, river, lake, wetland or groundwater. Eventually the water reaches the ocean. You're sitting in a watershed right now. Homes, farms, forests, small towns, big cities and more all make up watersheds. They come in all shapes and sizes. Most importantly, we all impact the health of our watershed, and this impacts the health of the whole planet.

**THE LAHAVE WATERSHED.** You may live in this watershed. It covers an area of 1,700 square kilometres (that's about 4,250 soccer fields) and is located on Nova Scotia's South Shore. Bridgewater is the major town in the LaHave Watershed. It also contains parts of Lunenburg, Annapolis and Kings Counties. You may have heard of other watersheds nearby like the Mushamush and the Petite Riviere.

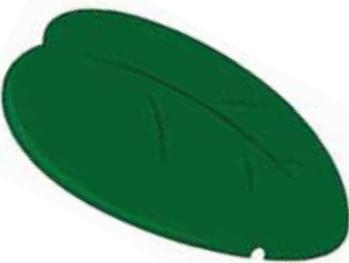
**WHY DO WE HAVE TO SAVE THE LAHAVE?** All living creatures need water. More than half of your body is water. We need water to wash dishes, shower, flush the toilet and lots more. Companies need water to make products. Most of us like to swim, boat and fish, and many of us live right beside the water. There is the same amount of water on Earth right now as when dinosaurs existed. It just gets recycled over and over again. The problem is that more and more people are using water (the earth's population increases every day) and lots of things we do impact water quality (think the big "P" word, yup, pollution).

**ALL ABOUT WATER.** Water trickles down a hillside and joins a brook that flows to meet up with a stream. Lots of streams become branches of rivers, which all eventually link to the sea. Lakes are bodies of water that are completely surrounded by land. Wetlands, also sometimes called swamps, marshes or bogs, are wet, mushy and gooey and contain tonnes of wildlife. Lastly, groundwater is water that seeps below the surface (like in your well).



# Start Counting!

Help Froggy get to the lily pad. Draw or colour the path through the maze. Start at 4 and count by 4's all the way up to 400. Come on, give it a try. Math can be fun you know!

164	160	156	152	<p><b>Where's my personal lily pad?</b></p> 				12	16
168	132	136	148				4	8	20
172	128	140	144				48	44	24
176	124	120	116	80	76	72	52	40	28
180	184	108	112	84	88	68	56	36	32
192	188	104	100	96	92	64	60	336	340
196	200	204	208	292	296	300	304	332	344
224	220	216	212	288	284	312	308	328	348
228	264	268	272	276	280	316	320	324	352
232	260	256	<p><b>Yeah, I'm home!</b></p> 			400	396	360	356
236	248	252				388	392	364	368
240	244					384	380	376	372



## Jokes

hee hee!

**What do salmon have that no other animal has?** Baby salmon.

**Where can you find an ocean without water?** On a map.

**Why are some fish at the bottom of the ocean?** Because they dropped out of school.

**Why did the dolphin cross the beach?** To get to the other tide.

**Why wouldn't they let the butterfly into the dance?** Because it was a moth ball.

**Why didn't the lobster share his toys?** He was too shellfish.

**What do whales eat?** Fish & ships.

**How do porcupines play leap frog?** Very carefully.

**and finally.... Have you heard the joke about the garbage truck?** Don't worry, it's only a load of rubbish!

# Wet Water Facts

**WATER WASTE.** 50% of all municipal water is used up in the summer by people watering their lawns. 20% of municipal water is lost due to leaks. If you live in the country, water usually comes from a well. In town, water is delivered to homes through a system of underground pipes.

**WATER FOR LIFE.** A person can live about a month without food, but only about a week without water. Interestingly 75% of the human brain is water and 75% of a living tree is water.

**WATER LIMITS.** Nearly 97% of the world's water is salty or undrinkable for other reasons. Another 2% is locked in ice caps and glaciers. That leaves just 1% for all of our needs: agricultural, residential, manufacturing, community and personal.

**WETLANDS.** 50% of the world's wetlands have been lost since 1900. Canada has about 25% of the world's wetlands, the largest area in the world. We pave over wetlands to build towns, cities and lots of other buildings. Draining them to use for agricultural fields is also common.

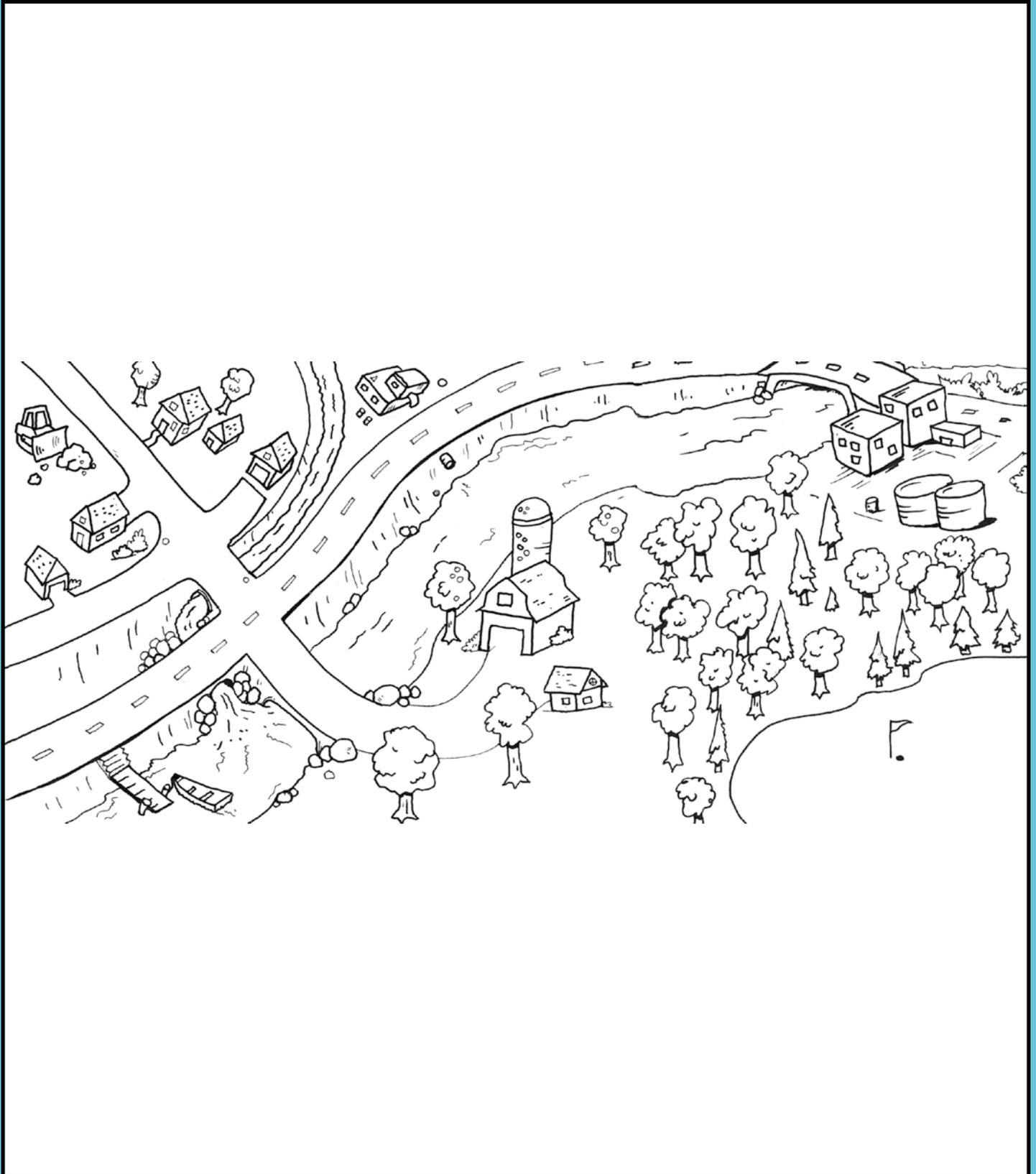
**WHERE ARE THE FISH?** 20% of the freshwater fish in the world, 2,000 of 10,000 species, are endangered, vulnerable or extinct (gone forever).

**CAP THE OIL.** One single drop of oil can make 25 litres of water unfit for drinking. Armed with this fact, consider the damage done by huge oil spills in our oceans.

**WATER AND FOOD.** Take note. It takes about 11 litres of water to grow a tomato; 23 litres for french fries; 52 litres for an orange; 378 litres to make a watermelon; and 454 litres to produce an egg.

# Sketch, Colour & Learn

This picture shows many activities that affect watersheds. Identify the following areas and then complete the picture by adding your own elements on the top and bottom. Label a forest, boat dock, industrial site, homes, a farm, water treatment plant, drainage pipe, construction site and a golf course.





# What Threatens Watersheds?

The health of a watershed is affected by the quality of water that feeds into it. Logging, farming, acid rain, industry, expanding towns and cities, households, schools, recreation... it's a long list. We all have an impact. By nature, water flows. Once it is polluted, the entire watershed is affected. Pollution sources are often described as point or non-point.

**POINT SOURCE POLLUTION.** This type of pollution is easy to identify because the source is obvious, something is added directly to a waterbody. Examples are oil spills in the ocean and discharge from sewage treatment plants and factories.

**NON-POINT SOURCE POLLUTION.** Non-point pollution is a little tricky to identify because it enters a watershed in a more indirect fashion, like a homeowner spraying pesticides on their lawn or livestock defecating near a waterbody. Soil erosion is also a major non-point pollution platey (this is when land breaks down and washes away).

## Do the WRITE thing!

Investigate what responsibilities each level of government has (municipal, provincial, federal) and write a persuasive letter to each stating why healthy watersheds are vital and what action steps need to be taken NOW!

**FOOD CHAIN.** We rely on our watershed for clean drinking water, food and recreation. A foodchain is a sequence of who eats whom. Humans are an example of a species sitting at the top of the food chain. To understand how species are exposed to greater levels of pesticides as you move up the food chain, simply trace the origins of a hamburger (hint: it starts with the sun and air). \*\*



\*\* Websites like [www.enchantedlearning.com](http://www.enchantedlearning.com) have great educational worksheets.

# LaHave Activity Central

## Smart Forestry Practices That Promote Watershed Health

Nova Scotia has a lot of forested land and more than half of it is privately owned, by Christmas tree farm owners, companies, and perhaps your family or other people you know (less than half is owned by the government and other agencies).

Poorly managed forests can really affect the health of a watershed. Trucks and heavy machinery compact the soil and contribute to erosion. Road building, tree removal and other forestry activities push soil into waterbodies. This degrades water quality and

wildlife habitat. Trees, shrubs and other vegetation close to waterbodies provide shade for animals that live in the water (many fish prefer cold water) and safe places for animals to live outside of the water.

If your family or a logging company wants to remove a lot of trees, consult an expert to help prepare an action plan. On a smaller scale, the rules are simple. Don't cut on steep slopes and other sensitive spots, important wildlife areas or near waterbodies. Replant native trees and don't use pesticides or fertilizers.

**PRACTICE YOUR CURSIVE WRITING.** Choose one of the paragraphs above to rewrite on the lines that follow.

---

---

---

---

---

---

---

---

---

---

## Further Research

### WHAT IS CLEARCUTTING AND IS IT STILL DONE IN NOVA SCOTIA?

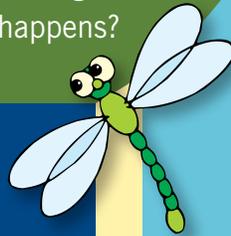
Go online and start "Googling." Call a local environmental group or a forestry company and ask questions. Investigate the Government of Nova Scotia's rules for forestry practices





## Science Experiment

When certain chemicals and gases get into the clouds, they create acid rain. This harms plants and damages waterbodies and the animals that live in them. Start with two plants in separate pots. Place them where they'll receive equal amounts of sunlight. Water the plants equally, but add a few drops of lemon juice or vinegar to one of the plants each time. What happens?



## Class Projects

### 1) The Great Litter Challenge

Split your class into groups or go up against another class to see who can collect the most litter in a half an hour (and don't forget to sort out the recyclables). Want to make this a more permanent project? Make each group or class responsible for their own area and keep it clean all year round.

### 2) Spring Tree Planting

Contact local environmental groups and/or companies and ask if they have any projects in the works. Arbor Week occurs every spring across North America and other countries ("arbor" means tree). This is a great time to get your hands dirty and help out the environment and your community.

### 3) Overfishing & Dinner

Some of the seafood and fish you eat is more sustainable than others. Research the best choices your family can make.

## My Personal Watershed Pledge!

**LITTERLESS LUNCH.** Who needs juice boxes, cheese strings or packages of gummy bears? I pledge to use refillable containers as much as possible for my packed lunches.

**GREEN CLEANING.** Goodbye chemicals, hello eco-friendly cleaners! Tell your mom the green stuff works just as well as her usual brands. Better yet, put them to the test yourself. I pledge to keep my room "green" clean (p.s. add on a few more chores and reap the rewards, environmental and economical, yes, we're talking allowance here!).

**RIDE, WALK, SKATEBOARD.** Unless your family has a hybrid or other type of green vehicle, just starting the car emits tons of pollution. Plus, who gets exercise and fresh air sitting in a car? I pledge to use my own power to get around as much as possible.

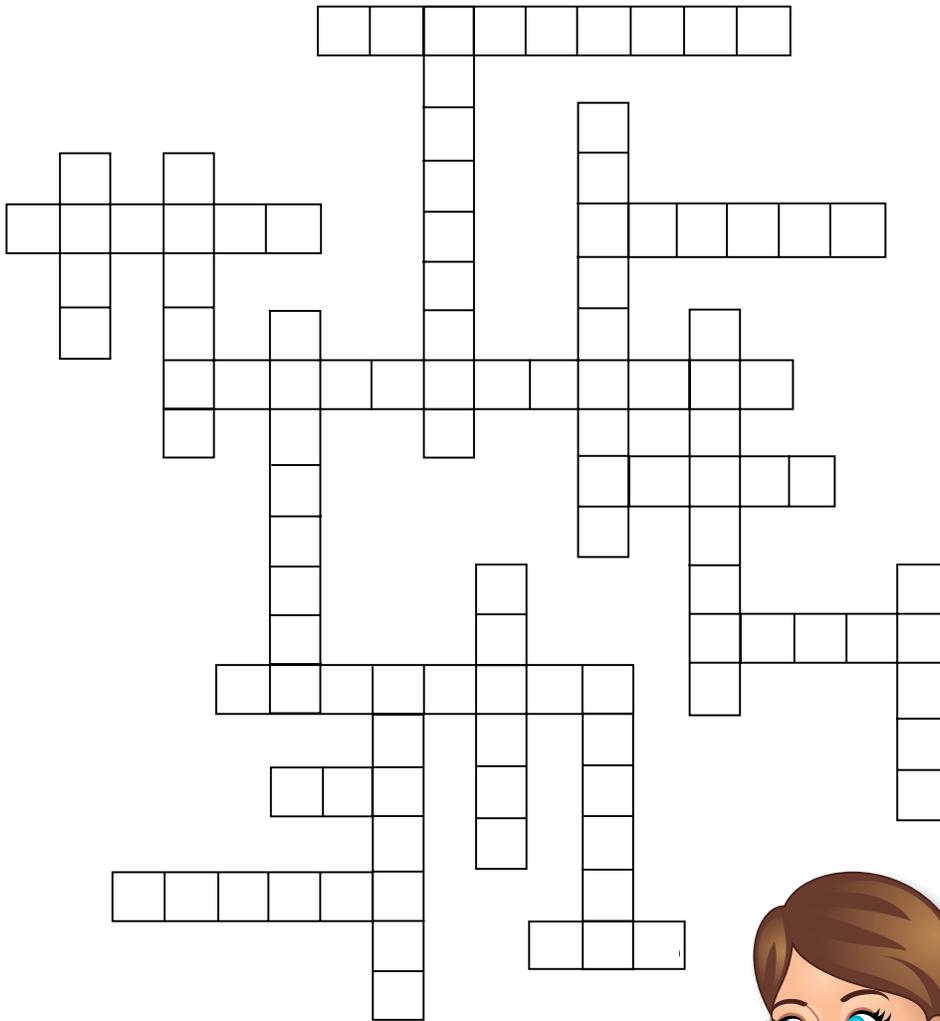
**YOUR TURN.** The last pledge on the list belongs to you!

---

---

# Watershed Crossword

Use the following word bank to fill in the blanks and complete the crossword puzzle: watershed, runoff, ocean, impact, trout, salmon, forestry, sewage, LaHave, dam, eel, tributary, pollution, invasive, buffer, farm, river, wetlands, lamprey, conservation.



## Across

1. LaHave \_\_\_\_\_ : the total amount of land and water area that contributes flow to a certain body of water.
6. A fish that is able to live in both fresh and saltwater.
7. The \_\_\_\_\_ River starts in the Annapolis Valley and runs across Nova Scotia.
10. Work done in order to prevent the loss of a species.
11. Nova Scotia borders the Atlantic \_\_\_\_\_ .
14. Runs from a lake into the ocean.
15. Low areas which regularly become wet or flooded.



## Down

2. A stream or river that flows into a larger body of water.
3. \_\_\_\_\_ is able to enter the watershed in many different ways (e.g. land, air, water).
4. A \_\_\_\_\_ can consist of many different animals.
5. No matter how far you live from a watershed, you still have an \_\_\_\_\_ on it.
8. A species (animal or plant) that is introduced to a location (and didn't live there originally) is known as \_\_\_\_\_ .
9. An industry that involves managing wood.
12. A major source of water contamination in Nova Scotia is overland \_\_\_\_\_ from farms.
13. The \_\_\_\_\_ belongs to the Salmonidae family but is only able to live in freshwater.
16. Very similar to an eel (which is jawless).
17. Waste material produced by humans.
18. A barrier built to block water flow.
19. \_\_\_\_\_ zones are strips of vegetation that are left along the edges rivers and lakes to protect the watercourses and wildlife habitat.
20. A snake-like fish that lives in the water.

# Water Conservation at Home

Conserving the environment starts at the individual level. Each one of us needs to examine how we live our lives and how we can make changes. This begins at home. However small or simple they may seem, everyday tasks and habits can have a significant impact. The average North American uses about 350 litres of clean water per day. Really think about that number, that's 700 regular size bottles of water, every single day, per person.

**LIST THE CHANGES YOU CAN MAKE IN EACH CATEGORY BELOW. BE CREATIVE. GOING GREEN CAN BE FUN!**

In the bathroom.

---

---

---

---

---

In the kitchen.

---

---

---

In your yard (one hint, clotheslines!).

---

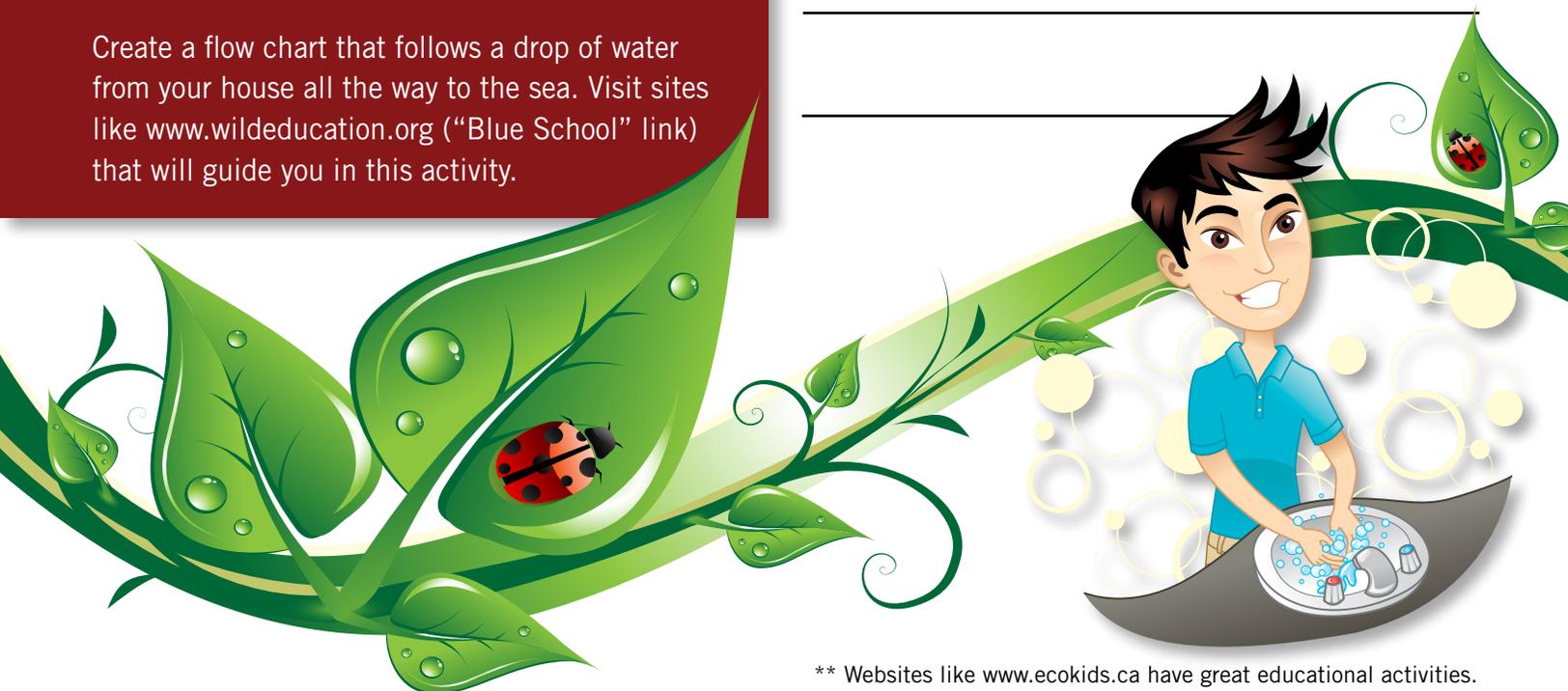
---

---

---

## Follow the water!

Create a flow chart that follows a drop of water from your house all the way to the sea. Visit sites like [www.wildeducation.org](http://www.wildeducation.org) ("Blue School" link) that will guide you in this activity.



# Discover LaHave's Wild Side!

## Hey, Watershed Detectives. Figure Out The Creature Clues.

I am the second largest rodent in the world. I can stay underwater for up to 15 minutes. I was hunted extensively during Canada's Fur trade era. I am Canada's national symbol. Who am I?

I am an aquatic animal that is quite slimy. I migrate thousands of kilometres from the Caribbean into fresh water. I use my entire body to swim. I can acquire oxygen through my skin, so I can stay out of water for a long time. Who am I?

My skeleton is on the outside of my body and my teeth are located inside my stomach. I am also known as a decapod, because of the number of legs I have. When I lose one of my claws, I can just grow it back. Who am I?

My voice has no echo and I have 3 eyelids. I have no nerve-endings in my webbed feet, so they never get cold. My feathers are completely waterproof. Who am I?

When I am born, I go through 4 physical stages before reaching my adult form. I can jump up to 20 times my own body length. My skin allows me to absorb water and also to breathe oxygen. I am found everywhere in the world except for Antarctica. Who am I?

My species is over 200 million years old. Although I mostly live in the water, I lay my eggs on land. The temperature can determine the gender of my eggs (whether they are female or male). Sometimes, I can go an entire year without food. Who am I?

## The Spotlight's On...

**THE NORTHERN SPRING PEEPER.** You've all heard these little guys. They can be pretty loud on a warm spring night. Perched on the edges of ponds or roadside ditches, the males call for females with a loud "peep peep peep." These frogs are very hard to see. The size of your thumbnail, they hide very well because of their dark colours. This is called camouflage. Frogs are disappearing in many parts of the world. We

take away their homes to build our homes, golf courses, factories, roads, etc. Because they absorb chemicals directly through their skin, vanishing frogs tell us that we have some serious water problems.



## Answers

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_

Turn to the next page to find out if you're right!





Top: Blanding's Turtle  
Left: Golden Crest  
Right: Bull Moose

## What Are Species-at-Risk?

A species-at-risk is any naturally-occurring plant or animal in danger or disappearing forever. There are 5 main categories of species-at-risk. They are: extinct, extirpated, endangered, threatened and special concern. Do some research and list 3 species-at-risk in the LaHave watershed (and they can't be the ones pictured above!).

A good place to start is at [www.speciesatrisk.ca](http://www.speciesatrisk.ca). This website has lots of really interesting information on the whole province.

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_

# Spread The Word!

Making the world a better place starts with you, at home, in school, every single day. You can make a difference, really. The best way to protect the health and survival of animals and plants (collectively known as wildlife) is to protect their habitat, the area where they live. Take steps to become more environmental yourself and kindly spread the word to others.



## Home Projects

### 1) Start a wildlife refuge right in your backyard!

You can make homes for birds, butterflies, snakes, squirrels and many other animals. Drop by a local garden centre or do some research on the internet for what types of food and shelter various animals prefer. Make it a family project and add to it every year. Pretty soon you'll have your own personal zoo. How cool is that?

### 2) Adopt an animal

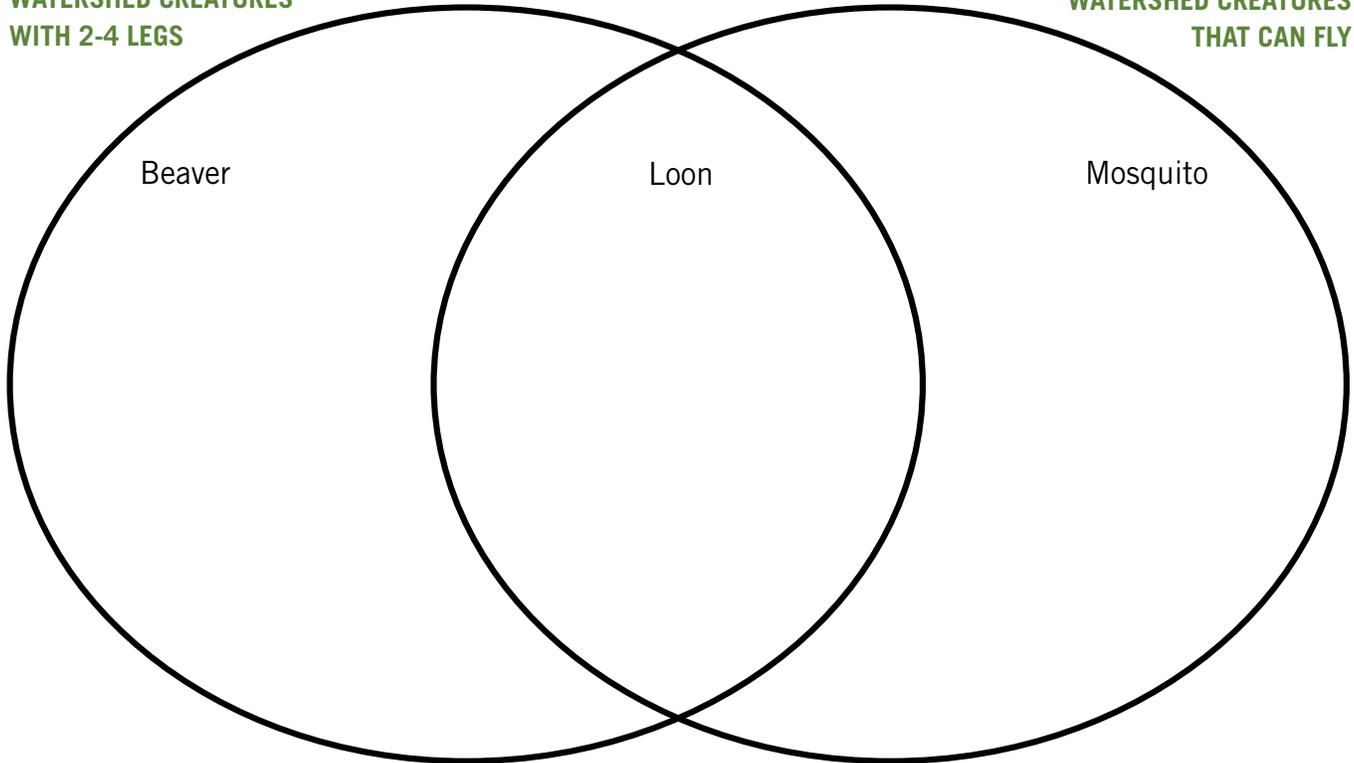
Choose an endangered or other interesting animal and find out if you can give it a helping hand. Many environmental groups lead research projects to which you may be able to contribute donations and/or your time. Contact one in your area and see how can you get involved. World Wildlife Fund has many adoption options. Visit [www.wwf.ca](http://www.wwf.ca) for details.

# Venn Diagrams

Put your mind to the test! Venn diagrams show relationships between objects or groups of objects. In the area where the two circles overlap, identify commonalities.

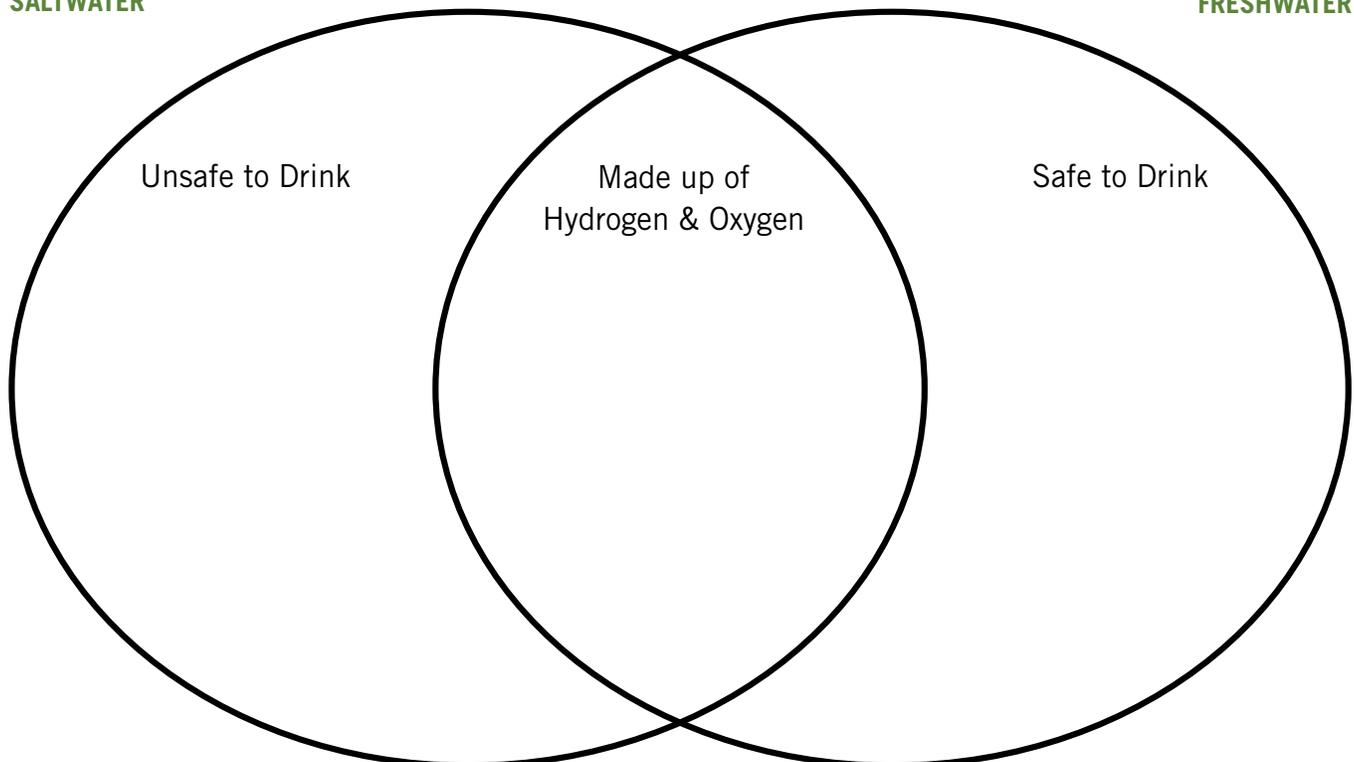
**WATERSHED CREATURES  
WITH 2-4 LEGS**

**WATERSHED CREATURES  
THAT CAN FLY**



**SALTWATER**

**FRESHWATER**



**Inside Back Cover**

**Blank Page**



## Acknowledgements

In developing this book, we used the following resources. All jokes (and many more) can be found on the NIEHS kids' pages, <http://kids.niehs.nih.gov>. Water facts were provided by Environment Canada, [www.ec.gc.ca](http://www.ec.gc.ca). The counting maze is from [www.printactivities.com](http://www.printactivities.com). Some of the suggested activities and information is from [www.kidsforsavingearth.org](http://www.kidsforsavingearth.org) and the US Environmental Protection Agency ([www.epa.gov/safewater](http://www.epa.gov/safewater)). The watershed illustration is a Doug Vance original. New Paradigm Communications oversaw project management and booklet design.

