


WATERSHED HEROES

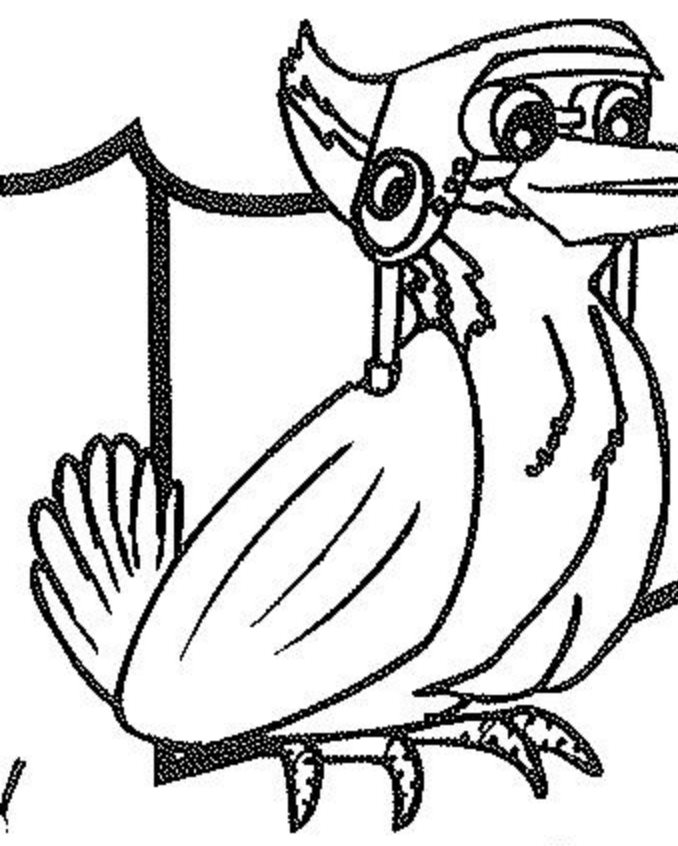


An environmental activity book for kids and families



This book was written with the amazing help of our awesome friend Helaine Becker, award winning Canadian children's author. All the great illustrations in this activity book were created by our buddy Bonna Rouse. Thanks to both of them for such incredible work!

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Hi, I'm Becca and I'm a Watershed Hero. Here's a riddle for you: What do you get when you put WATER together with a SHED?

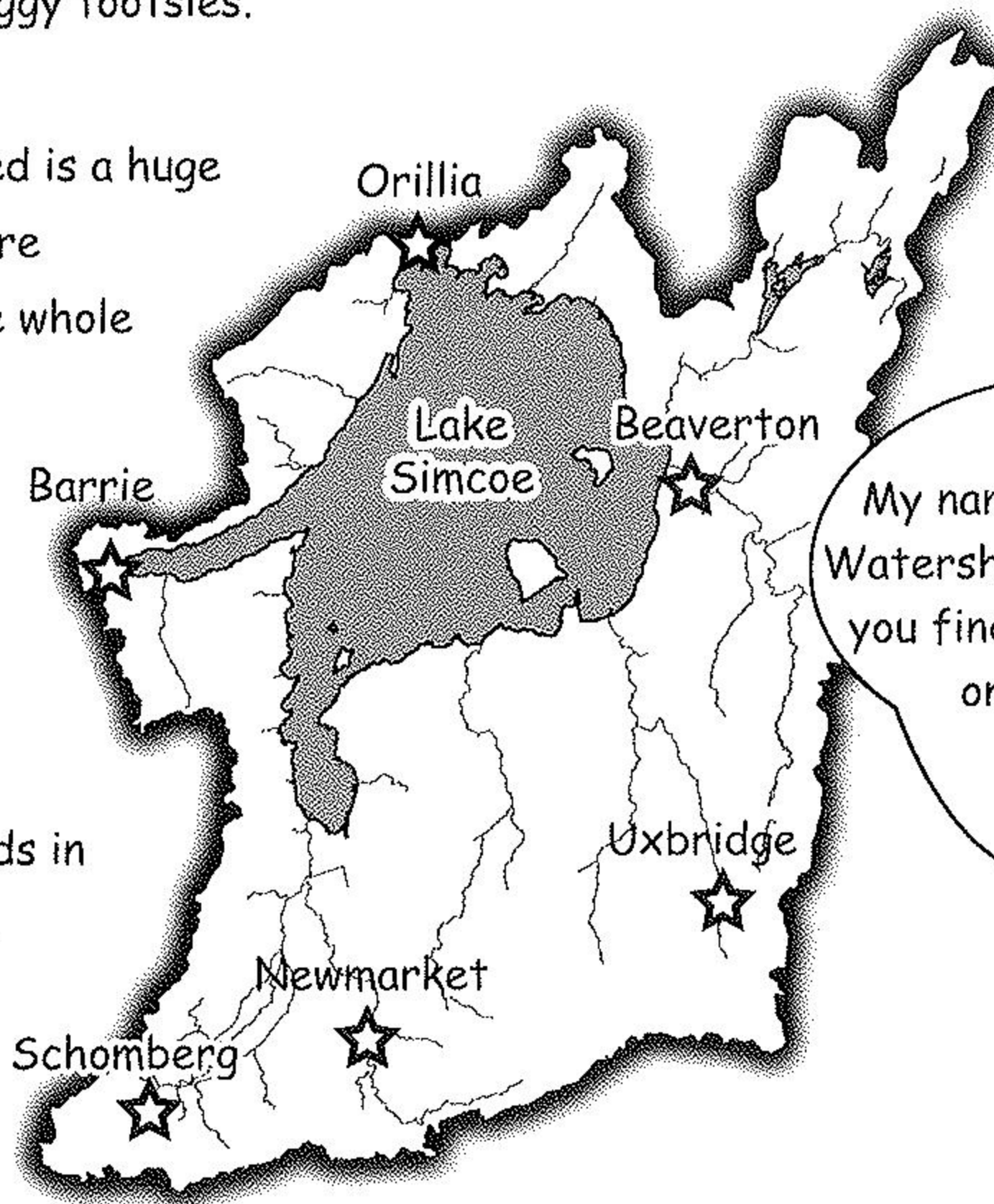
If your answer is "wet feet," you're partly right! What you actually get is a watershed - an area of land that's shaped like a giant bowl. Any water that gets into the bowl from rain or snow flows down to the bottom where it forms a body of water, like a lake. Wade in, and yup, you'll end up with soggy tootsies.

The Lake Simcoe watershed is a huge area. It covers over 3,300 square kilometers. That's bigger than the whole country of Luxembourg!

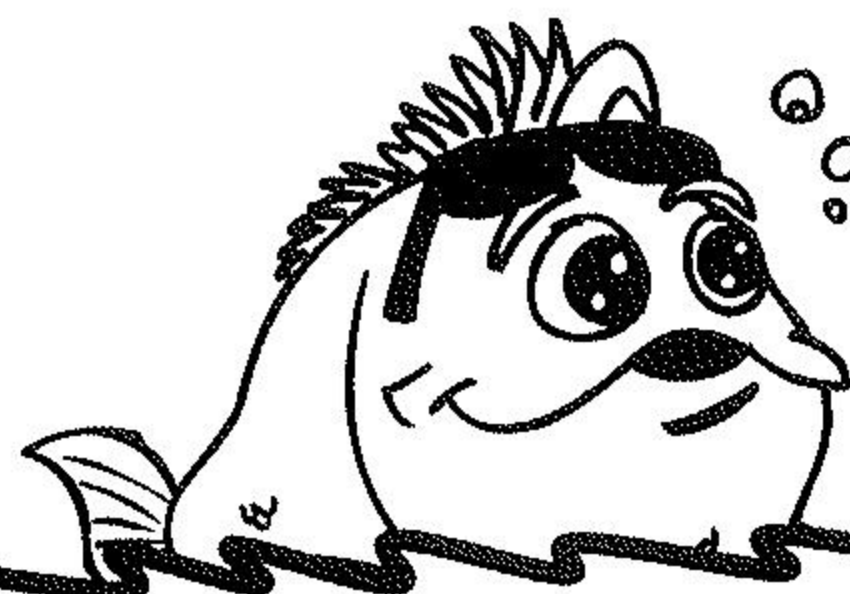
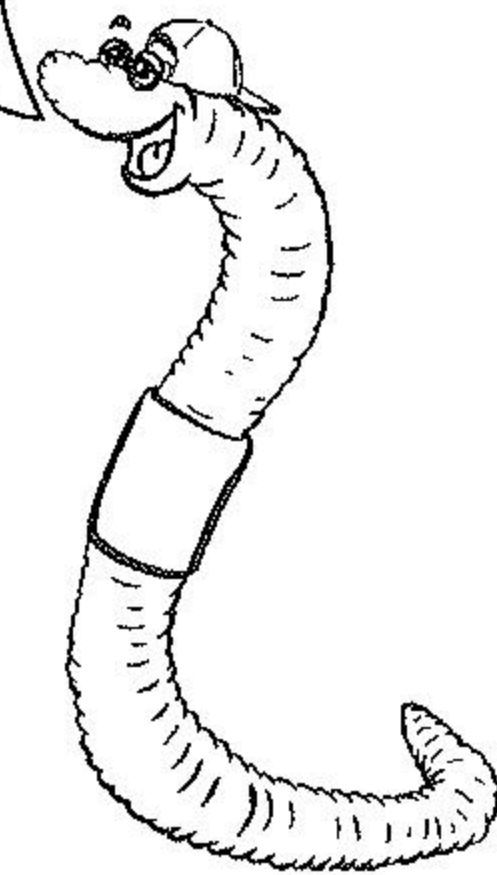
More than 400,000 people live in the watershed. It's also home to millions of plants and animals.

Here's the 411: Like other watersheds in most parts of the country, the Lake Simcoe watershed is under threat. Pollution and an increasing population are affecting the health of the region, and everyone who lives in it.

Damage to the Lake Simcoe watershed is not a done deal, though. There are plenty of ways you can help keep the watershed healthy and beautiful. Yes, YOU. Become a Watershed Hero too!



Hi kids! My name's Ollie. I'm a Watershed Hero too. Can you find where you live on the map?



My name's Spike and I'm a Watershed Hero. Turn the page and find out what we gotta do to keep our fab lake FAB 4Eva!

Sl-o-o-w and Steady

It's true - Nothing much seems to happen in swamps, marshes and bogs. Water just sort of sits there. Even the animals that live in them seem to just loll around, waiting for something to happen.

Did you ever hear the expression "still waters run deep"? Lots of activity is going on below a swamp's surface. It just takes a sharp eye to spot it.

In wetlands the roots of the plants go deep into the muck. As water passes through this ooze, soil, sediment, and even chemicals get trapped. Swamps actually clean the water, just the way your kitchen sponge cleans up a spill. That means gunk from upstream doesn't end up in the lake, or maybe even in your drinking water!

Swamps, bogs and marshes are chock full of food. As a result, they make 'marsh-velous' rest stops for migrating birds. They also provide breeding and nesting grounds for all kinds of creatures, from beavers to butterflies.

No wonder Canadian wetlands are home to about 600 different kinds of plants, animals and insects!

Wetlands act like giant sponges. They soak up water that flows into them from creeks and streams. That's a good thing - just think about what could happen if there were a huge storm up in the hills. Floodwater rushing down from the hilltops could wash away whole neighborhoods!

Wetlands stop floods in their tracks. They slurp up stormwater runoff and hold it tight until it can be put to good use.

Zzzzzzzz.....



Watershed Hero Checklist

- Join a community group that organizes clean ups along your neighbourhood's creeks, streams and wetland areas to help to keep these habitats clean.
- Work with community groups to plant new plants in wetland areas to help make them a good place for animals and other plants to live.
- Encourage local politicians to create new wetlands by building stormwater ponds that collect rainwater from around our homes and businesses and to prevent existing wetlands from being turned into dry land - keep what works working!



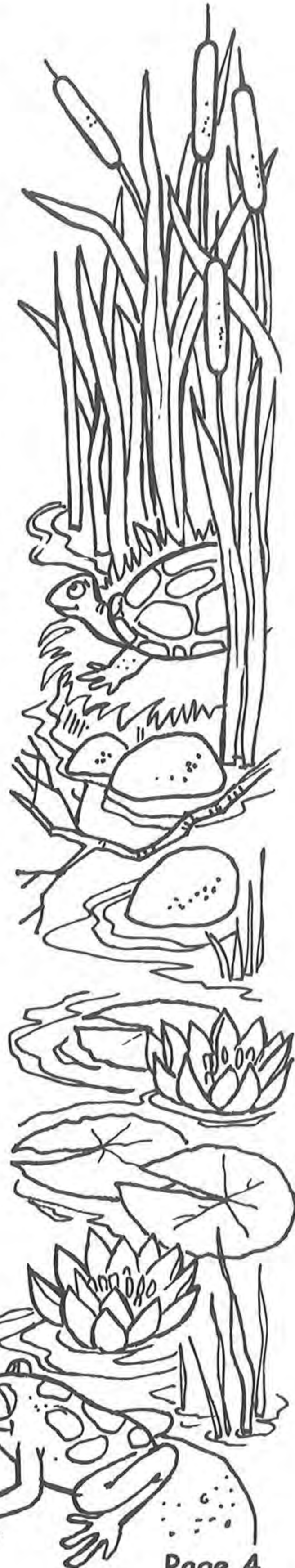
Wetlands Word Search



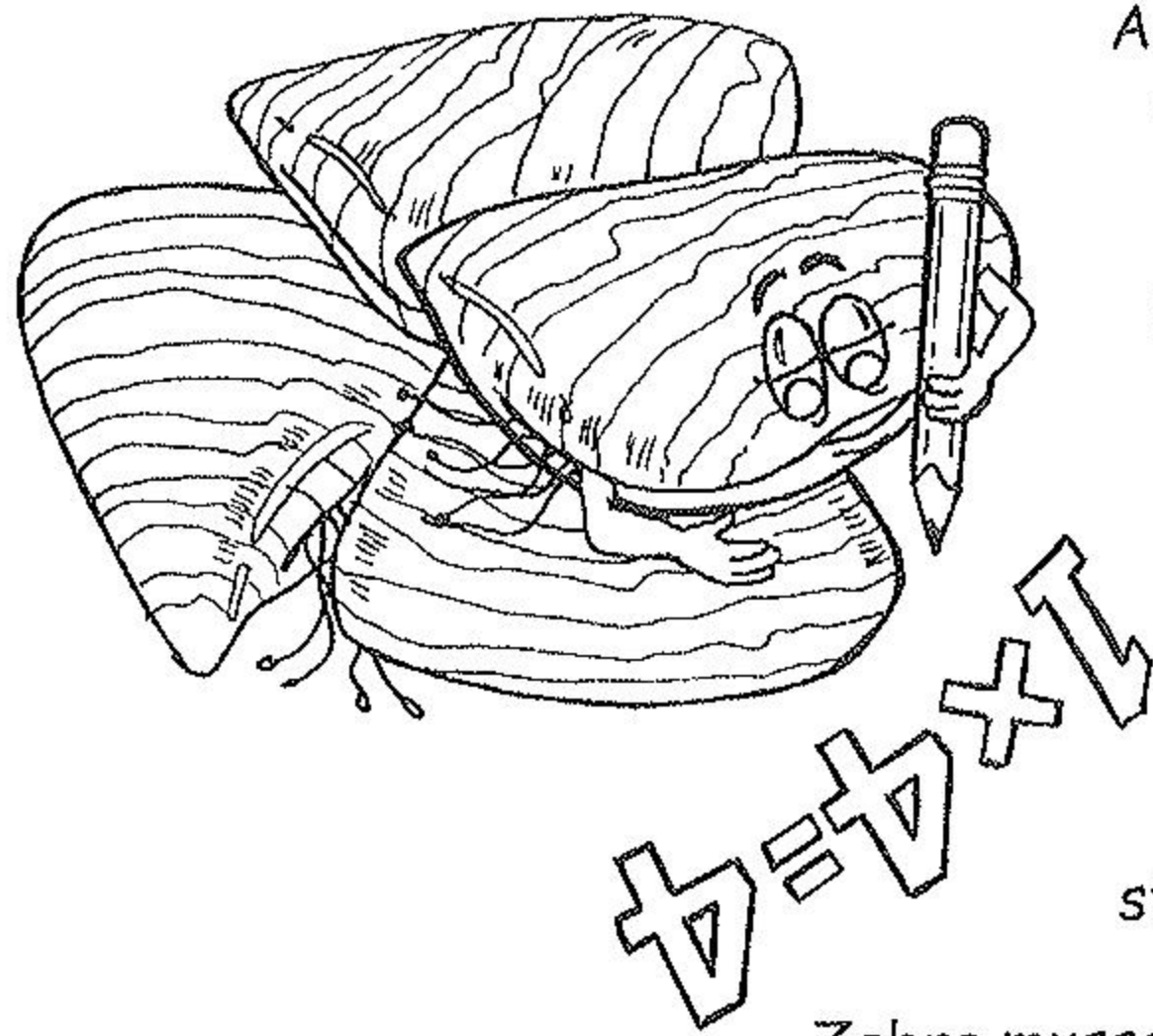
Can you find all of the wetland words in the list below?

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

- | | | | |
|-----------|---------|---------|-----------|
| BEAVER | DUCK | HERON | REEDS |
| BOG | FISH | LILYPAD | SALAMADER |
| CATTAIL | FILTER | MARSH | SWAMP |
| CLEAN | FROG | POND | TADPOLE |
| DRAGONFLY | HABITAT | PROTECT | TURTLE |



Space Invaders



Around 1986, Canada was invaded by aliens. A species of mussel from Eastern Europe, called zebra mussels, was carried across the ocean in the bilge water of large ships. When the ships arrived in the Great Lakes, they pumped the bilge water out into the lakes. The mussels, which look like little clams, were pumped out too. Now, zebra mussels are found throughout Lake Simcoe as well.

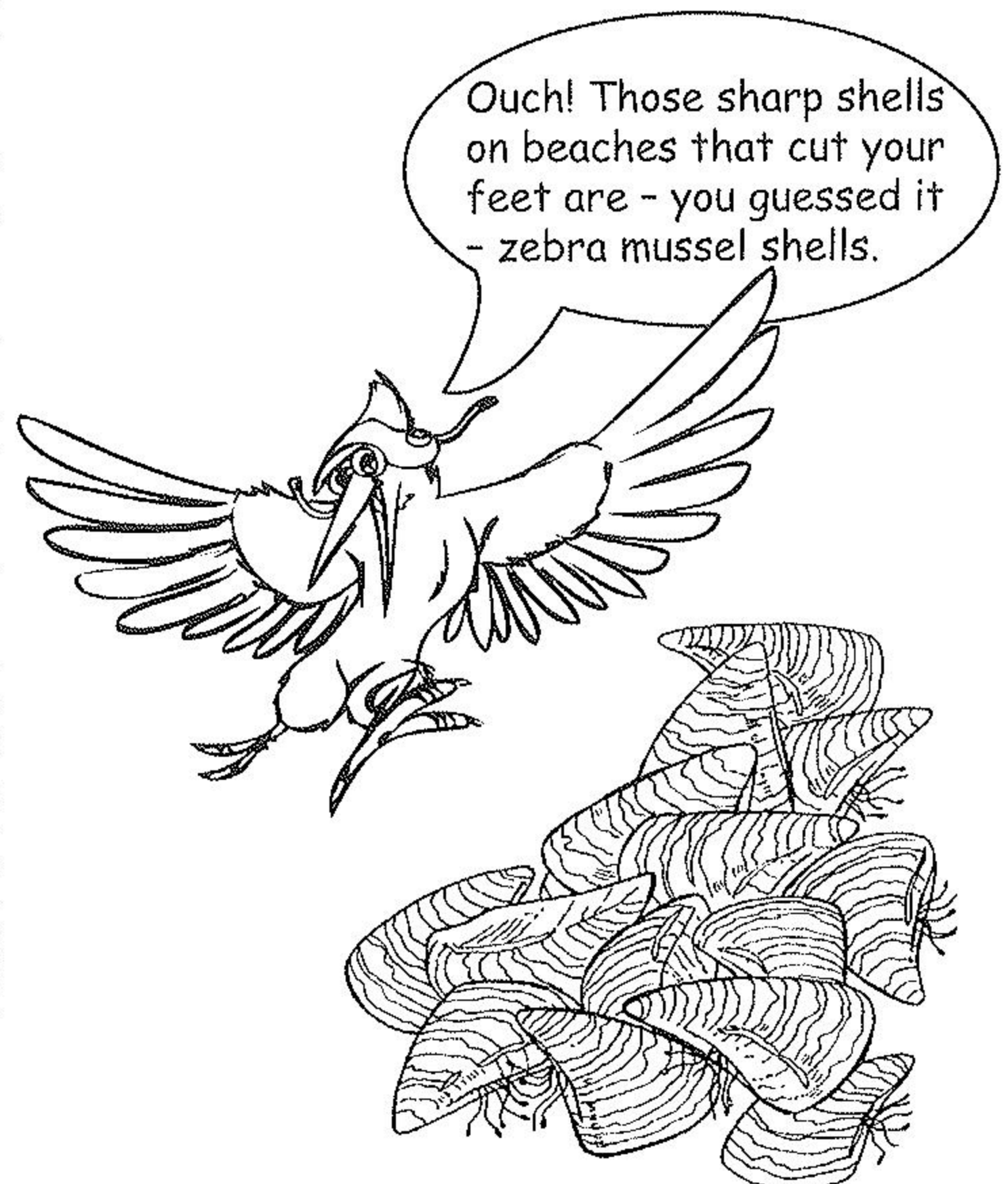
So what's the problem? Zebra mussels have no natural enemies in our lakes. They multiply and multiply! The foreign mussels gobble up nutrients that native plants and animals need to eat. Some of our native species have started to die out.

Zebra mussels are just one of the invasive species that have moved into our neighbourhoods. Dog strangling vine is another unwelcome newcomer. It was brought to North America from Russia over 100 years ago. Now it is choking out native plants and taking over our woodlands and marshes.

Invaders can be very hard to get rid of once they are here. Dog strangling vine, for example, can no longer be destroyed using traditional chemicals. You can't just pull the plant out either - that causes even more of them to grow from the roots!

Watershed Hero Checklist

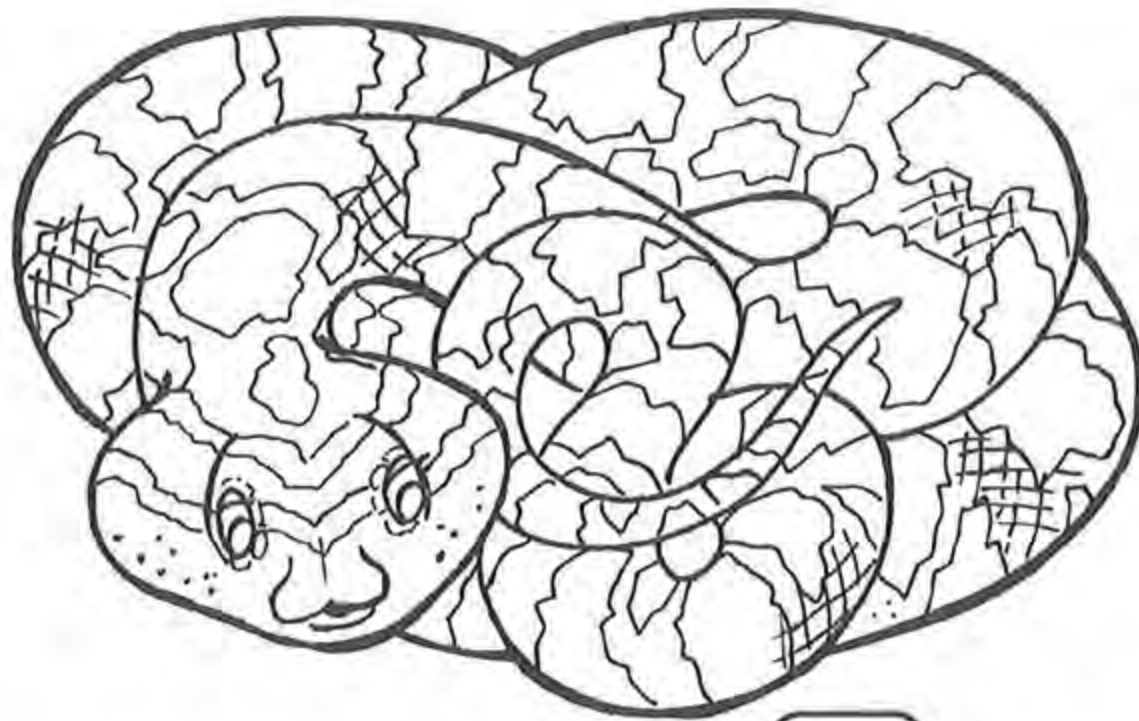
- Make sure you don't bring back any foreign plants, insects or animals from your travels.
- If you garden at home, use plants that are native to our area.
- When boating, clean your hull thoroughly if you travel from lake to lake. Make sure to remove zebra mussels and any weeds.
- Goin' fishing? If you use live minnows or baitfish, buy them in the same area where you will be dropping your line. Never release any live bait into a lake, river, pond or creek.



Help the Alien Defence Team find all the "aliens"



Place an "N" in the box next to the names of the plants and animals that are native to the Lake Simcoe watershed and an "I" for the ones that are invasive in the Lake Simcoe watershed.



Eastern hog-nosed snake



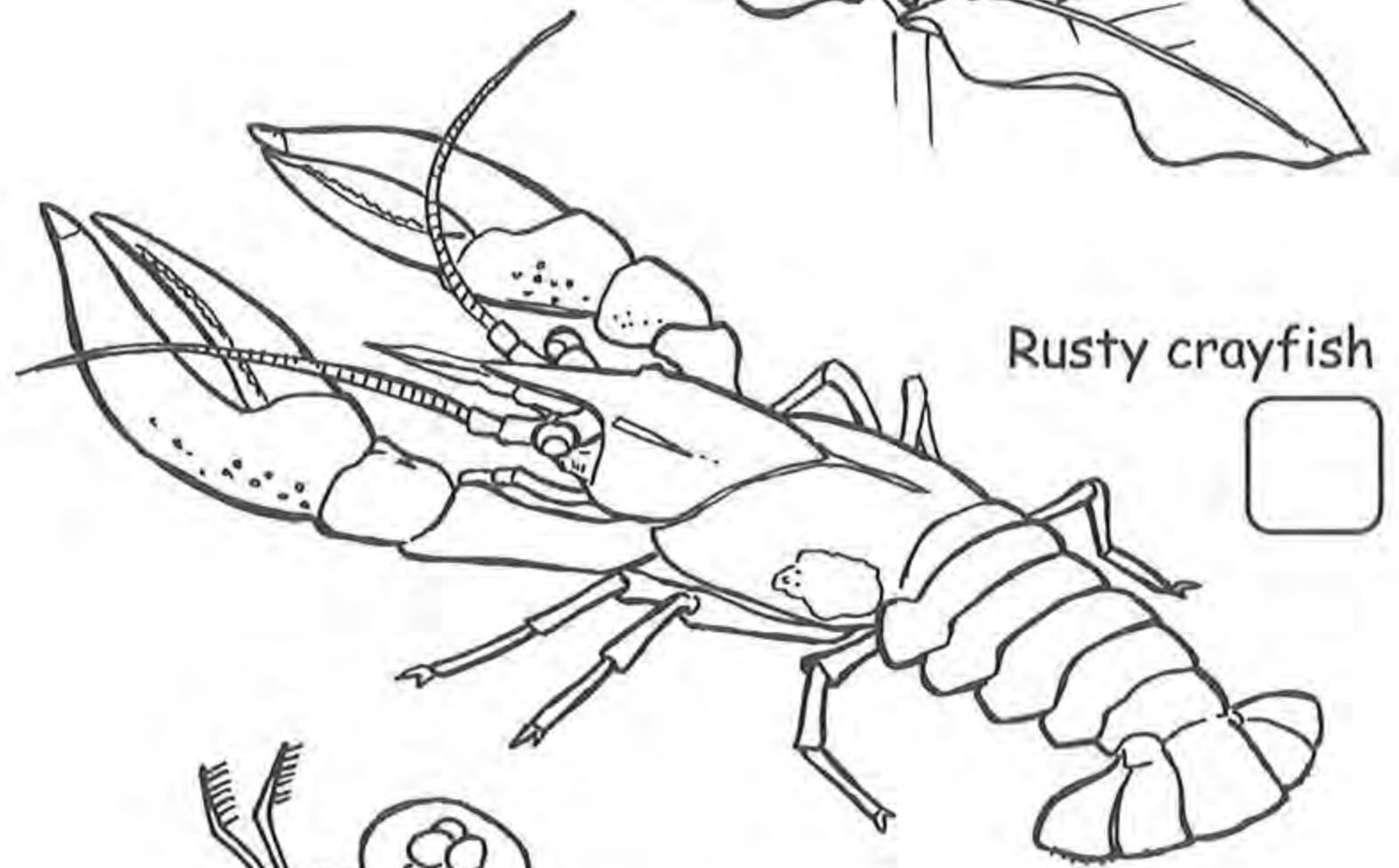
Jefferson salamander



Trillium



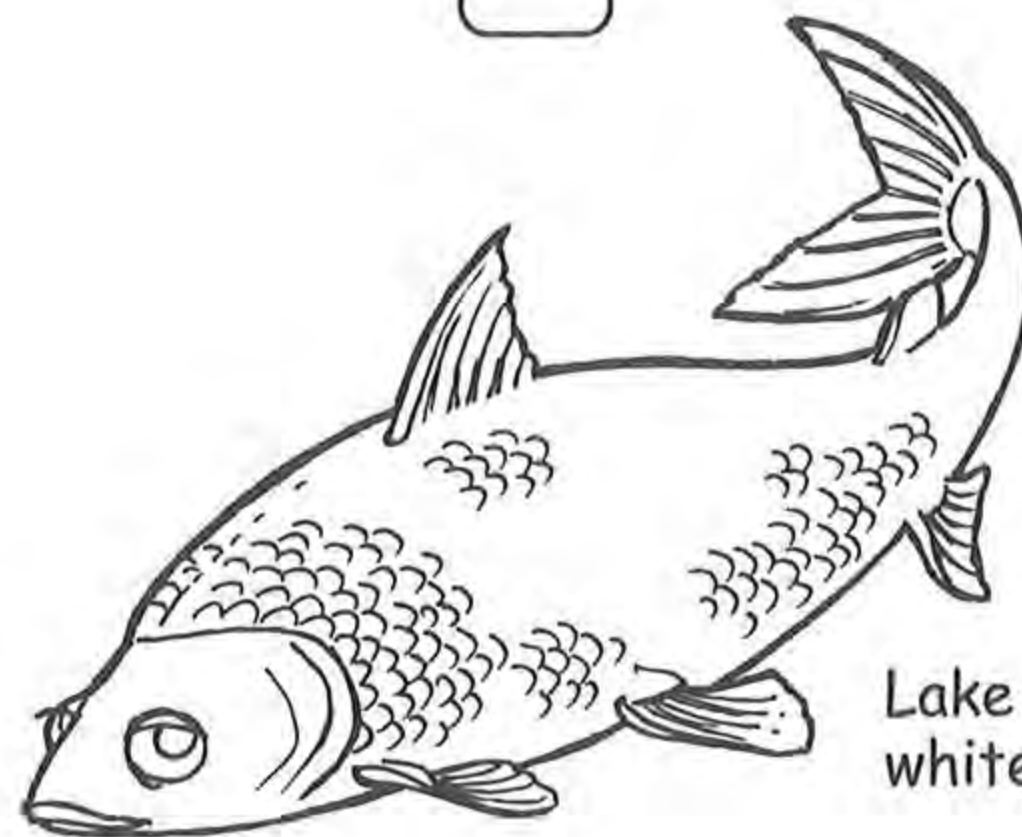
Dog strangling vine



Rusty crayfish



Spiny water flea



Lake Simcoe whitefish

Park Smarts

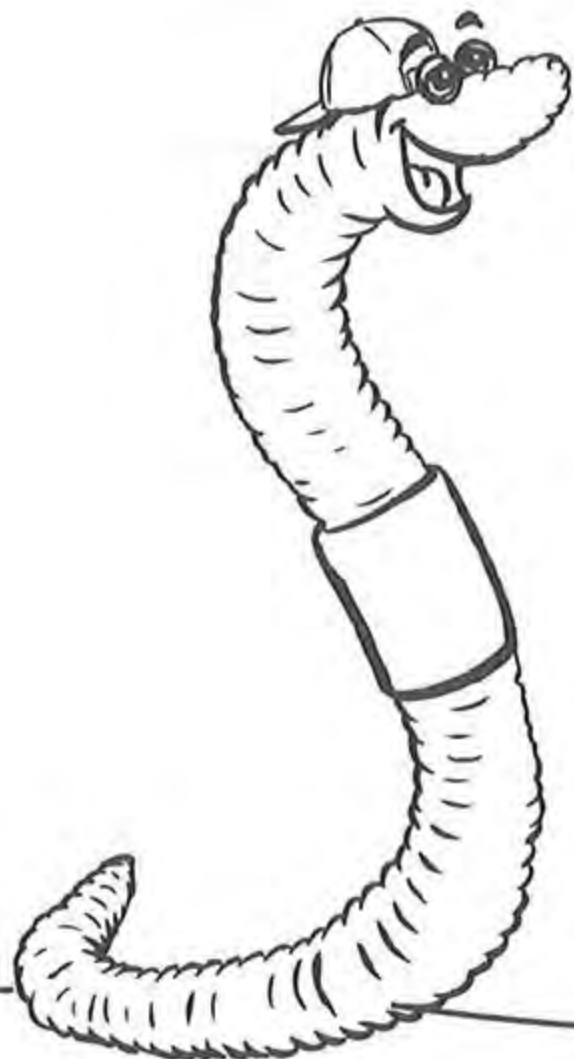
Everybody enjoys a day in the park - the fresh air, the pretty scenery, the chance to play and relax in the great outdoors.

But the *Great Outdoors* becomes the *Gross Outdoors* when it's littered with trash, the water is filthy or the air is smelly and smoggy. And eeeew! Who likes stepping in dog poo?

Parks are places where people relax, but they are 'home sweet home' to many plants and animals. When you ride your bike off the path, you might be destroying an animal's nest or new shoots of rare or endangered plants.

Feel like making a bouquet of flowers to take home? Please think twice! Flowers provide food and nectar for many animal species. For example, monarch butterflies only feed on certain types of flowers in the milkweed family. If you pick these pretty blooms, the butterflies will have trouble finding enough to eat. Later in the season, flowers make seeds so new plants can grow in following years. The seeds are also an important food source for migrating birds and other wild animals.

The basic rule for all our parks, therefore, is, "Take only photographs, leave only footprints."



Watershed Hero Checklist

- Never throw garbage on the ground. PLEASE put it in a trash bin. If there isn't one nearby, put the garbage in your pocket or a bag until you can find a garbage bin.
- Dog poop is one of the worst polluters of our waterways. When you walk your dog, always obey the poop and scoop rule. Lots of parks provide bags to pick up after your dog. Throw the bagged waste into the garbage cans at the park or take it home to throw into your green bin or garbage.
- If you ride to the park in a car, remind the driver not to leave the car idling, even if you're only staying for a minute or two. Idling cars put plenty of pollution into the air for no real benefit. Ten seconds of idling uses more fuel than restarting the engine, so idling not only pollutes, it wastes your money too!
- Respect the plants and animals that call the park home. Avoid breaking branches off trees or trampling greenery. Watch animals from afar so you do not frighten them or interfere with their activity.

Picture Perfect Park

Use the picture below to draw you and your friends using your "park smarts" to have fun.



Funky Phosphorus

Foss-for-us: That's how to pronounce "phosphorus", an element that is found naturally in our environment. It is in soil, plants, animals and even us!

Phosphorus is an important nutrient for all living things. Plants need it to grow. If there is enough of it in the soil, plants grow faster and bigger. For this reason, farmers and gardeners sometimes add phosphorus to the soil in the form of fertilizers.

Phosphorus has a downside, however. If there is too much of it, it can damage the environment. High levels of phosphorus in a pond or lake, for example, cause water plants and algae to grow like crazy. Ka-BLOOM! The lake might even turn a funky green.

When the plants and algae die, they sink to the bottom and rot. The rotting process uses up oxygen that other plants and animals need to live. That stinks - literally. Don't even try to blame the bad smell on the dog - it's all that rotten stuff sending up puffs of P.U.

Over time, the lake cannot support as much life. Fish and other animals cannot live in its depths. To get the oxygen they need to breathe, young fish have to swim up out of the safe, deep water. In the exposed shallows, they get gulped down by much larger fish.

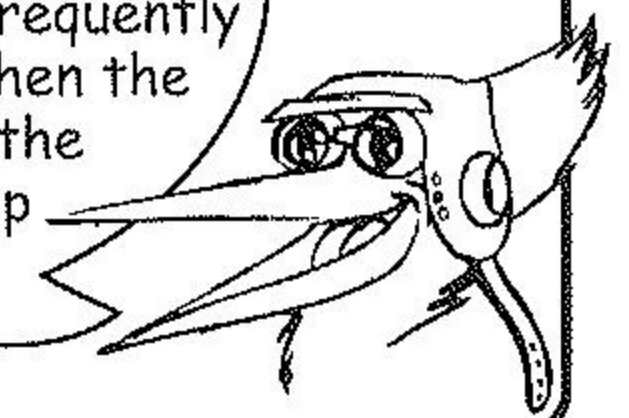
Right now, many of our waterways have too much phosphorus. The fish that live in them are having a hard time surviving!

Watershed Hero Checklist

- Use "green" cleaning products, soaps and detergents that don't contain phosphates.
- Reduce the amount of fertilizer used on lawns and gardens or better yet, don't even use it.
- Cut down on water running off your lawn - lawns need only 2.5 cm every week to stay healthy and allow the grass to grow longer.
- Washing the family car? Use only two buckets of water to reduce the amount of dirt, soap, oil and gas washing off driveways.
- Reduce run-off naturally by planting trees and shrubs around your property.

Where does all that extra phosphorus come from?

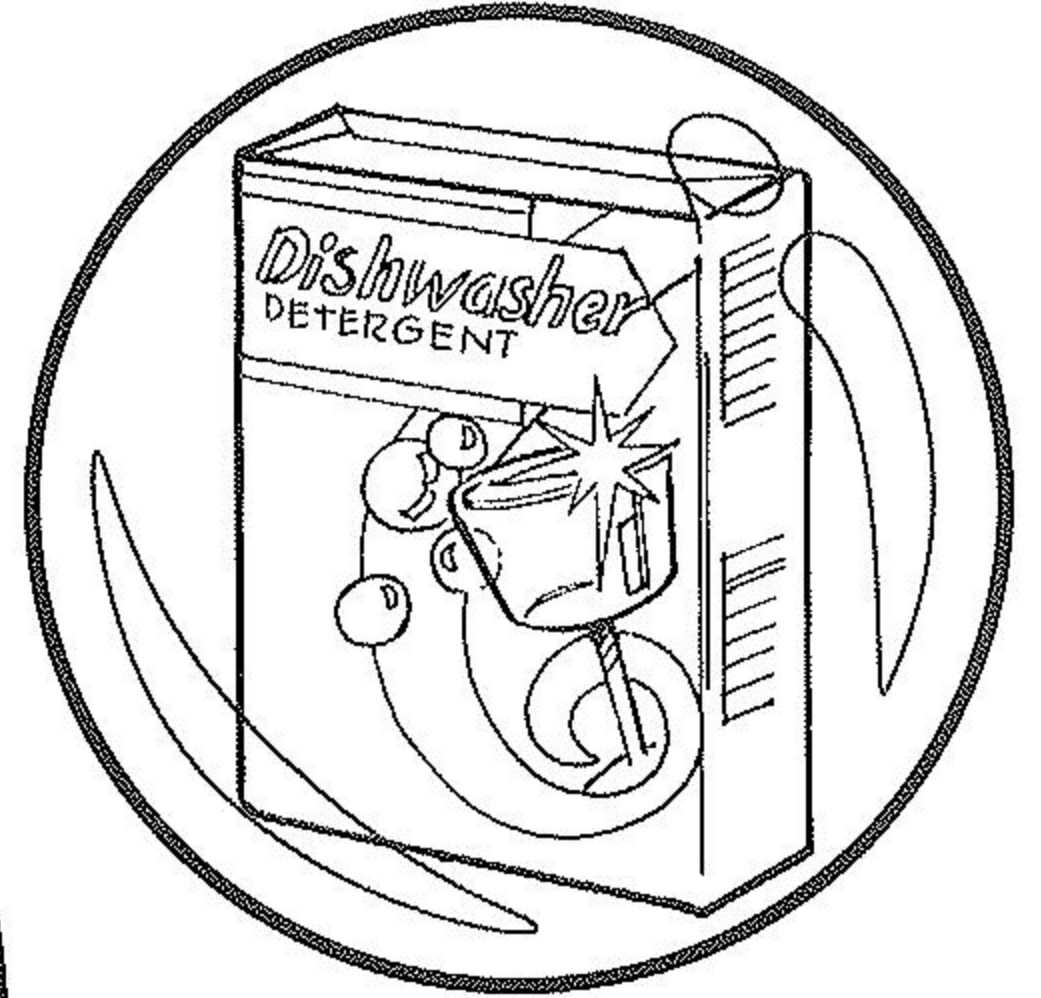
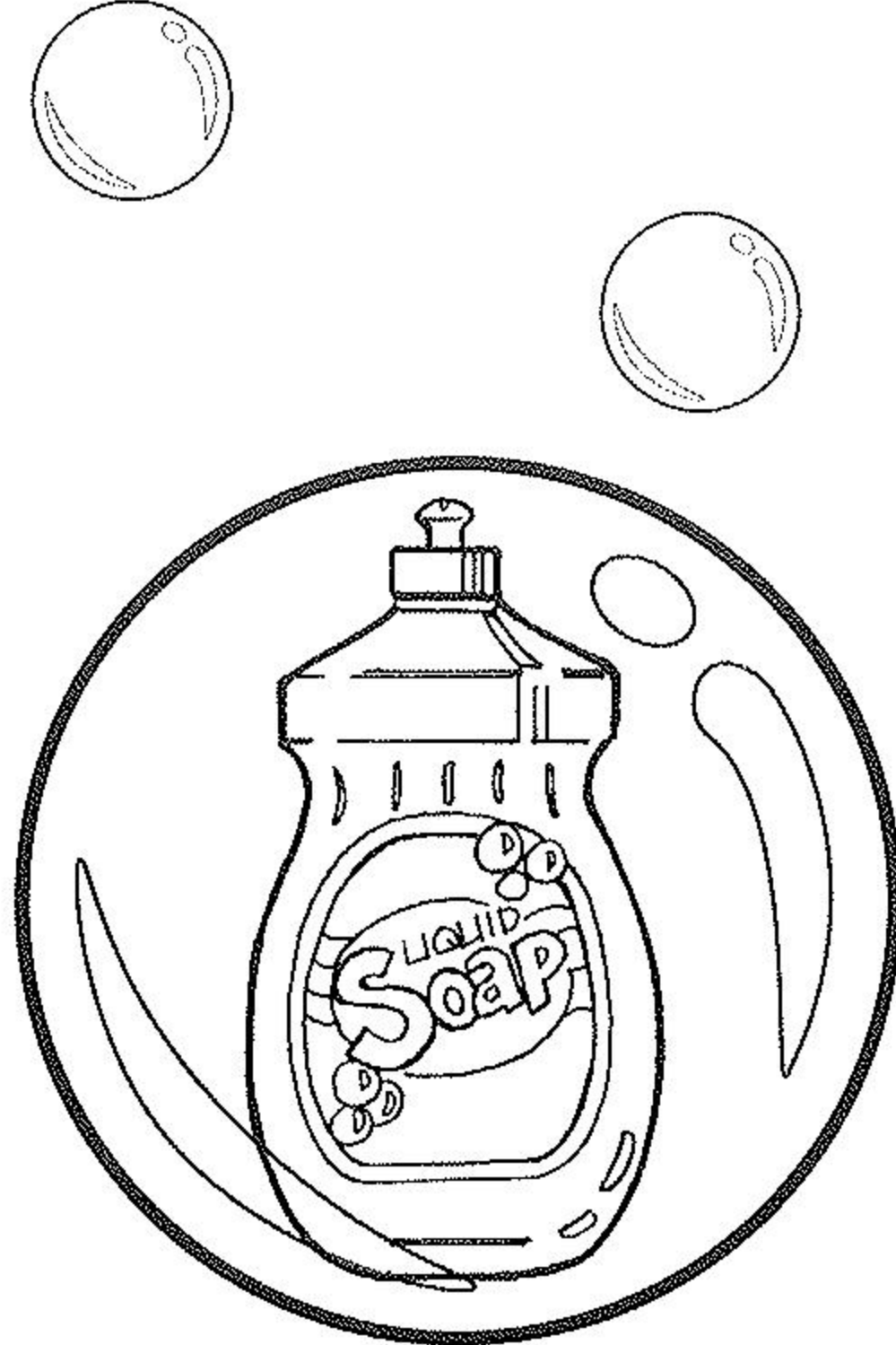
Phosphates, a form of phosphorus, are in many of the cleansers that we use in our homes. Dishwasher soap, laundry detergent and household cleansers all frequently contain phosphorus. When the cleansers go down the drain, they end up in our lake.



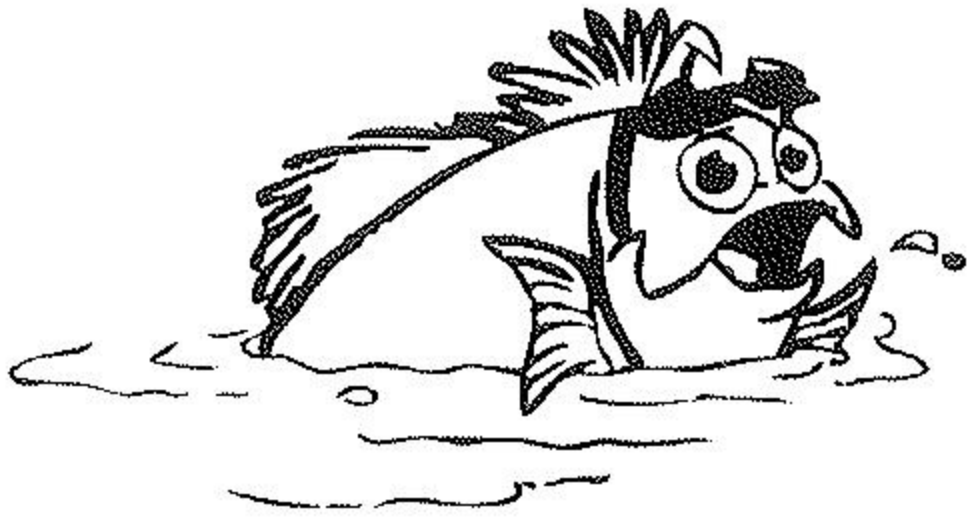
Phosphorus is also used as a fertilizer in household gardens, and in the soap you use to wash your car. When it rains, the phosphorus washes into storm drains. Eventually, those phosphorus-rich waters pour into our streams, creeks, ponds, and lake.

Bubble Burst

Look at the bubbles containing common household products. "Pop" (cross out) the ones that you think have phosphates in them.



Ninja Nightmare



You can't run.
You can't hide.
Not from deadly herbicides.
Not from no-pride pesticides.
Steer clear, stay wide!
From poisons that will leave
you fried!

Think of these chemical killers as the ninjas of the natural world.

Herbicides and pesticides are poisons that can be very harmful to people, plants and animals. While they have many practical uses, (for example, getting rid of infestations of rodents in your house, or removing poison ivy from trails) overuse means trouble!

After these chemicals are used, they mix with rainwater or the water you spray on the lawn or garden. Eventually, they make their way into our creeks, streams and the lake.

Drinking that chemical-laden water can be dangerous. The chemicals build up in the tissues of plants and animals. Sometimes, - YIKES! - it becomes concentrated enough to kill them!

Animals higher up the food chain may eat the contaminated plants or animals. They wind up with lots of the toxic chemicals in their systems. They grow sick and may have trouble reproducing.



Herbicides are chemicals we use to kill weeds and plants that are not wanted. Also known as weedkillers.

Pesticides are chemicals we use to kill insects that harm plants, or to get rid of pests around the house.

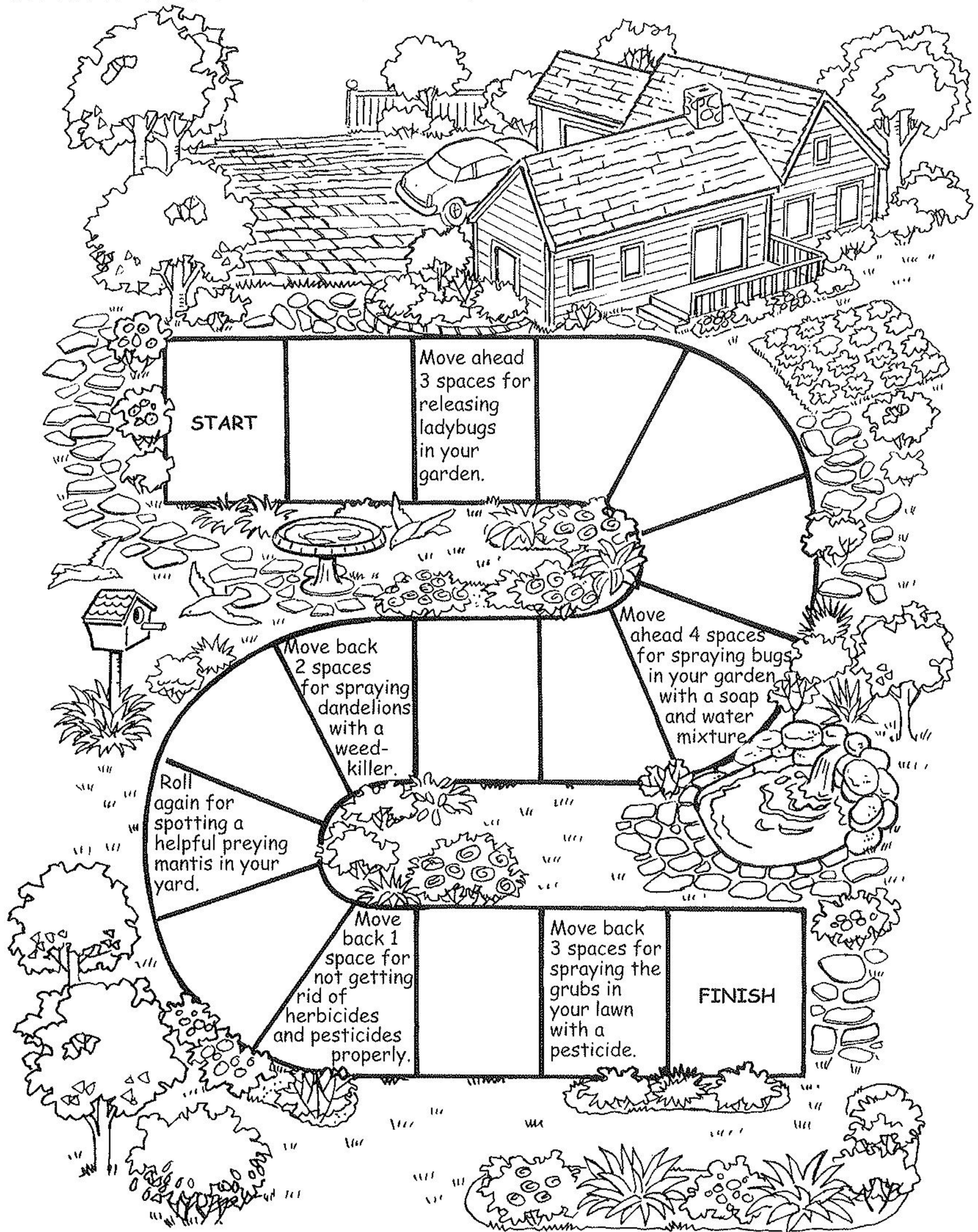


Watershed Hero Checklist

- The best way to stop ninja killers from damaging our watershed is simply to not use them. There are many natural ways to protect gardens, lawns and crops from weeds and insects without using pesticides and herbicides. For example, planting marigolds with tomatoes keeps most pests away from the tomatoes.
- Never get rid of chemical pesticides or herbicides by pouring them down sinks, toilets or storm drains. Dispose of them by taking them to your local household hazardous waste depot. Check with your municipality to find out the locations of these depots.

Backyard Board Game

Find a die or a spinner. Cut out the Watershed Hero characters at the bottom of the page to use as markers on the board. Make it to the finish line first to win.

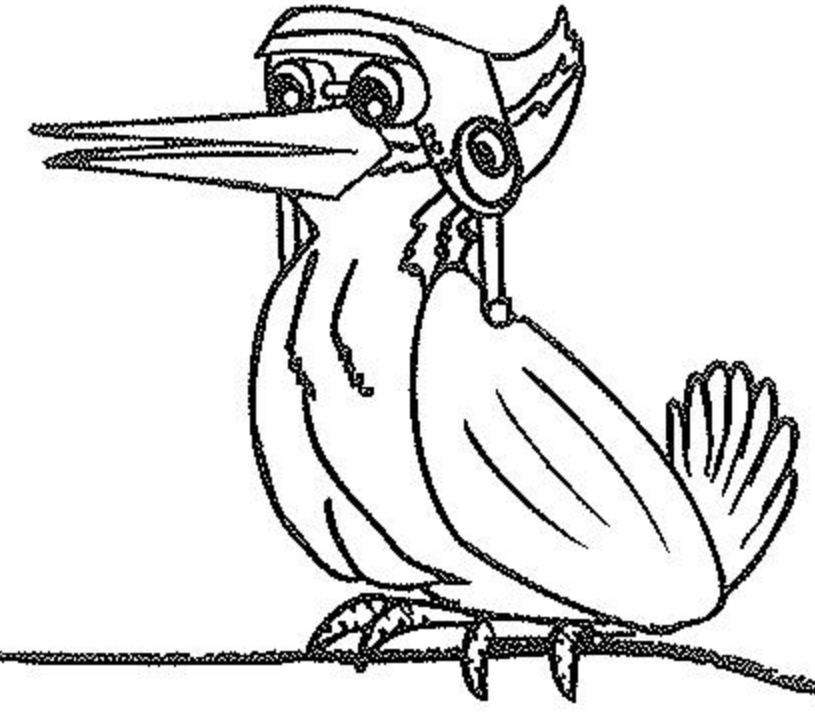


Ships Wreck?

Love to water-ski? Or does sailing 'float your boat?' Water sports are a sensational way to enjoy our lake. It's too bad, however, that some boaters accidentally wreck the very places they love the most.

One way is by spilling or leaking fuel into the water. The oil pools on the surface of the water, making rainbows of colour that are beautiful but deadly. The oil is toxic, and can harm or even kill plants, fish and other animals that live in or near the lake. The oil's not good for you either - contaminated water is not safe for you to swim in or to drink.

Did you know....
A single drop of oil can
contaminate 1000 litres of
water. That's enough water to
fill 500 pop bottles!



Watershed Hero Checklist

- Avoid boating near the shore. If you are close to the shoreline, be "shore" to drive slowly so the boat's wake doesn't stir up dirt or scare nearby animals.
- Always use a funnel to fill your boat's gas tanks. Keep cloths nearby to catch drips and spills.
- Make sure your boat engine is in good shape and isn't leaking fuel or oil before you leave the dock.
- Pump water from the sinks, showers and toilets into the proper places at marinas.
- Never throw garbage over the side of the boat into the lake or leave it lying on a beach.

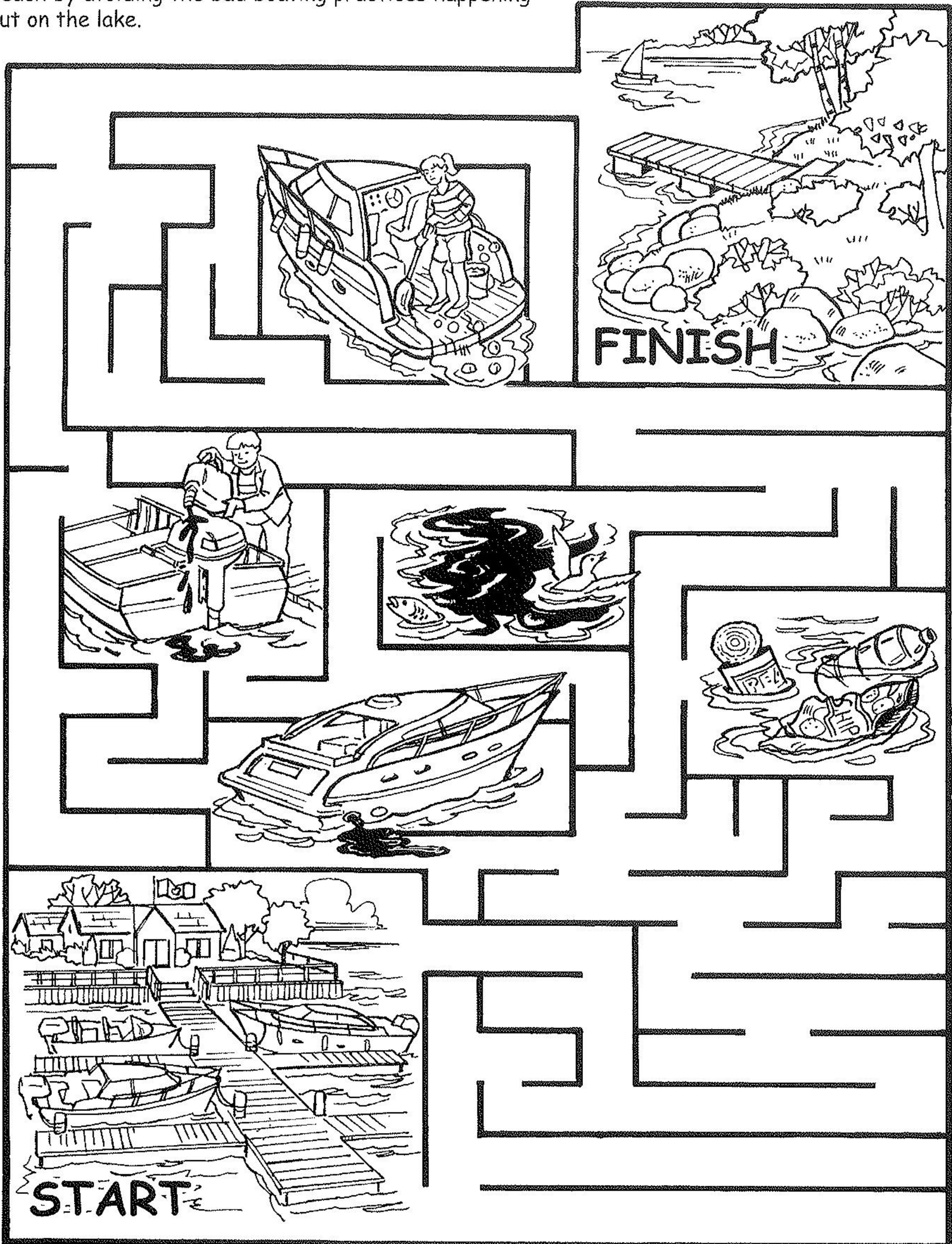
Another way boaters sometimes wreck our waterways is by dumping stuff overboard. After they wash dishes, flush the toilet or mop the deck, splash! The wastewater goes right into the lake. The wastewater, however contains all kinds of yucky chemicals, including phosphorus (see page 9). Bacteria also winds up in the drink - literally!

Are you a speed demon? Zooming around near to shore at high speeds causes problems of its own. Fast boats stir up dirt from the bottom of the lake. Fish and other animals can't see as well, and their gills can get clogged with sediment. Sand and soil from the shoreline gets washed into the water. That messes up the homes of birds and fish. And big waves wash away the shoreline.

By all means, climb aboard and enjoy boating! Just use common sense to keep our waterways shipshape!

a-MAZE-ing Boat Race

Get your boat safely from the marina to the dock at the beach by avoiding the bad boating practices happening out on the lake.



Current Events

Quick! Point to your gills.

What???? You don't have gills?

Remember that simple fact the next time you wander down to the waterfront. Every year, more than 400 people drown in Canadian waters. Most of those drownings (6 out of every ten victims) happens during summer-fun activities, such as swimming, fishing or boating.

The waters that make our area so beautiful can be dangerous as well. In spring especially, even the smallest amounts of rain or melting snow can make a river or stream race and churn. Anybody who falls in could be swept away.

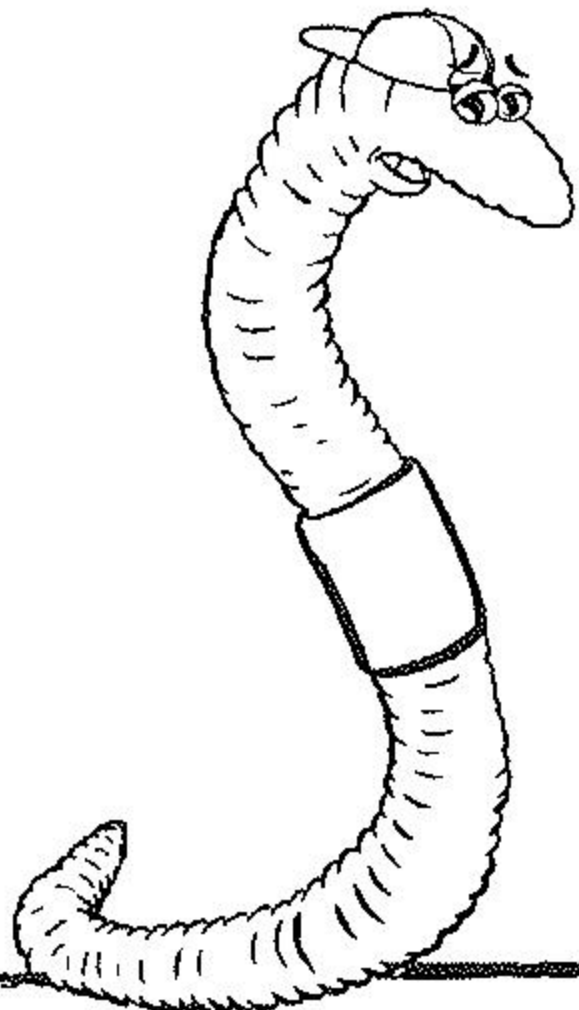
Swiftly flowing currents are not limited to spring time. They can occur at any time of year, in any body of water. You can't always see them either. Big lakes sometimes have currents called undertows that can pull swimmers away from beaches.

Dams also produce strong currents. The water that flows over them travels very quickly and with great force. While they may look like fun places to climb, dive or swim, dams are dangerous even for very strong swimmers. So leave dams to the beavers!

Water sports are meant to be enjoyed. So stay on top of current events and stay safe in the water.

Did you know...

- Most drownings happen when the victim is fewer than 15 meters - less than 15 swimstrokes - from safety.
- 87% of drowning victims were not wearing personal flotation devices (PFDs) or did not have them done up properly.



Watershed Hero Checklist

- Avoid creeks, streams, rivers, ponds or lakes when the ice is melting and the water is very high.
- Always wear a life jacket (PFD) when you are in a boat, even when it is not moving.
- If you are swimming, fishing or playing around water, always have a grown-up or older buddy there so that you are never alone. This goes for adults too!
- Know how deep the water is before you dive in.
- Never dive off rocks or any other structures that are not meant for diving. Never dive, swim or play around dams.

Water Safety Anagrams

Unscramble the letters to make water safety words. Place the letters in the circles in order on the lines below to reveal the secret message.

1. GABITON

○ — — — — —

2. SALEK

— — — ○ ○

3. TEMSAR

— — — — ○ —

4. SINGFIH

○ — — — — —

5. TRENCUR

— — — — ○ — —

6. MAD

— ○ —

7. GOWNDRIN

— ○ ○ — — — —

8. WOTREDUN

○ ○ ○ — — — — —

9. MIMSWING

— ○ — — — — —

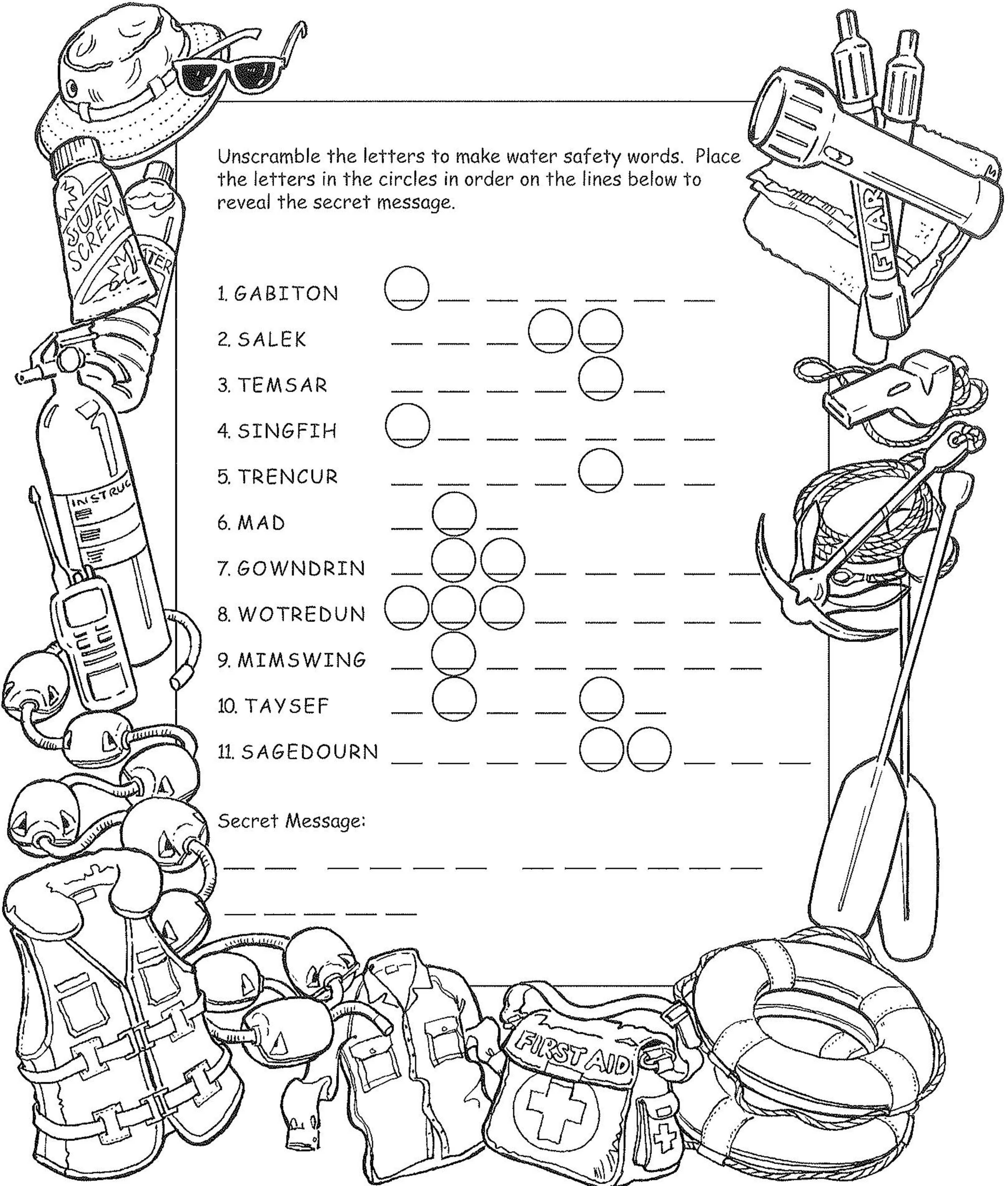
10. TAYSEF

— ○ — — ○ —

11. SAGEDOURN

— — — — ○ ○ — —

Secret Message:



Water, water everywhere ... but for how long?

We live near a lot of very big lakes - Lake Ontario, Lake Huron, Lake Erie, and, of course, Lake Simcoe. It's hard to imagine we could ever run out of water.

Guess again. We're running out right now!

Two hundred years ago, there was only a small population of people living in our watershed. Today, there are close to 400,000 people, and the number is growing!

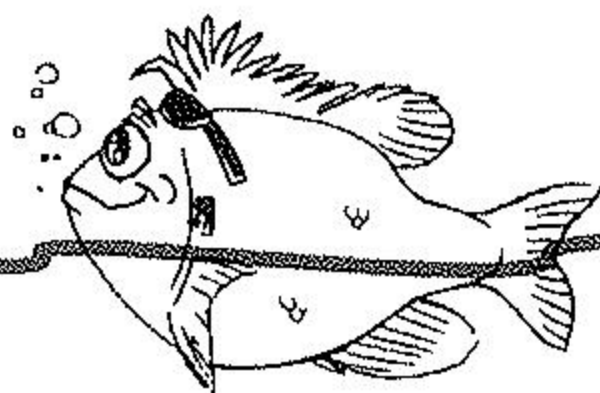
More people means more users of water. According to Environment Canada, each person goes through, on average, 329 liters of water a day. Much of that is simply wasted. All that precious water just disappears down the drain!

When you flush or run the tap, the water travels through pipes to a local water treatment plant. There, it is cleaned so it can be reused. Treating the water is expensive. Your family pays the price - Wasted water = more expensive water bills.

Some of our older citizens tell us that they remember the days when they would drink water directly from our lakes and rivers. You couldn't do that today. Because of pollution, we have to filter or clean the water and treat it with chemicals before we can drink it.

Watershed Hero Checklist

- When you brush your teeth, don't let the water run continuously. Turn the tap off, then back on again when you need it.
- Hate waiting for the water from the tap to get cold? Letting the water run is wasteful too. Keep a full water pitcher in the fridge so your cold drink is ready when you need it.
- When loading the dishwasher, scrape plates clean instead of rinsing them. Only use the dishwasher for a full load of dishes. When washing only a few items, wash them by hand.
- Take shorter showers. Install low-flow shower heads.
- Fix leaking taps.
- Instead of using a hose to wash the driveway, sweep it with a broom.
- Lawns and gardens only need to be watered about once a week depending on how rainy it is. Collect rain water in special barrels that can be used when it is very dry and the grass and plants really need it. Add mulch to gardens to prevent them from drying out quickly.



Be Wise With Water

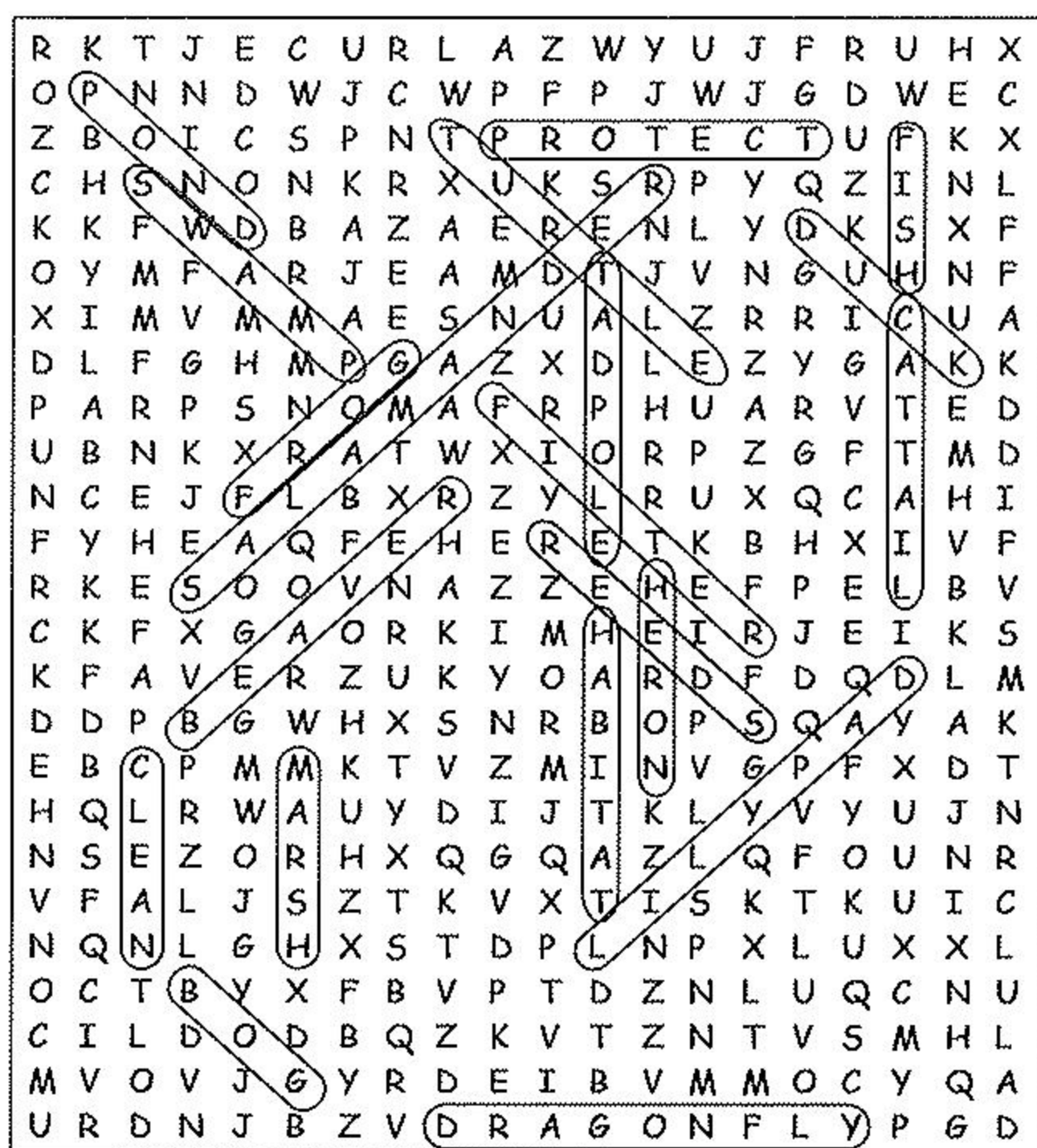
Put a ✕ next to the activities in the picture below that are wasting water.

Put a ✓ next to the activities that save water.



Answers

Page 4 - Wetlands Word Search:



Page 6 - Help the Alien Defence Team:

The eastern hog-nosed snake is a native species in the Lake Simcoe watershed. This snake is actually a threatened species on the Species at Risk list. Threats to this snake include loss of habitat from development and people.

The dog strangling vine is an invasive species. One way to get rid of this plant is to dig it up, making sure to get all of the roots and destroying the plant.

The Jefferson salamander is a native species. This salamander is a threatened species on the Species at Risk list. Threats to the Jefferson salamander include habitat loss caused by development and pollution.

The rusty crayfish is an invasive species in our watershed. It is more aggressive than the native species of crayfish and competes with native crayfish for food and shelter.

The trillium is a native plant in the Lake Simcoe watershed. It is also Ontario's provincial flower.

The spiny water flea is an invasive species. It feeds on small animal life called zooplankton which is also a food source for young fish in our lake.

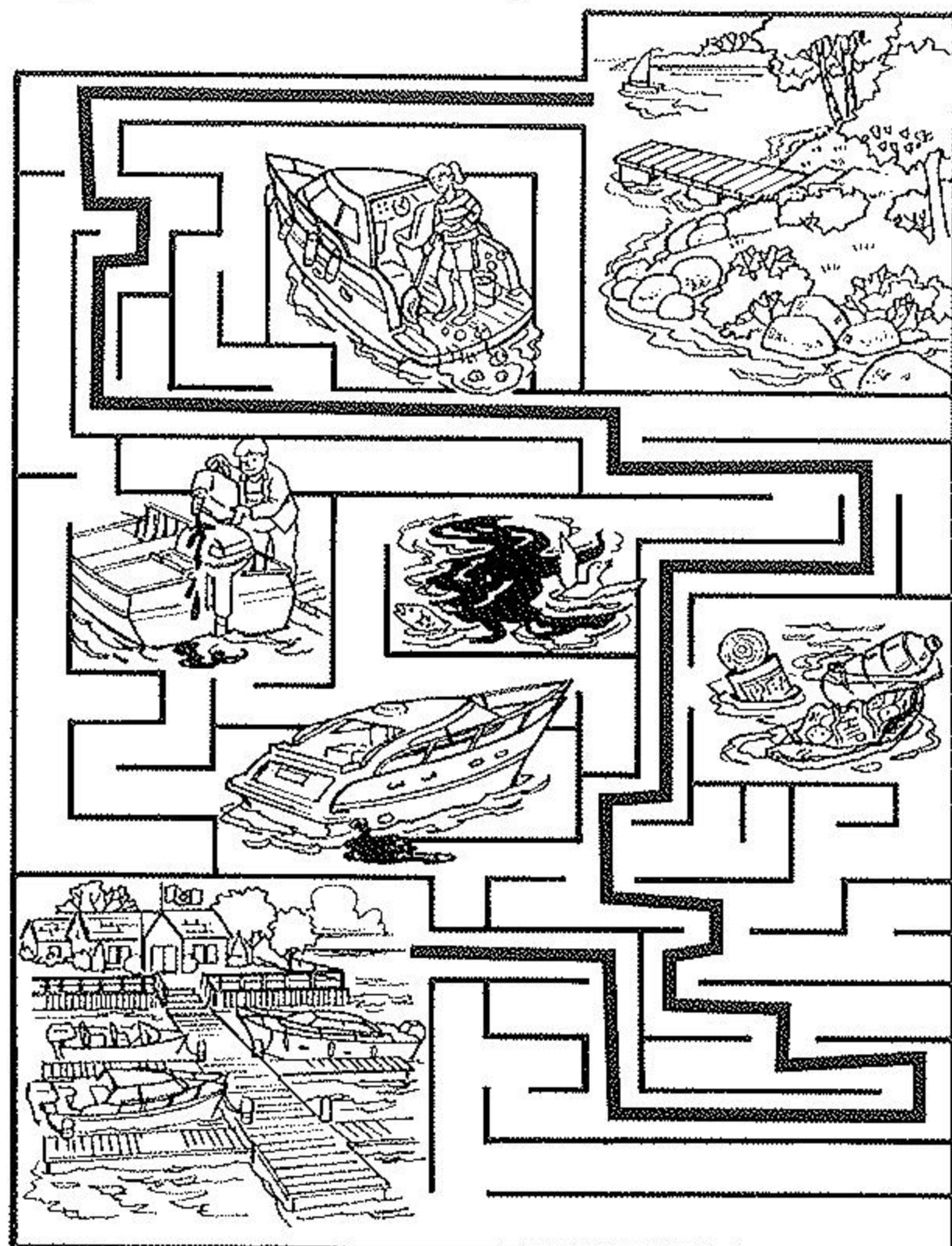
The Lake Simcoe whitefish is a native species in our lake. It is a threatened fish on the Species at Risk list. Lack of oxygen in our lake is affecting the health of this species.

Page 10 - Bubble Burst:

Products with phosphates: clothes detergent, lawn fertilizer, toothpaste, dishwasher detergent and liquid soap (unless the label says "phosphate free").

Products without phosphates: soda pop, milk and vinegar.

Page 14 - a-MAZE-ing Boat Race:



Page 16 - Water Safety Anagrams:

1. BOATING
2. LAKES
3. STREAM
4. FISHING
5. CURRENT
6. DAM
7. DROWNING
8. UNDERTOW
9. SWIMMING
10. SAFETY
11. DANGEROUS

Secret Message: BE SAFE AROUND WATER

Page 18 - Be Wise With Water:

Water saving activities: sweeping the driveway, rain barrel collecting water to use to water gardens, adding mulch to garden helps the garden to not dry out.

Water wasting activities: washing driveway with the hose, dripping taps, leaving hose running when washing car, running the sprinkler too much (lawns only need 2.5 cm of water every week.)



Watershed Hero Team Buttons

Colour any of these button templates, then cut this page out and fill out the form below. Have your parent/guardian mail it to us. We will turn the templates into buttons and mail them back to you. You can put them on your coat, backpack or pencil case and let everyone know that you're a Watershed Hero!



Please fill in the following information:

Name: _____

Address: _____

I have my parents'/guardians' permission to send these button templates to the Lake Simcoe Region Conservation Authority.

I would like more information about the Lake Simcoe Conservation Foundation.



Please mail to: Lake Simcoe Region Conservation Authority, 120 Bayview Parkway, Box 282
Newmarket, ON L3Y 4X1, Attn: Watershed Heroes



Lake Simcoe Conservation Foundation

There are lots of ways we can all become watershed heroes and help our environment. We don't need super powers; we just need to think about the things we do in our everyday lives and how that affects our environment. By making wise choices, we can keep the Lake Simcoe watershed FAB 4Eva!

You and your family can also help by donating to the Lake Simcoe Conservation Foundation. Donations are used to fund projects that protect and restore Lake Simcoe. To find out more about the Foundation visit: www.LakeSimcoeFoundation.ca or call 905-895-1281.

