

# THE RAINY DAY

ACTIVITY BOOKLET



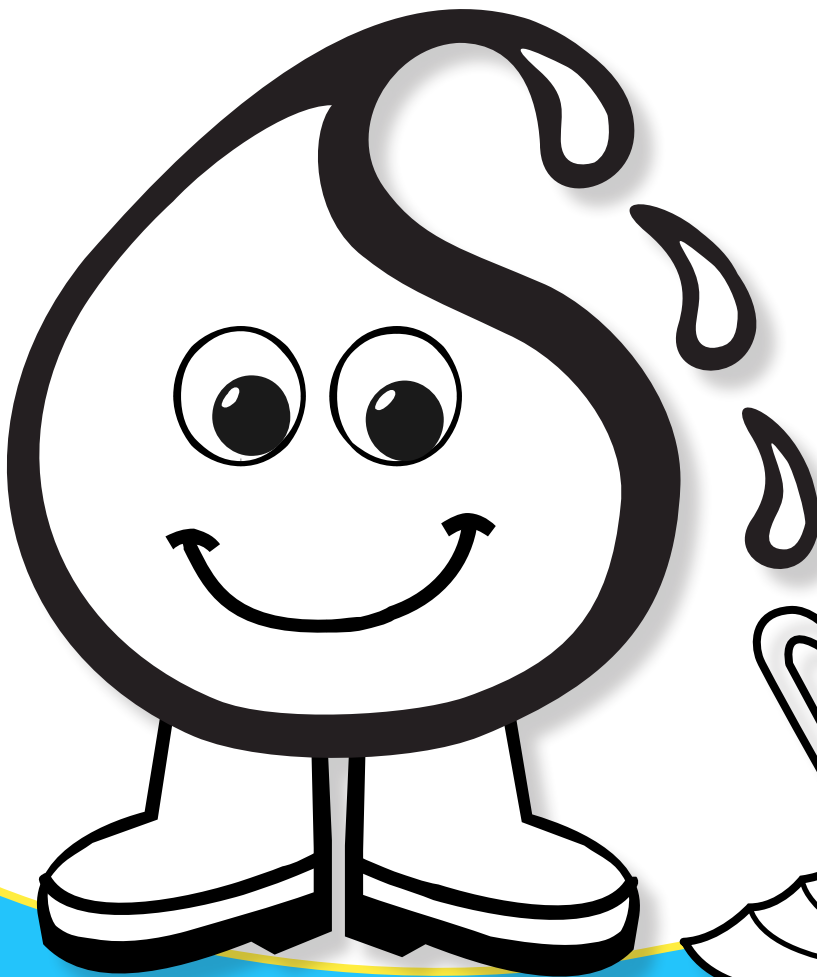
PRESENTED BY

THE CITY OF WELLAND AND THE WELLAND CONSERVATION COMMITTEE

# NICE TO MEET YOU!

*Hi Kids!*

*I am so happy that you can join us in this year's 2008 program. My friends and I would like to share more facts and more games with you. Are you ready to have some fun?*



Since the beginning of time we have been using water, and the same water dinosaurs drank, we drink. However it's only in the last few years that we have started thinking and acting water smart.

Not only do we need to conserve our water but we also need to conserve our energy. Did you know that conserving energy is easy? Simply turning off the lights when we leave a room can help.

We all play an important role in making sure we do not waste our resources. Are you ready to start learning and conserving? But most of all don't forget to have fun!

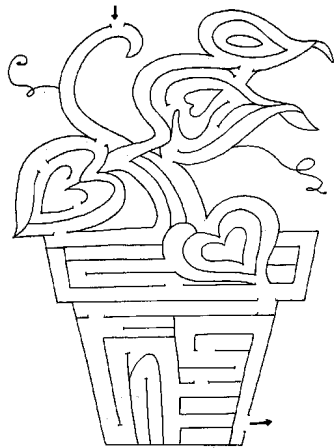


# CONSERVATION FRIENDS

There are all kinds of ways to conserve and save.

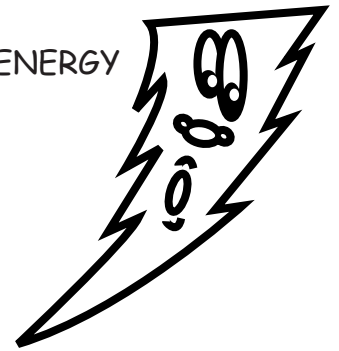
Did you know you can help the environment by taking a litter-less lunch to school? That way you don't fill up the garbage with unnecessary trash.

Did you know that you can save the rain and use water to feed gardens and plants?



RANDY RECYCLE

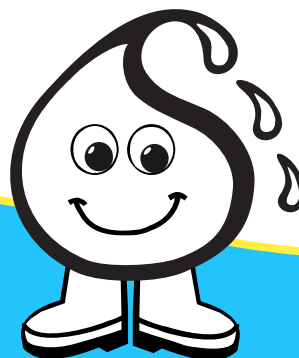
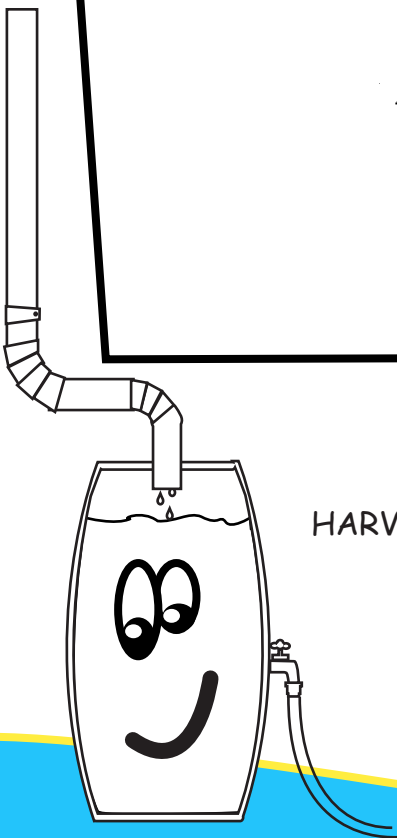
JOLT of ENERGY



WASTE - NOT



HARVEY the RAIN HARVESTER



UCAN CONSERVE

# THE WATER CYCLE AND

The water we drink today is made of the same components the dinosaurs once drank thousands of years ago. Some experts say, we are surviving off the exact same recycled water. But do you know how the cycle works? Keep reading to find out.

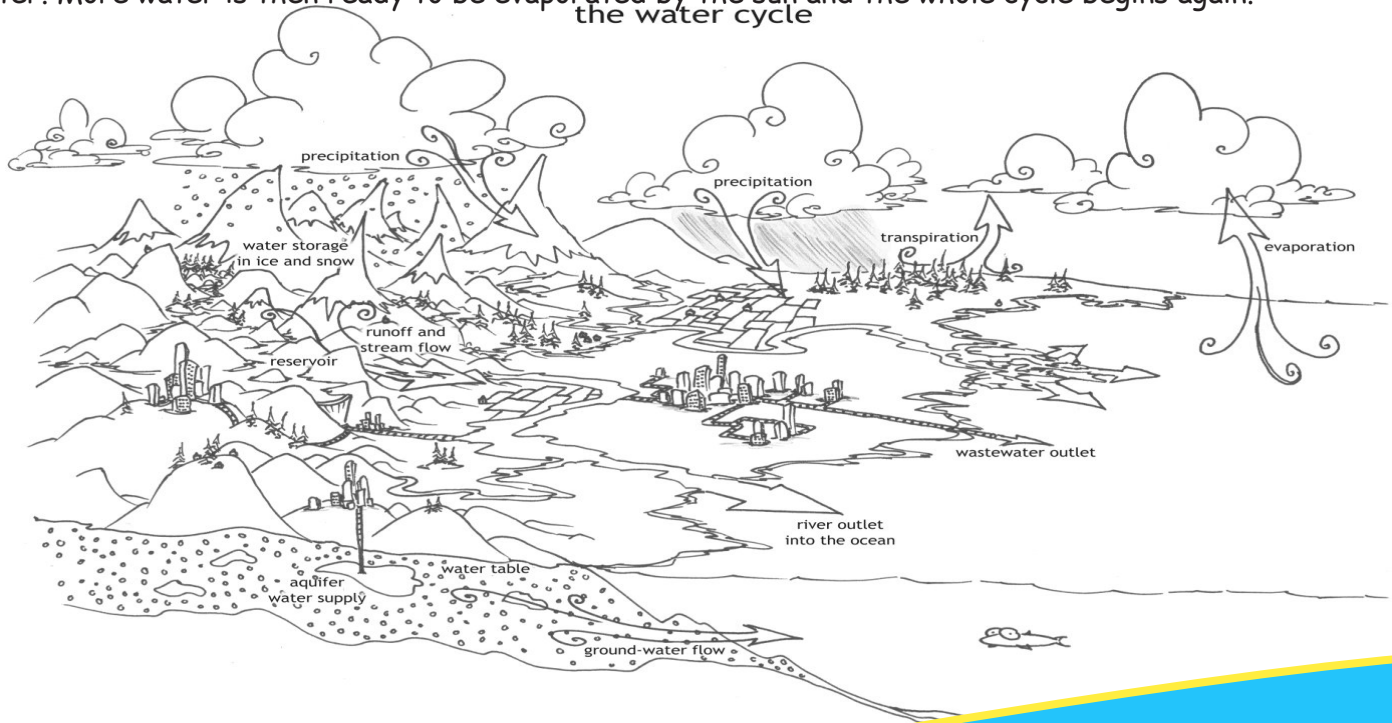
## What is the 'The Water Cycle'?

The Water Cycle is a natural water recycling process that is in constant motion. The sun's heat energy warms and evaporates the world's oceans, lakes and even the ponds in your backyard. This is called water evaporation, a process that happens when heat changes liquid to a gas.

When water evaporates, it cools as it rises into the air to form clouds. As the water vapour collects particles and cools the gas changes back into a liquid. This is the condensation process.

During the condensation process the clouds grow larger by further cooling and collecting water droplets. The droplets get so big and heavy they begin to fall from the sky in the form of rain. The scientific name for droplets is precipitation. Precipitation from the sky comes down to the ground in forms of rain, snow, sleet or even hail depending on the temperature of the atmosphere.

The precipitation that falls to the ground then runs off into lakes, rivers, streams, and any other bodies of water. More water is then ready to be evaporated by the sun and the whole cycle begins again.



# ENERGY INFORMATION

Energy comes in many forms: heat, light, chemical, mechanical, electrical, and nuclear energy. Energy is in everything. We use energy to do everything we do, from making a jump shot, to baking our favorite cookies, to sending astronauts into space - energy is there, making sure we have the power to do it all.

There are two types of energy -- stored (potential) energy and working (kinetic) energy. For example, the food you eat contains chemical energy, and your body stores this energy until you release it when you work or play.

All forms of energy are stored in different ways, in the energy sources that we use every day. These sources are divided into two groups -- renewable (an energy source that can be replenished in a short period of time) and nonrenewable (an energy source that we are using up and cannot recreate in a short period of time). Renewable and nonrenewable energy sources can be used to produce secondary energy sources like electricity.

Renewable energy sources include solar energy, which comes from the sun and can be turned into electricity and heat. Wind, geothermal energy from inside the earth, biomass from plants, and hydropower and ocean energy from water are also renewable energy sources. However, we get most of our energy from nonrenewable energy sources, which include the fossil fuels -- oil, natural gas, and coal. They're called fossil fuels because they were formed over millions and millions of years by the action of heat from the Earth's core and pressure from rock and soil on the remains (or "fossils") of dead plants and animals.

We use all these energy sources to generate the electricity we need for our homes, businesses, schools, and factories. Electricity "energizes" our computers, lights, refrigerators, washing machines, and air conditioners, to name only a few uses. We use energy to run our cars and trucks. Both the gasoline used in our cars, and the diesel fuel used in our trucks are made from oil. The propane that fuels our outdoor grills and makes hot air balloons soar is made from oil and natural gas.

## Fossil Fuel Facts

- ▶ Burning fossil fuels for energy is a human activity that contributes the most to global warming. About 90% of the energy used around the world comes from coal, oil and natural gas. Carbon dioxide released from getting and using these fossil fuels is the largest source of greenhouse gases from human activities.
- ▶ For every litre of gas burned by the average car, about 2.4kg of carbon dioxide is put into the air. In Canada, the average car releases 5.3 tonnes of carbon dioxide a year – that equals more than the weight of a car.
- ▶ Coal is made from plants that grew in swampy areas millions of years ago. When the plant died they were buried under layers of mud. Over time the plants were crushed and heated up and finally became coal.
- ▶ About 90% of the energy that is used around the world to make things, heat homes, and other buildings, drive cars, etc. comes from coal, oil and natural gas.
- ▶ Natural gas creates less CO<sub>2</sub> (carbon dioxide) than oil or coal when it is burned. Coal creates the most CO<sub>2</sub> (carbon dioxide) when it is burned.
- ▶ Alberta produces and uses the most coal out of any province and territory in Canada. The coal is mainly used to generate electricity.

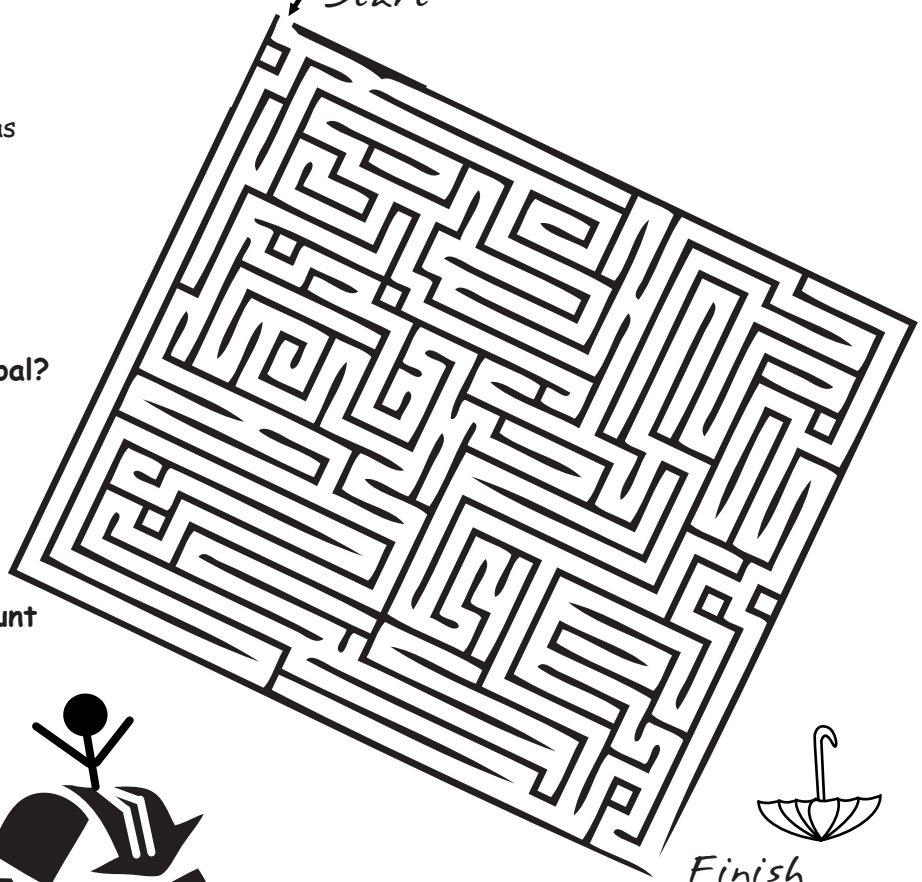
# CAN YOU HELP FIND

## Energy Quiz

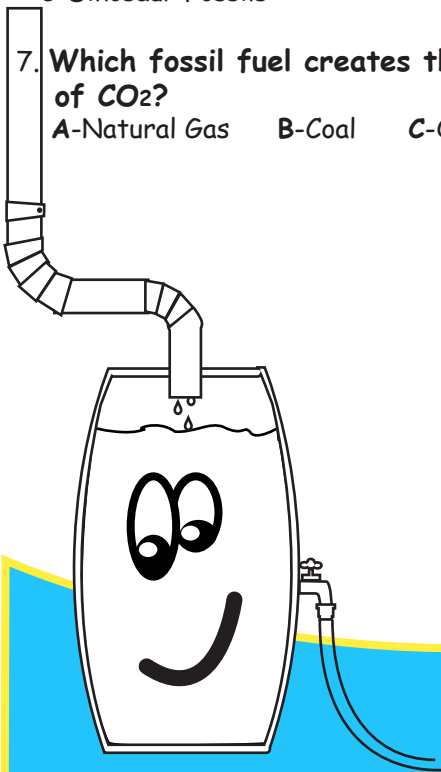
1. Which is NOT a fossil fuel?  
A-Oil      B-Coal      C-Wood
2. How much carbon dioxide is put into the air for every litre of gas on an average car use?  
A-Zero      B-2.4kg      C-24kg
3. What does the word Petroleum mean?  
A-Rock Oil      B-Ancient Creatures      C-Swamp Gas
4. Which one of these human activities contributes the most to global warming?  
A-Riding Scooters      B-Cutting Down Trees  
C-Using fossil fuel for energy
5. Which Canadian Province uses the most coal?  
A-Alberta      B-Ontario      C-Manitoba
6. What is coal made from?  
A-Dead Plants      B-Mixed Chemicals  
C-Dinosaur Fossils
7. Which fossil fuel creates the lowest amount of CO<sub>2</sub>?  
A-Natural Gas      B-Coal      C-Oil



Start



Finish





# WATER & ENERGY SEARCH

## WATER CONSERVATION

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

**BARRELS**  
**BOTTLES**  
**CONSERVE**  
**GARDENS**  
**GAS**  
**ICE**  
**LAKES**  
**LIQUID**  
**RAIN**  
**RECYCLE**  
**REDUCE**  
**REUSE**  
**RIVERS**  
**SUN**  
**UCAN**  
**WATER**

## ENERGY CONSERVATION

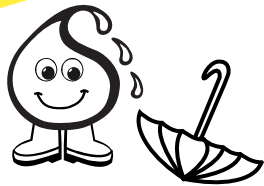
L	M	O	L	U	N	L	N	C	E	H	F	M	L	P
E	H	Y	D	R	O	M	O	M	J	E	U	E	W	T
A	E	C	K	E	N	O	I	O	R	K	B	P	N	U
D	Q	V	H	E	E	S	T	E	P	L	K	E	U	Z
E	S	L	W	G	S	D	A	X	V	R	M	Y	C	P
R	L	R	D	I	B	E	P	N	P	N	A	W	A	O
S	P	K	O	O	Y	V	I	O	O	W	A	C	N	N
H	M	N	J	D	M	L	C	R	W	L	T	R	L	K
I	S	W	X	B	R	O	I	U	K	E	F	I	U	B
P	R	J	O	L	T	V	T	M	H	W	R	Q	P	Y
T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

**CAR-POOL**  
**CONSERVE**  
**EMISSIONS**  
**ENERGY**  
**ENVIRONMENT**  
**HYDRO**  
**INVOLVED**  
**LEADERSHIP**  
**LIGHT-BULBS**  
**PARTICIPATION**  
**POWER**  
**UCAN**  
**WALK**

# A MIX OF EXPERIMENTS

## Salt Water To Fresh Water

How can ocean water be turned into fresh, usable water?



Distilled water  
Small clear, clean cup  
Marking pen  
Plastic wrap

**You will need:**  
Spoon, tape and ruler  
Salt  
Large clear bowl  
A marble or a clean rock

### Perform the Experiment:

- 1- Fill the cup 3/4 full of distilled water.
- 2- Add one heaping spoonful of salt to the water and stir for 3 minutes.
- 3- Pour the salt water into a bowl.
- 4- Place the cup directly in the middle of the bowl. Cover the bowl tightly with plastic wrap and secure the plastic wrap with tape. **DO NOT LET THE PLASTIC WRAP TOUCH THE CUP!**
- 5- Place the marble on the plastic wrap and center it above the cup. Don't let this touch the cup either.
- 6- Place the bowl in the sunlight on a black background.
- 7- Observe and record the level of the salt water in the bowl each day for four days, Mark the level.
- 8- Observe the water collecting on the plastic and dropping into the cup.
- 9- Each day, tap the marble lightly to collect more water in the cup.
- 10- On the fifth day, remove the plastic wrap and taste the water in the cup. Leave the uncovered bowl in the sun until all of the water evaporates and observe the remains in the bottom.

## Is It Safe? - A Water Experiment

Groundwater cannot be judged as fit to drink strictly by sight. People have contaminated drinking water sources across the nation.

This contamination has been caused by the many chemicals developed over the last 50 years. These chemicals, in small amounts, can actually make your community's drinking water unusable. But ... the contamination may not be noticeable just by looking at it!

Here is a way you can do a test to show you that contamination is not always easy to spot!

### You will need:

1 gallon of distilled water  
1 small jar of pickle juice  
2 empty and clean plastic cups  
A washable marker

### Perform the Experiment:

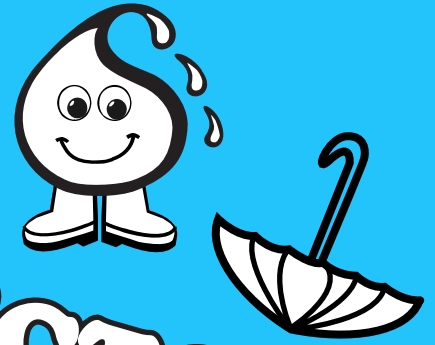
- 1- Label one cup A and the other B. Cup A will be your clean water. Cup B will be the contaminated water.
- 2- Pour water into each cup until they are about half way full. Set cup A aside. Measure one tablespoon of pickle juice and add to cup B. Stir carefully. Then take a small drink. What does it taste like? Now take a sip from cup A.

### Questions:

- Can you tell the difference between the good water and the contaminated water?  
What might happen to a person who drinks contaminated water over a long time?  
Did you know... Contaminated water can't always be detected by smell, taste, or appearance?

# THE WELLAND

# WATER PROTECTORS



*Hey, Kids;  
I hope you are learning  
and having a fun time with the  
Rainy Day Activity Booklet.  
I have a challenge for you!*

I need you to become Welland Water Protectors and teach your families how to conserve water. You can do this in a fun and creative way, just cut me out along the dotted line and bring me to life by adding some colour.

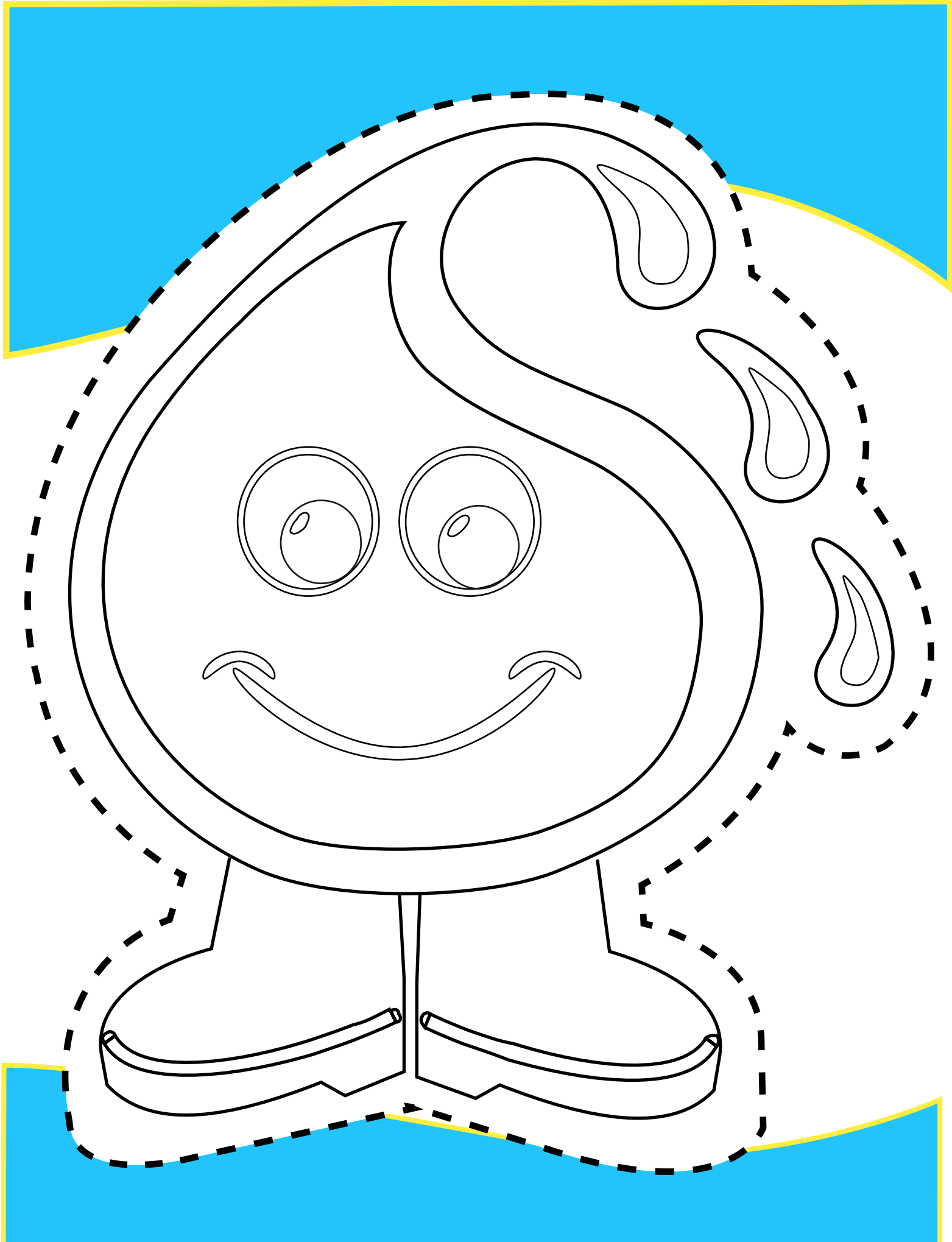
## DON'T FORGET TO BE CREATIVE.

After you are done decorating me you can write all your water conservation tips or water saving stories on my back or in a Conservation Journal. For a week take me places to remind you and your family to conserve water and also energy. Don't forget to take pictures of us conserving water and energy together. After our week together is finished send in a picture of us together with the Ucan cutout and we might get our picture on the Welland Conservation Website. I can't wait 'til our adventure begins.

### **Rules:**

1. Must colour/decorate the Ucan cutout either individually or in a group.
2. Make sure your name, (camp) and age is listed somewhere on Ucan.
3. Must bring Ucan to at least 3 places with you such as camp, home, the grocery store, etc... and document how you can conserve water in each of these places (you can attach a separate piece of paper if it won't fit on the back).
4. Circle or highlight the best water conservation tip that you came up with.
5. Tell your friends and family about Ucan and encourage them to save water too!
6. Have fun with Ucan!

[www.welland.ca/conservation](http://www.welland.ca/conservation)





## Photo Release Form

I \_\_\_\_\_ give my permission to allow the City of Welland use of my child \_\_\_\_\_ 's photograph solely for marketing, communications and media purposes related to the Water Conservation Project. This image will not be used for any other purpose without my explicit authorization.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Phone No. \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_