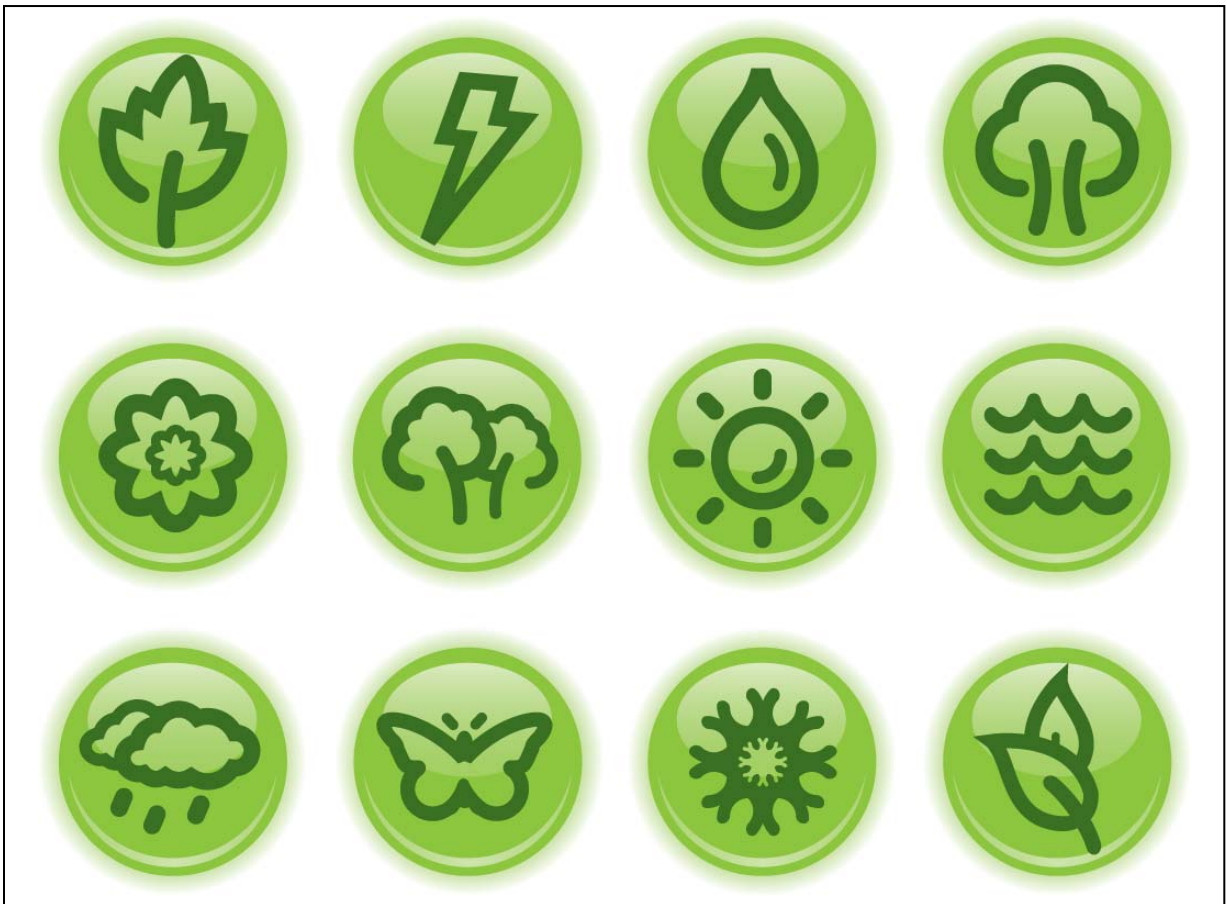


Energy and Water Conservation

Workshop for ELSA 3



ELSA Net workshop - Level 3

Energy and Water Conservation

Content Objectives:

- Students will learn different ways to conserve water
- Students will learn about low flow showerheads and will be able to make informed decisions about buying a showerhead
- Students will learn different ways to conserve energy
- Students will learn about CFL light bulbs and will be able to choose the correct CFL bulbs for their homes.
- Students will be able to apply these new ideas to conserve energy and water in their daily lives
- Students will learn where to get more information about conserving energy and water

Language Objectives:

- Students will learn new vocabulary related to energy and water conservation
- Students will learn how to read different types of graphs and charts
- Students will practice reading and answering comprehension questions
- Students will practice listening for specific information
- Students will practice writing questions on a survey
- Students will practice asking and answering questions

Materials:**Activity 1**

- Vocabulary cards and pictures (water conservation)

Activity 2

- Water Conservation tips cards
- Water Conservation tips handout

Activity 3

- Water Use in the home overhead
- Low flow showerhead handout
- Realia - lowflow showerhead, litre bag of milk

Activity 4

- True/False cards
- Vocabulary cards

- Realia- power bar, vent, fan
- Activity 5**
- How to Keep Your House warm cloze handout
 - Overhead of How to Keep your House warm cloze
- Activity 6**
- CFL bulb overhead
 - CFL bulb wattage chart
 - CFL bulb picture cards
- Activity 7**
- Ways to Conserve Energy survey
 - Ways to Conserve Energy fact sheet
- Activity 8**
- Energy Star Appliances handout (optional)

Time	Activity	
10 min	Introduction	<p>Write “Energy and Water Conservation” on the board. Ask students what they think it means. Ask students why they think it is important to conserve water and energy. Write answers on the board.</p> <p>Explain difference between noun (conservation) and verb (conserve). Work on pronunciation of both words.</p> <p>Ask students “What do you know about energy and water conservation?” “What do you want to know about energy and water conservation?”</p> <p>Leave the student’s answers on the board so at the end of the workshop you can look back at them and see whether any of their questions were answered and if anything they thought they knew about energy and water conservation turned out to be different.</p>

10 min	Water conservation Activity 1 Vocabulary	<p>Have students work in groups to match the vocabulary words to pictures on cards. Large pictures of the vocabulary words with the pictures will be kept on the board.</p> <ul style="list-style-type: none"> -showerhead -leak -drip -hose -tap -bucket -sponge -evaporate -flush
20 min	Water conservation Activity 2 Ways to conserve water in different rooms	<p>1) Give each pair a room of the house and have them brainstorm ways to conserve water on paper-have students think of ways from your country and Canada. Rooms: a) Bathroom b) Kitchen c) Laundry room / Outside</p> <p>1a) Potential vocabulary difficulties-jug, tissues, broom, rinse. Tell students to ask other members of their group if they don't know a vocabulary word, then ask the teacher.</p> <p>2) Have other tips written on cards and taped up around the room. Explain that these are ways to conserve water and that after they will discuss which ways they already do or would like to do in their lives. Students go with their group and read the tip and decide if it is for their room. If it is something they hadn't thought of, they add it to their list on the chart paper.</p> <p>3) a) Have students with their group rank the tips for their room from most</p>

		<p>important to least important.</p> <p>b) Have students with their group choose 2 things they want to try and 2 things they don't want to do and discuss why.</p> <p>4) Have students share their suggestions with the class (only if there is an appropriate number of people in the class, with a large class this might take too much time).</p> <p>4b) Give students a sheet with all the tips for the different rooms to take home (should be photocopied on the back of the low flow showerhead reading).</p>
15 min	Activity 3 Low Flow Showerhead	<p>1) Show students "Water Use in the Home" pie chart on an overhead (Activity 3a). Explain that the majority of water in the home is used in the bathroom and that taking showers or baths uses a lot of water. Show students a real low flow showerhead. Explain how much they cost and where you can buy them using the bottom of the "Water Use in the Home" overhead Explain that they are going to read about another way to conserve water in the bathroom.</p> <p>2) Give hand out (Activity 3b) on low-flow shower heads and have students work with their groups to answer the question sheet.</p> <p>3) Have students give examples of how much a litre is and how much 70 litres is. Show litre milk container.</p>
20 min	Energy Conservation	<p>1. True or False quiz introducing new energy conservation vocabulary – students have a card with "true" and a</p>

	Activity 4 Vocabulary	<p>card with “false” and hold up their group’s guess.</p> <p>2. Give half the class the vocabulary words and the other half of the class the definitions/real object. Students walk around the class asking people their definition/real object/vocabulary word until they think they have found the correct match. Take up the answers.</p> <p>Vocabulary words Energy Efficient (definition) Unplug (picture) Plug in (picture) Appliance (definition) Thermostat (definition) Power bar (real item) Laptop computer (definition) Desktop computer (definition) vent (real item) fan (real item)</p>
15 min	Break	
15 min	Activity 5 How to keep your house and you warm in the winter	<p>1. Students listen to a dictation about ways to keep your house and you warm and conserve energy in the winter. <i>(script is attached)</i>(Activity 5a)</p> <p>2. Students work with a partner to fill in the cloze exercise(Activity 5b) and answers are checked (using an overhead).</p> <p>3. Review the 6 ways to conserve energy from the listening.</p> <p>4. Students discuss with their partner other ways of keeping your house and you warm in the winter.</p> <p>5. Students share their own suggestions with the class.</p>
15 min	Activity 6 CFL bulbs	<p>1. Show CLF bulb and regular bulb and ask students if they know the difference between the two.</p> <p>2. Show overhead of benefits of CFL’s</p>

		<p>(Activity 6a).</p> <p>3. Give students chart of Regular and CFL wattages (Activity 6b).</p> <p>4. Write 4 regular bulb wattages on the board.</p> <p>5. Give students larger pictures of CFL bulbs with the wattages on them and have them match with the regular bulb wattages on the board.</p> <p>6. Remind students that CFL bulbs contain mercury and you shouldn't touch when broken and must be disposed of properly (return to Home Depot, Ikea or taken to Hazardous waste)</p>
45 min	<p>Activity 7</p> <p>More ways to conserve energy survey</p>	<p>1. Students work with a partner to read survey and add 4 more ways to conserve energy or water that they like, or are interested in, or learned about today.</p> <p>2. Have students then fill out the survey for themselves saying which energy/water conservation tips:</p> <ul style="list-style-type: none"> - They do - They want to start doing - They don't want to do - and Why? <p>3. Elicit/teach grammar for asking survey questions "Do you buy CFL bulbs?" No- "Do you want to buy CFL bulbs" "Do you hang up your clothes to dry?" No- "Do you want to hang up your clothes to dry?"</p> <p>4. Students then walk around the class asking other students the same questions.</p> <p>5. Students then get back with their partner and discuss which are the most</p>

		<p>popular/least popular steps to conserving energy and water. Students also discuss if after doing the survey they changed their mind about which things they want to start doing after hearing other students' reasons.</p> <p>6. Ask students why it is important to do each thing on the survey. If they are unsure give them the information from the "Explanation". Ask the students if they now want to start doing more of the tips.</p>
10 min	Activity 8- Conclusion	<p>Look back at the "What do you know about energy and water conservation?" and "What do you want to know about energy and water conservation?" answers and see what they have learned.</p> <p>Ask if there are any more questions.</p> <p>Handout to teacher - "Where to find more information" hand out with helpful websites (Activity 8a).</p> <p>Handout to interested students -Energy Star Appliances handout for those students who are homeowners and/ or are interested in learning about energy star appliances (Activity 8b).</p>

showerhead

hose

leak

tap

drip

bucket

sponge

evaporate

flush

Use your dishwasher only when it is full of dishes.

Use your washing machine only when it is full of clothes.

Take short showers, not long showers or baths.

Turn off all taps and fix ones that leak. Don't let them drip.

Turn off the tap when you are brushing your teeth or shaving.

Fill up the sink with water to wash dishes. Don't leave the water on.

Clean sidewalks and driveways with a broom not a hose and water.

Put a jug of water in the fridge so it is cold and you don't have to leave the tap on for the water to get cold.

Wash your car using a bucket and a sponge, and rinse with a hose after.

Water your grass in the morning so the sun doesn't make the water evaporate.

Don't use your toilet as a garbage can. Put tissues in the garbage, don't flush them.

Ways to Conserve Water

Kitchen

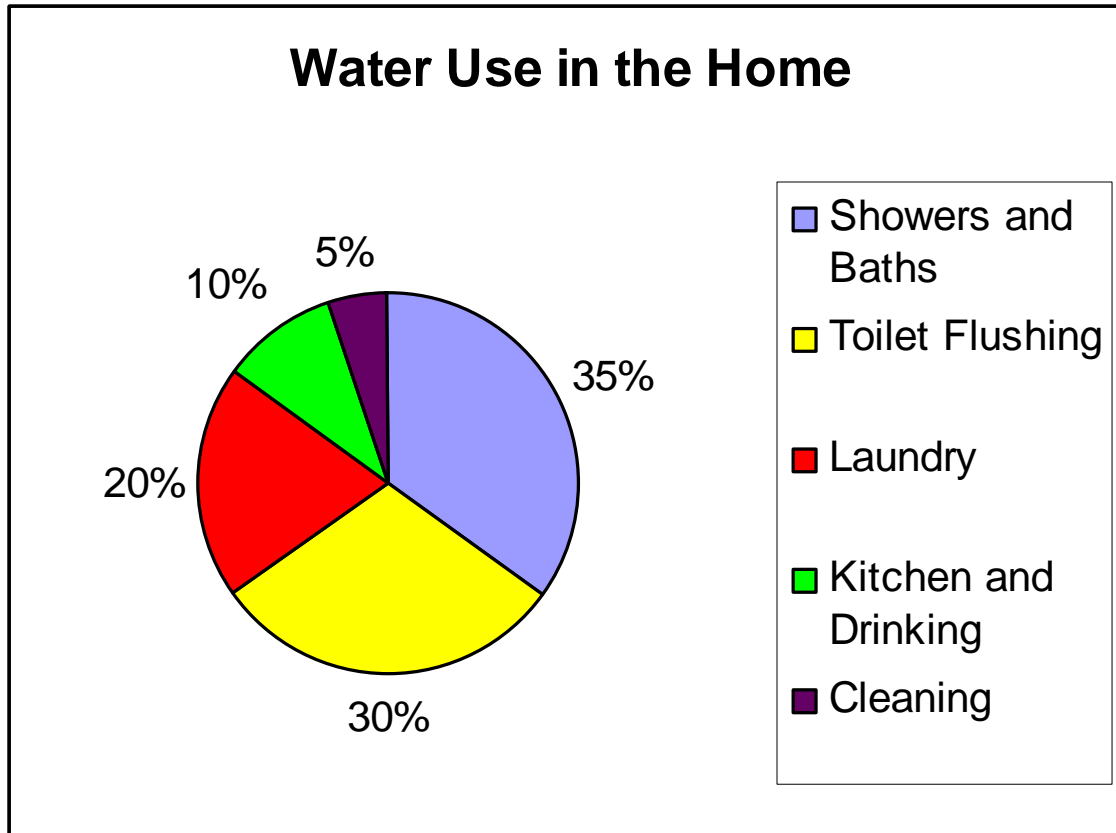
- Use your dishwasher only when it is full of dishes.
- Turn off all taps and fix ones that leak. Don't let them drip.
- For cold drinking water: Put a jug of water in the fridge so it is cold and you don't have to leave the tap on for the water to get cold.
- Fill up the sink with water to wash dishes. Don't leave the water on.

Bathroom

- Take short showers, not long showers or baths.
- Turn off all taps and fix ones that leak. Don't let them drip.
- Turn off the tap when you are brushing your teeth or shaving.
- Don't use your toilet as a garbage can. Put kleenex in the garbage, don't flush them.

Laundry Room/ Outside

- Use your washing machine only when it is full of clothes.
- Clean sidewalks and driveways with a broom, not a hose and water.
- Wash your car using a bucket and a sponge, and rinse with a hose after.
- Water your grass in the morning so the sun doesn't make the water evaporate.



Information from Environment Canada
(<http://www.ec.gc.ca/WATER/images/manage/effic/a6f7e.htm>)

Prices of low flow showerheads

\$6 - standard low flow showerhead

\$ 55 - has different options and a button to stop the water

Places to buy low flow showerheads

- Canadian Tire
- Home Hardware
- Home Depot
- Other hardware stores

Low Flow Showerheads

Showers and baths use more water than any other activity in your home. An older showerhead can use as much as 20 litres a minute. So even if you take a short shower for 5 minutes, you could use 100 litres of water every time you shower. Low flow showerheads are special showerheads that use less water because less water comes out of the showerhead each minute. Low flow showerheads use between 5.9 and 9.6 litres a minute. With a low flow showerhead you could use only 30 litres of water for a 5 minute shower. A family of 4 can save more than 160 000 litres of water a year. That is a lot of water and it also could save you a lot of money.

One reason why some people don't want to buy low flow showerheads is they are scared the shower won't feel strong. New low flow showerheads are designed to feel the same as a regular shower but use less water. Some even come with a button you can press so that the water stops while you are washing and you can turn it back on to rinse off saving even more water.

Questions to answer with your partner

1. What is a low flow showerhead?
2. How much water can you save by using a low flow showerhead for a five minute shower?
3. What other thing can you save by using a low flow showerhead?
4. Why don't some people want to buy a low flow showerhead?
5. True or False - A low flow shower head doesn't feel as strong as a regular showerhead?

Discuss with your partner

1. Do you want to buy a low flow showerhead? Why or why not?

Where to find more information about low flow showerheads

BC Hydro-Power Smart for your home
<http://www.bchydro.com/powersmart/elibrary/elibrary699.html>

Capital Regional District-Low Flow Showerheads
<http://www.crd.bc.ca/water/conservation/household/showerheads/index.htm>

Energy Efficient

Unplug

Plug in

Appliances

Thermostat

Power bar

Laptop computer

Desktop
computer

Vent

Fan

Cell phone
charger

Machine where you choose the temperature and then it controls the heating in your house so that it stays at the temperature you want.

A piece of equipment in your house that does chores. Examples are washing machine, fridge, and dishwasher.

Uses the least amount of energy possible.

Computer that is small, light and made of one piece so it is easy to take places. Also called a notebook computer.

A regular computer, that has more than one piece and usually sits on your desk.

True

False

True

False

Conserving Energy Vocabulary words and True and False quiz

1. All appliances are the same.

False- Appliances are many things like washing machines, fridges, toasters, dishwashers, and clothes dryers

2. A power bar is a place you go to work out and become strong.

False- A power bar lets you plug in many things in the same place.

3. If something is energy efficient it conserves energy.

True

4. It is easy to move a desktop computer.

False- A desktop computer usually stays on your desk, but a laptop computer can be put in your bag and taken different places.

5. A thermostat is the machine that controls the temperature of the heating in your house.

True

6. You plug in your iron when you are finished using it.

False. You unplug your iron when you are finished using it.

Script for “Keeping your house warm” dictation

My heating bill was very expensive last winter. I wanted to use less energy to heat my house and save money on my heating bill. This winter I tried some new ways of saving energy and they worked really well. One thing I did was to put a carpet on my cold wood floor. My feet were warmer and I was warmer too. My mother told me - if you are cold, put on a sweater or a blanket. Don't turn up the heat. Wearing a sweater is a very easy and cheap way to save energy. Another thing that sounds strange but works is turning on your fan in the winter. This pushes the heat down to keep the whole room warm. Fans help you use less energy in the winter too. Another idea is something that you can make at home to help keep your house warm. It is called a door sock and is a stuffed piece of material that goes on the floor in front of your door. It keeps the hot air in your house and the cold air out of your house or a room. Another thing I tried is leaving my curtains open in the winter. I open my curtains when the sun is shining because the sun helps to heat my house for free. Then I close the curtains when the sun leaves. Getting heat from the sun is a great idea. One final thing I have started doing is moving my furniture, like my couch and bed, away from the heater or vent where the heat comes out. That way the heat can move easily to the whole room. All of these ideas will help you to conserve energy and save money.

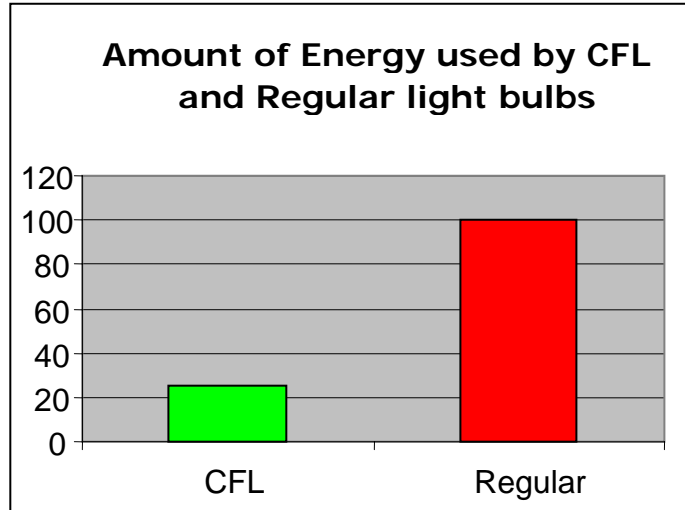
Cloze for "Keeping your house warm" dictation

My heating bill was very _____ last winter. I wanted to use less energy to heat my house and save money on my heating bill. This winter I tried some new ways of saving _____ and they worked really well. One thing I did was to put a _____ on my cold wood floor. My feet were warmer and I was warmer too. My mother told me - if you are cold, put on a _____ or a blanket. Don't turn up the heat. Wearing a sweater is a very _____ and cheap way to save energy. Another thing that sounds strange but works is turning on your fan in the winter. This pushes the _____ down to keep the whole room warm. _____ help you use less energy in the winter too. Another idea is something that you can _____ at home to help keep your house warm. It is called a door sock and is a stuffed piece of material that goes on the _____ in front of your _____. It keeps the hot air in your house and the cold air _____ of your house or a room. Another thing I tried is leaving my curtains open in the winter. I open my curtains when the sun is _____ because the sun helps to heat my house for _____. Then I close the curtains when the sun leaves. Getting heat from the sun is a great idea. One final thing I have started doing is _____ my furniture, like my couch and bed, _____ from the heater or vent where the heat comes out. That way the heat can move easily to the whole room. All of these ideas will help you to conserve energy and save money

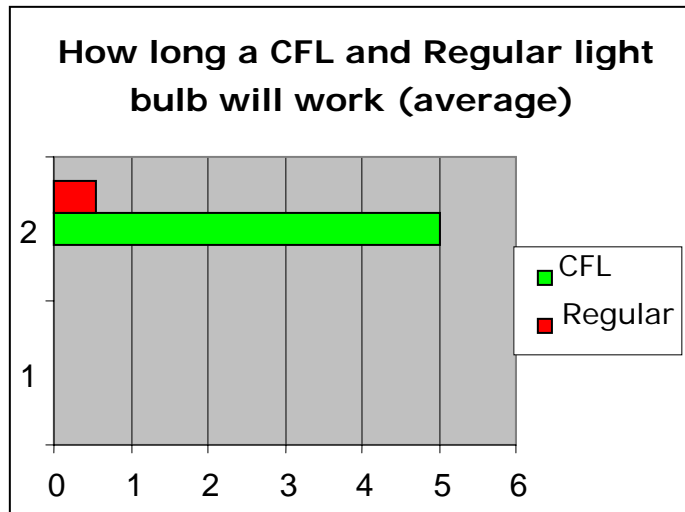
CFL Bulbs vs Regular Light Bulbs

(graphic of CFL bulb) (graphic of regular light bulbs)

CFL bulbs use much less energy than regular light bulbs



CFL bulbs will work for much longer than regular bulbs



- Turning on and off CFL's can make them stop working faster. They are good to use where you turn lights on for a long time (outside, kitchen, living room, bedroom)
- CFL's cost more than regular light bulbs but save money over time

Comparing Regular light bulbs and CFL bulbs

<u>Regular light bulb</u>		<u>CFL bulb</u>
40 W	=	9W – 11W
60w	=	13W – 16W
75W	=	18W - 20W
100W	=	23W -27W

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Explanations of why the survey tips conserve energy

1. Camera and cell phone chargers use energy even if the camera or cell phone isn't plugged in to them.
2. DVD players, TV's and modems often use energy when they aren't turned on.
3. A clothes dryer usually uses the most energy of any appliance in your home.
4. Heating the water in the washing machine uses 90% of the energy required to run the washing machine.
5. Turning down the thermostat when you are out or at night is one of the easiest ways to save money.
6. A laptop uses 90% less energy than a desktop computer.

Ways to Conserve Energy Survey

Tips	Things I do	Things I want to do	Things I don't want to do	Why?
1. I unplug my camera and cell phone chargers when I am not using them.				
2. I plug DVD players, TV's and modems in to power bars and turn off the whole power bar when I am not using them.				
3. I hang up my clothes to dry.				
4. I wash my clothes in cold water.				
5. I turn down the thermostat when I am not home or at night.				
6. I use a laptop instead of a desktop computer.				
Your Ideas				
7.				
8.				
9.				
10.				

More Information about Energy and Water Conservation

Low-flow showerheads

BC Hydro-Power Smart for Home-Low Flow Showerheads

<http://www.bchydro.com/powersmart/elibrary/elibrary699.html>

Capital Regional District-Low Flow Showerheads

<http://www.crd.bc.ca/water/conservation/household/showerheads/index.htm>

Ways to conserve water

BC Hydro- Power Smart for Home-Water saving

<http://www.bchydro.com/powersmart/elibrary/elibrary610.html>

Environment Canada-Water Conservation Tips

http://www.on.ec.gc.ca/reseau/watertips/watertips_e.html

EcoKids-Water Conservation Around the House

http://www.ecokids.ca/pub/eco_info/topics/water/water/index.cfm

How to keep your house warm in the winter

Terasen Gas

<http://www.terasengas.com/documents/HotTipsBooklet.pdf>

Energy Star Appliances

Natural Resources Canada-EnerGuide Appliance Directory

<http://oee.nrcan.gc.ca/publications/infosource/pub/appliances/2006/page5.cfm?attr=4#potential>

Ways to conserve energy at home

Climate Crisis

<http://www.climatecrisis.net/takeaction/whatyoucando/>

BC Hydro-Power Smart for Home

<http://www.bchydro.com/powersmart/tips/>

Programmable Thermostats

BC Hydro-Power Smart your home-Thermostats

<http://www.bchydro.com/powersmart/elibrary/elibrary650.html>

http://www.bchydro.com/rx_files/pshome/pshome1607.pdf

Energy Star Appliances



Energy Star logo shows you what are the most energy efficient refrigerators, dishwashers, clothes washers and room air conditioners. These are appliances that will conserve the most energy and save you money.

Appiances use 13% of the average house's energy.

Using Energy Star Appliances can save you 30 to 40 % on your appliance energy use.

Energy Star clothes washers use 35 % less energy than regular clothes washers and use 30-50 % less water.

- Energy Star clothes washers can save you up to \$ 95 a year on water, energy and detergent.
- The high speed spin cycle dries your clothes 30 % more so you can hang them to dry or don't have to dry them as long in the clothes dryer.
- Are more gentle on your clothes so they don't wear out as fast.
- Use less water so you can use less detergent.

Energy Star refrigerators and freezers use 10 to 15 % less energy than regular refrigerators and freezers

Energy Star Dishwashers use 25% less energy than some other models

- No-heat button saves more energy because the air dries your dishes, not heat
- Energy saving wash cycle is faster so it uses less energy and also uses less water.

How to get an Energy Star Appliance Rebate



If you buy an Energy Star **clothes washer, fridge or freezer** before December 2008 you can get a rebate from the government.

You must be a BC Hydro customer!

- You get \$100 for an Energy Star clothes washer
- You get \$50 for an Energy Star fridge
- You get \$25 for an Energy Star freezer

How to apply for a rebate

1) Print the application form and complete it.

http://www.bchydro.com/rx_files/pshome/pshome54753.pdf

2) Keep all receipts from when you bought the appliance and send them with the application.

3) Send in the receipts and application form within 90 days of buying the appliance.

Address to send your rebate application:

BC Hydro Power Smart Appliance Rebate Program
PO Box 9090
Station A
Surrey B.C., V3T 5W4



ENERGY AND WATER CONSERVATION EVALUATION



I understood the teacher.	1	2	3
This class was interesting.	1	2	3
I learned			
different ways to conserve water.	1	2	3
about low flow showerheads.	1	2	3
different ways to conserve energy.	1	2	3
about CFL light bulbs.	1	2	3
how to keep my house warm in the winter.	1	2	3
new words about water and energy.	1	2	3
How was the			
listening?	1	2	3
speaking?	1	2	3
writing?	1	2	3
reading?	1	2	3



ENERGY AND WATER CONSERVATION EVALUATION

This class was

too easy

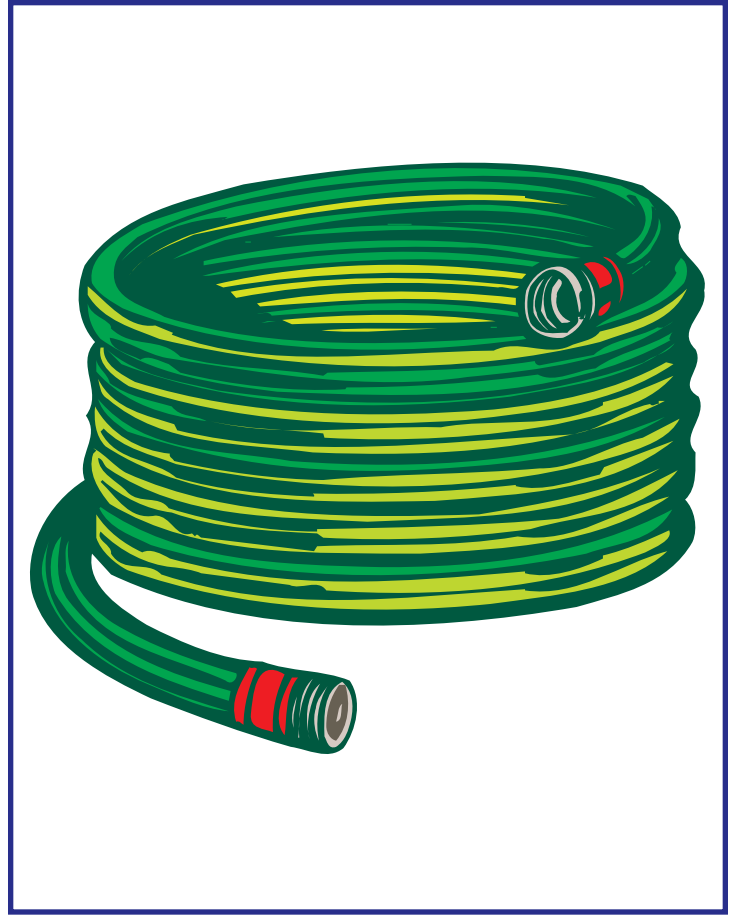
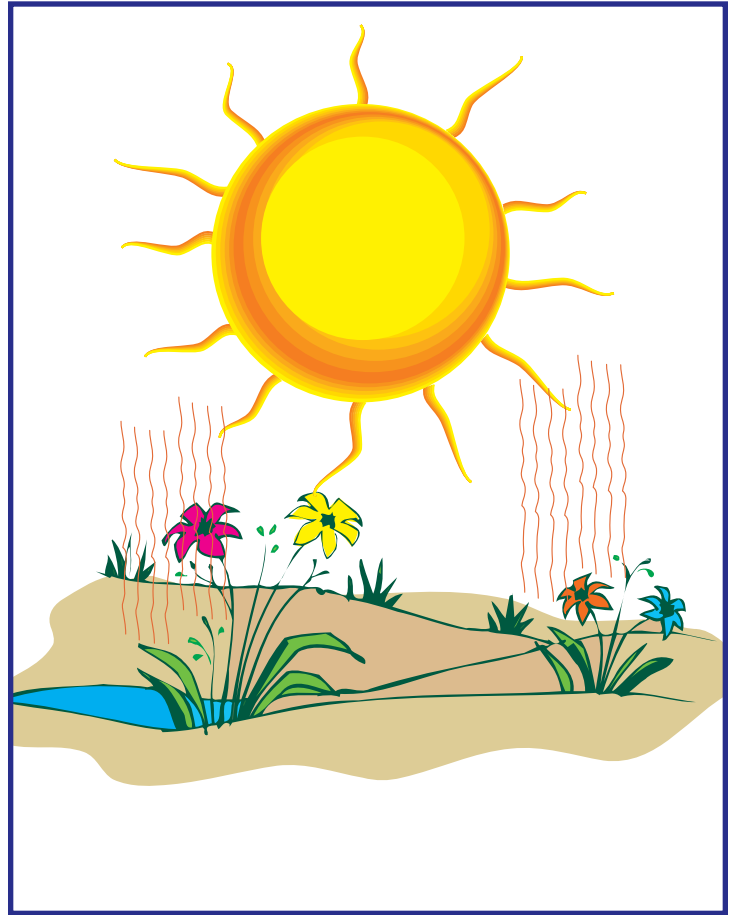
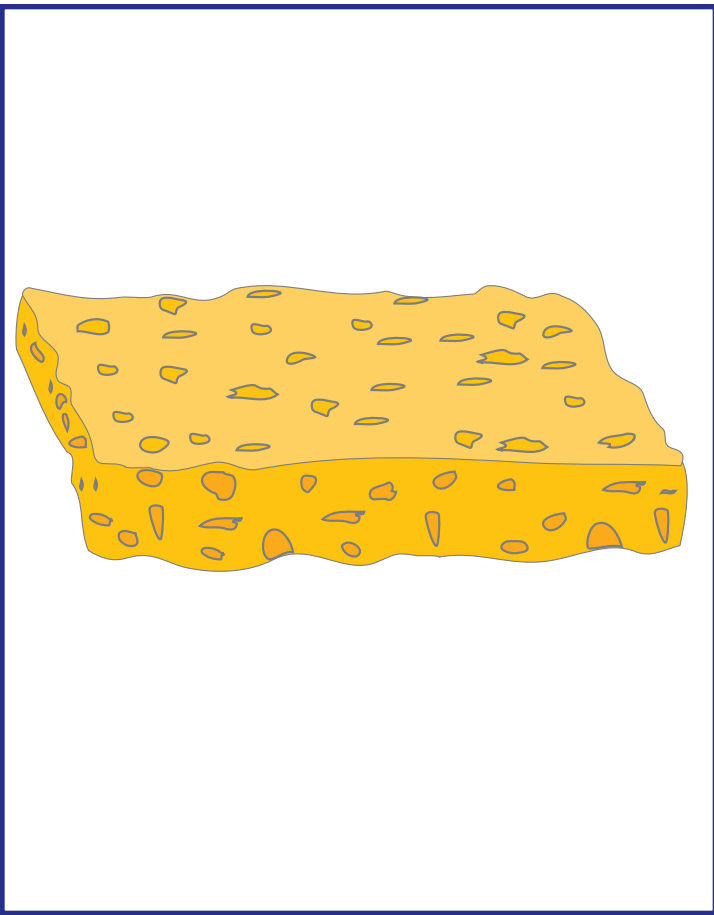
too difficult

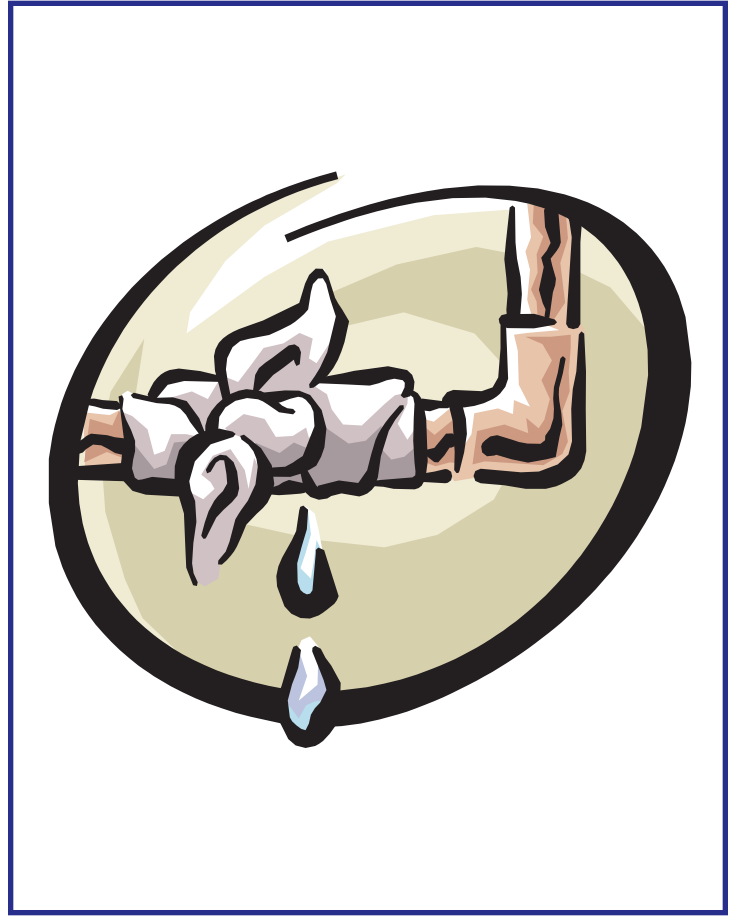
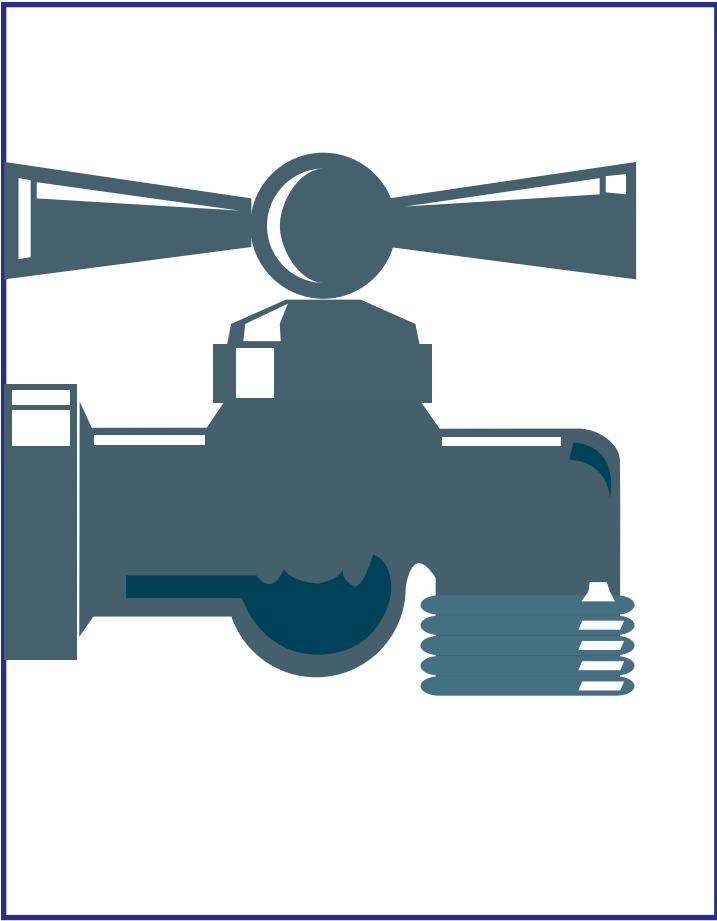
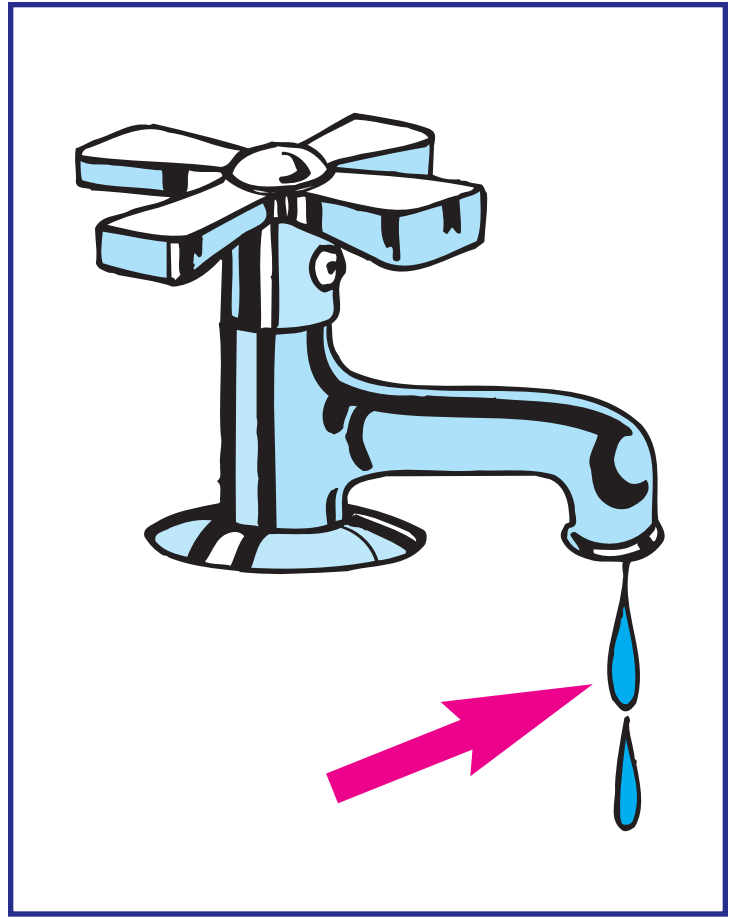
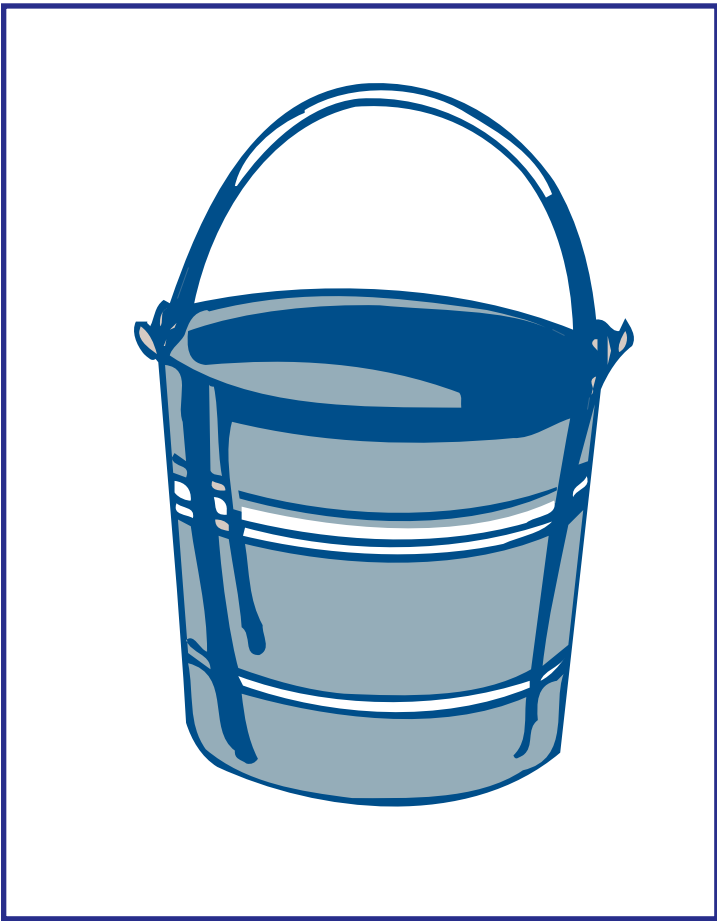
at the right level

I liked it when we

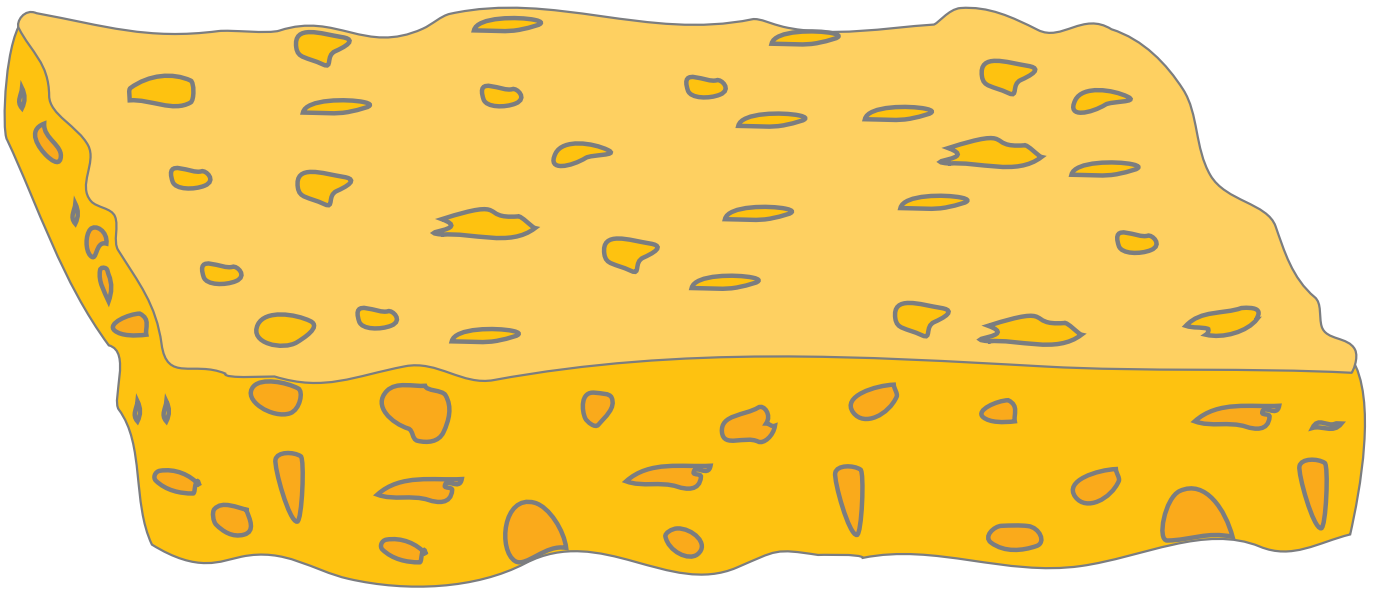
I didn't like it when we

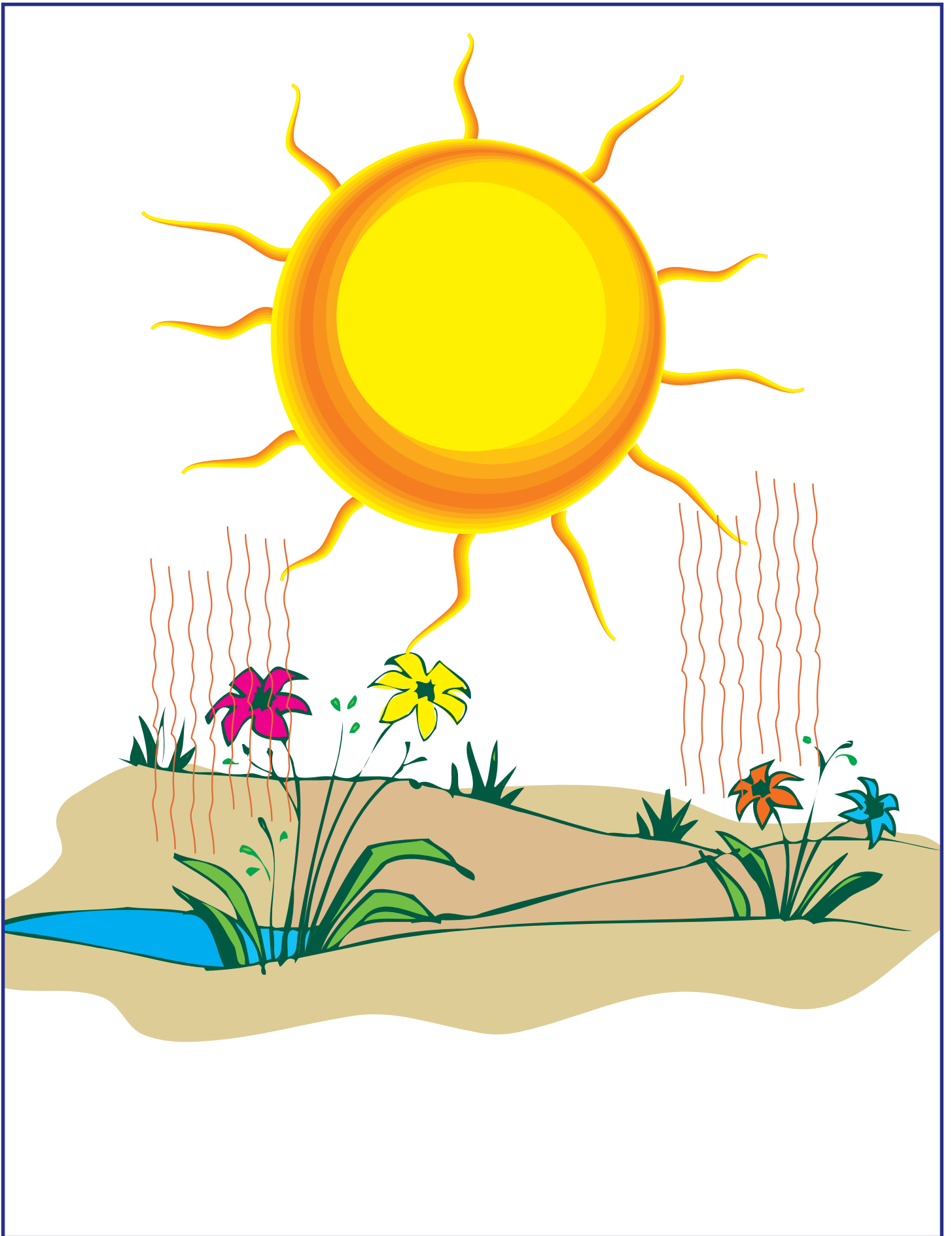
I will do more to conserve water and energy now. YES MAYBE NO



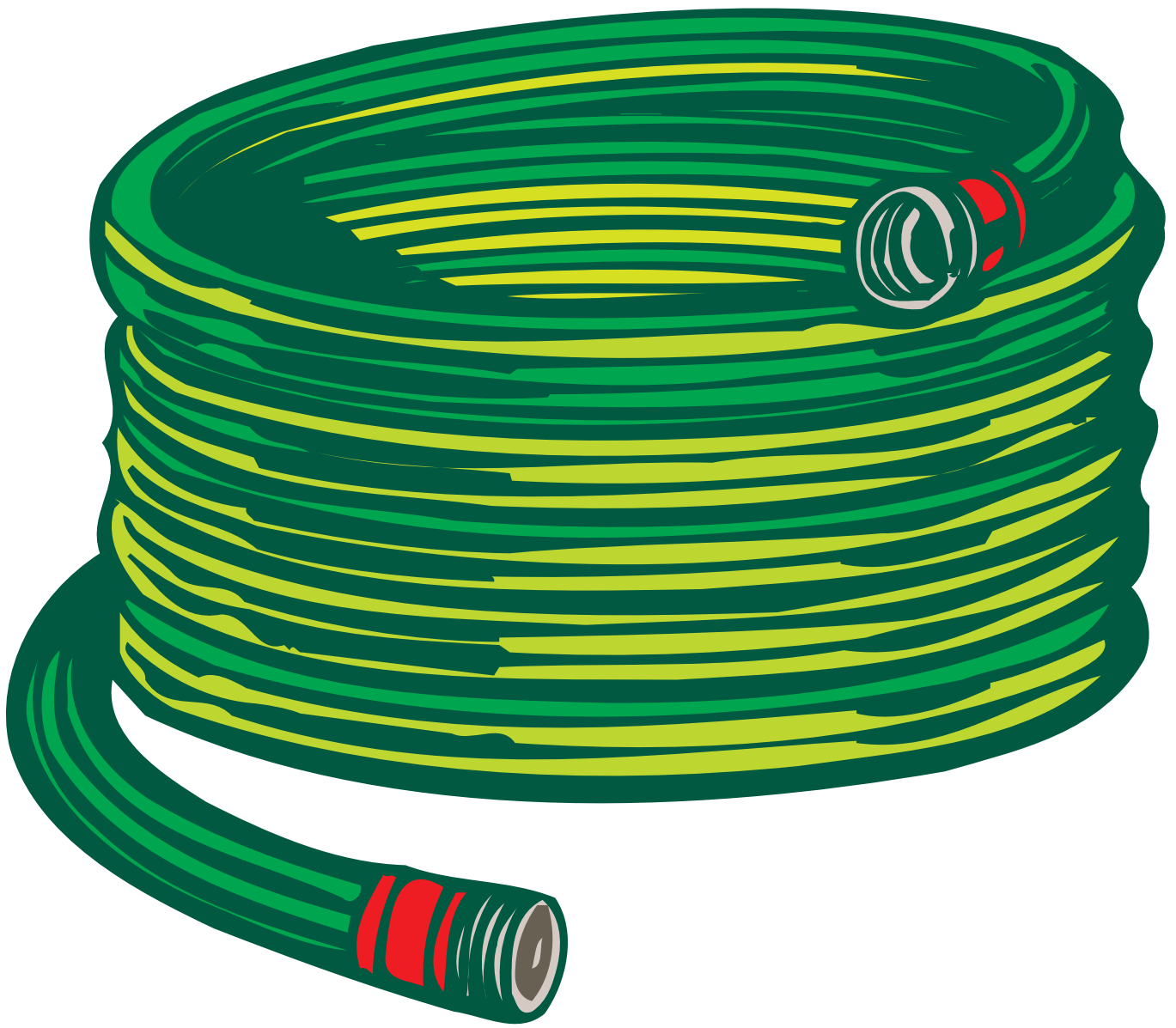




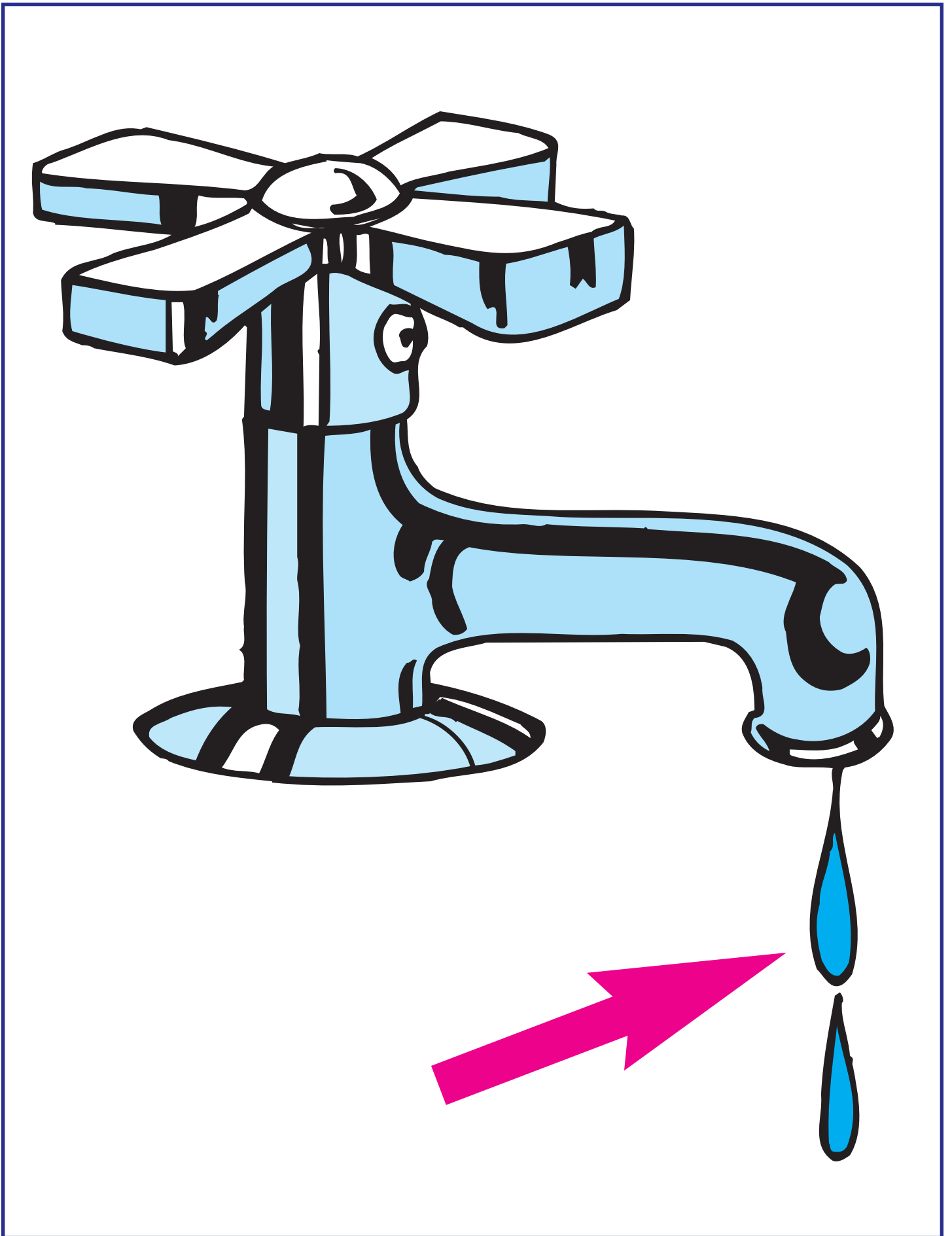


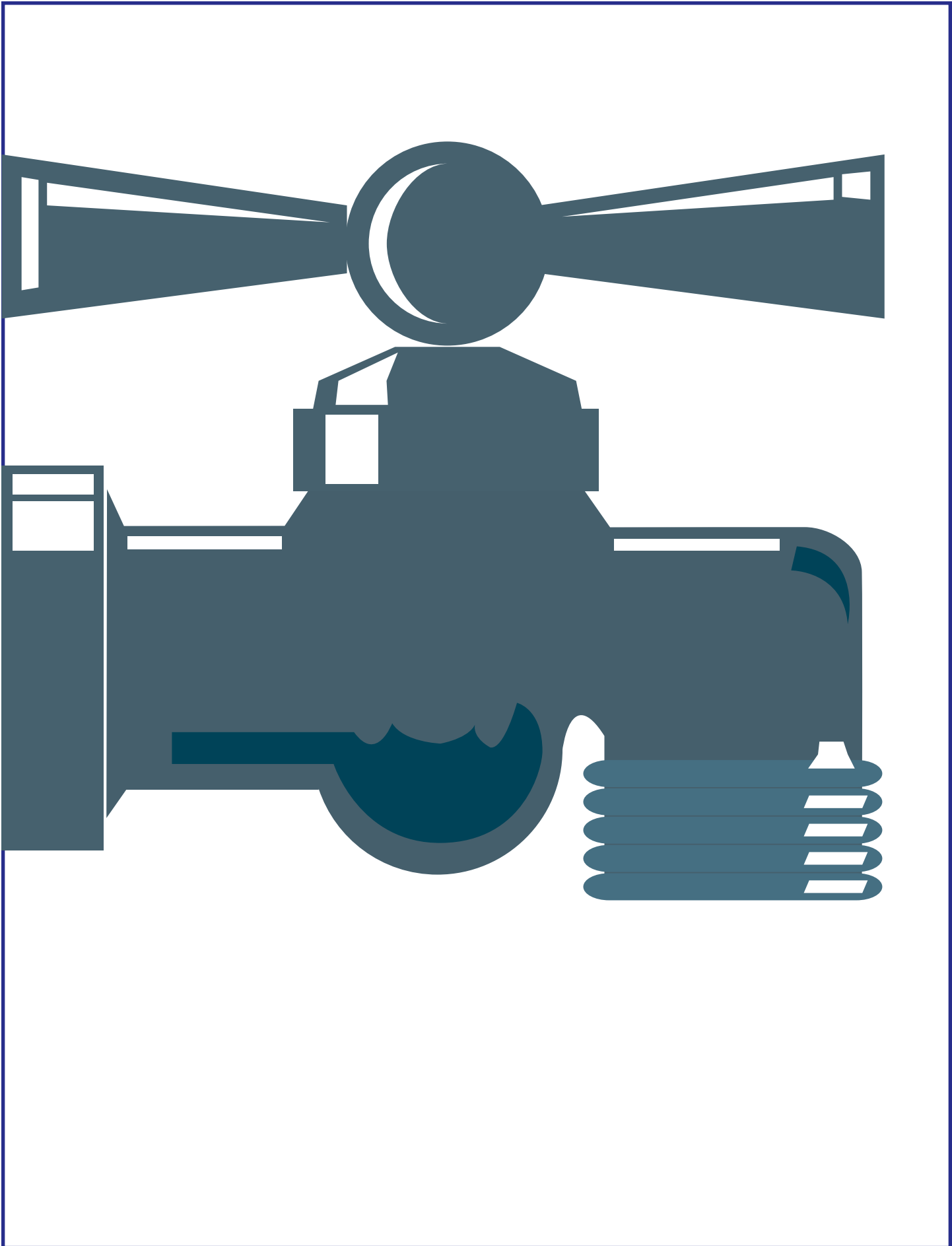






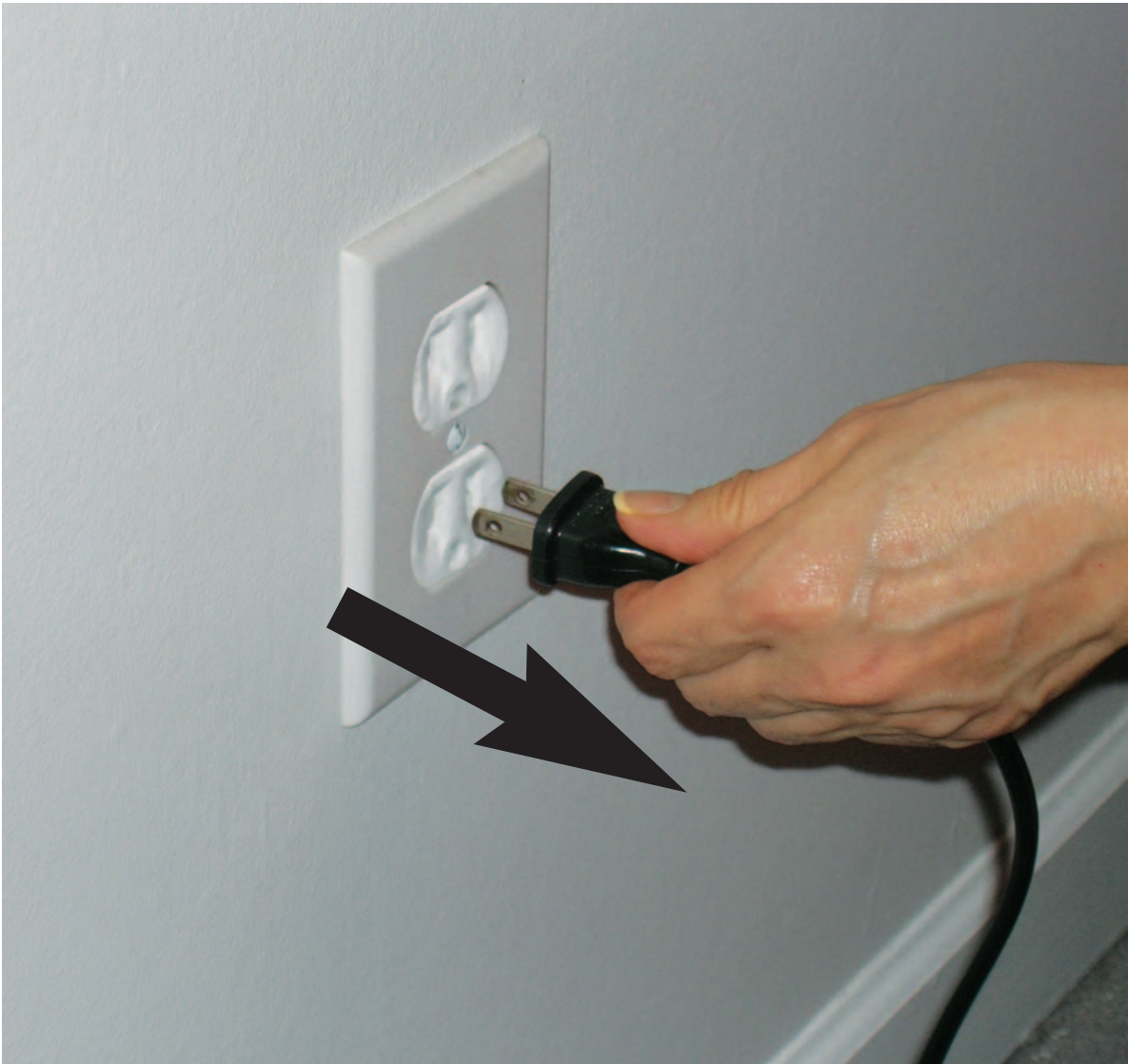














Energy and Water Conservation workshop

















