

ELL Scaffolds for Curriculum Modules

Grade 3: Module 4

The Role of Freshwater in our Lives

Coordinators' Networking Meeting #3
Western Suffolk BOCES Conference Center
February 5, 2015

***(Adapted from: Engage NY:
NYS CCLS ELA Grade 3-Module 4)***



Shifts in ELA/Literacy

Shift 1	Balancing Informational & Literary Text	Students read a true balance of informational and literary texts.
Shift 2	Knowledge in the Disciplines	Students build knowledge about the world (domains/ content areas) through TEXT rather than the teacher or activities
Shift 3	Staircase of Complexity	Students read the central, grade appropriate text around which instruction is centered. Teachers are patient, create more time and space and support in the curriculum for close reading.
Shift 4	Text-based Answers	Students engage in rich and rigorous evidence based conversations about text.
Shift 5	Writing from Sources	Writing emphasizes use of evidence from sources to inform or make an argument.
Shift 6	Academic Vocabulary	Students constantly build the transferable vocabulary they need to access grade level complex texts. This can be done effectively by spiraling like content in increasingly complex texts.

Grade 3, The Role of Freshwater around the World

This NYS CCLS module focuses on the importance of clean freshwater around the world. This unit builds on the background knowledge students developed in second grade regarding cycles in nature, in order to help them deepen their understanding of their overall dependence on earth's limited water supply.

Guiding Questions and Big Ideas*

- **Where does our water come from? (*Water Cycle*)**
 - Water is a natural and finite resource that every living thing needs.
- **In what ways do the activities of people affect water and its use? (*Water Pollution*)**
 - How people live affects the quality and quantity of clean water.
- **How do writers use text-based evidence to strengthen their message? (*Water Use Survey and PSA*)**
 - Writers support their research with facts and details.

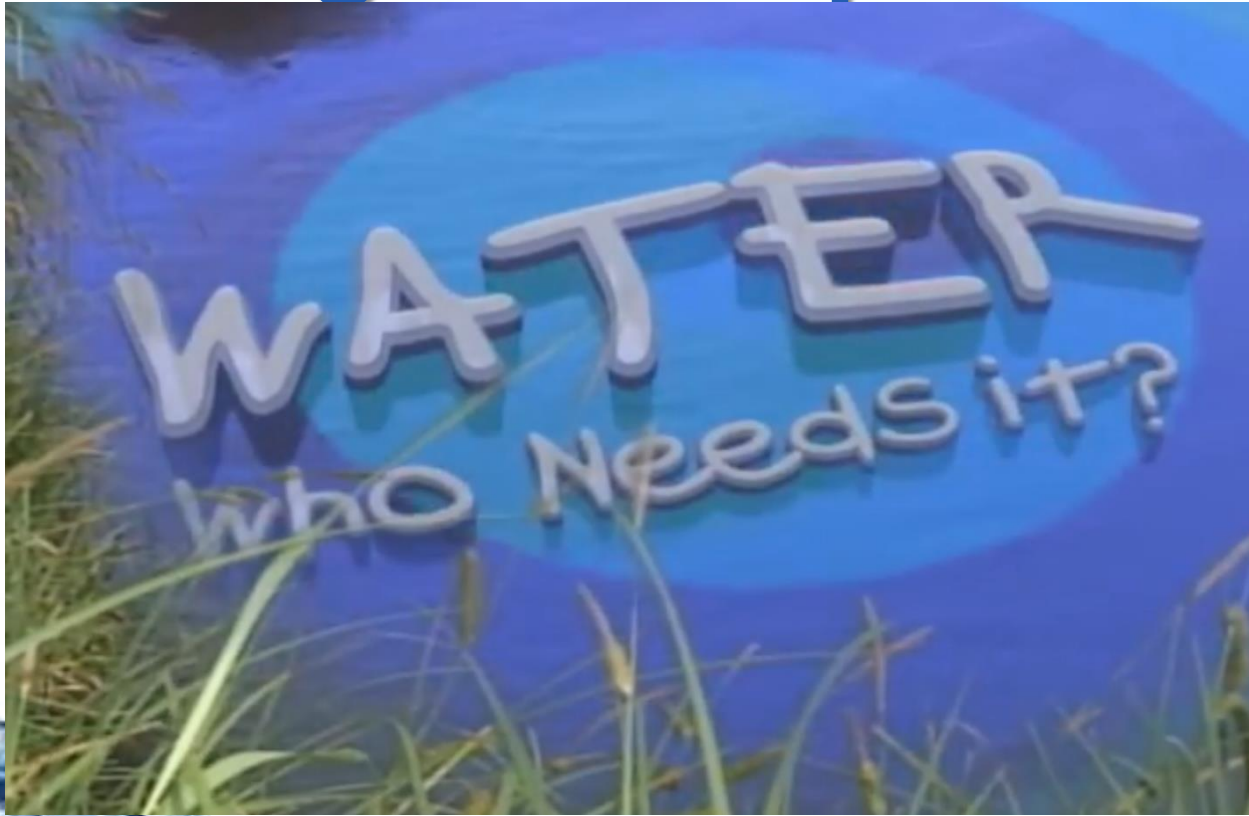
CCLS Grade 3 – Module 4

Gathering Evidence and Speaking to Others*

This module focuses on the importance of clean freshwater. **The students examine the water cycle** and watersheds, *comparing how different texts present similar information*. Then students **research challenges facing the earth's clean water supply: pollution**, and availability of clean water. **Students complete a research project**, and gather data and other information in order **to determine what they can do to conserve and protect clean water**. **Students will create a public service announcement (PSA)** based on their findings.

*Excerpted/adapted from EngageNY Curriculum Module: <https://www.engageny.org/resource/grade-3-ela-module-4>

Digital Jumpstart



<http://www.youtube.com/watch?v=l67HwLegDLE>



Grade 3 – Module 4: Selected Vocabulary for the Water Cycle

Entering/Emerging	Transitioning	Expanding
sun	atmosphere	groundwater flow
ocean	fog	plant uptake
lake	dew	snowmelt
snow	seepage	sublimation
runoff	evaporation	transpiration
precipitation	condensation	infiltration



The Water Cycle Placemat

Clouds

Clouds are made of water vapor.

When it is cold, rain turns to snow.

The warmth of the sun makes water evaporate.

Water vapor evaporates (transpires) into the air from plants and trees.

The same water goes around and around the earth in the water cycle.

Sun

Precipitation

Snow and Ice

Runoff

Lake

Ocean

Ground Water

Evaporation

Transpiration

Read a Mat
Eat and Learn
The Water Cycle

Ground water seeps back to the surface to flow out.

Water freezes into ice and snow on mountains.

Water flows down rivers to the ocean.

Long ago dinosaurs may have drunk the same water we drink today.

www.straightedgeinc.com
© The Straight Edge, Inc.

Source: <http://water.usgs.gov/edu/watercyclermatsmallpage.html>

The Water Cycle for Kids

<http://water.usgs.gov/edu/watercycle-kids.html>

Our [interactive diagram](#) allows you to "mouse around" the parts of the water cycle and view explanations, pictures, and more online. The diagram is available for three levels of students.



Vocabulary Activities for Water Cycle

The Water Cycle Worksheet

The Earth recycles water over and over again and has done for millions of years. It does this through a process known as the hydrological or water cycle.

Think about what these terms mean:

Precipitation.....

Evaporation.....

Condensation.....

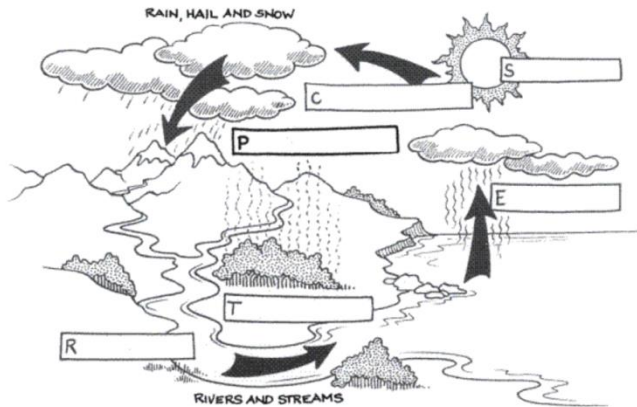
Transpiration.....

Infiltration.....

Sun.....

Run-off.....

Now use the terms to label the various aspects of the water cycle.



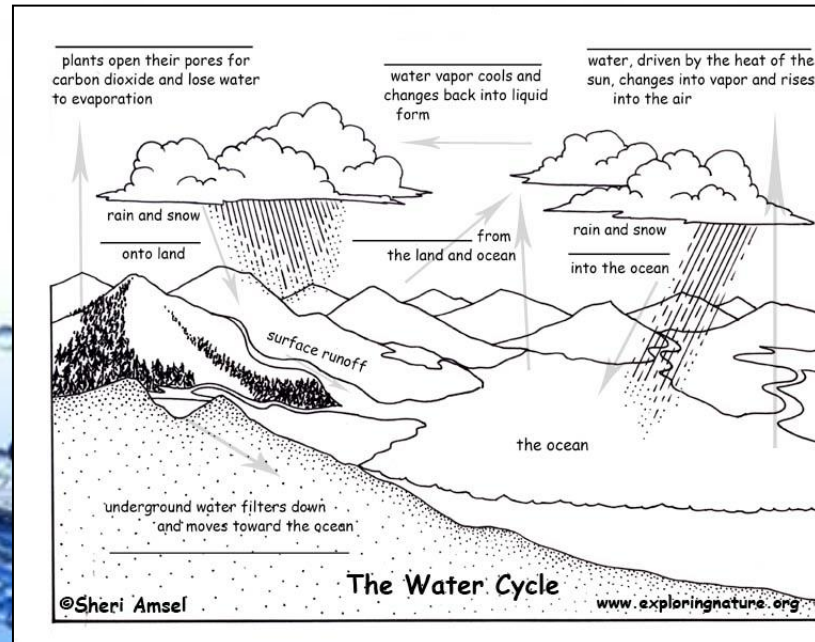
Plan 'It Water Teacher Resources http://www.southeastwater.com.au/sewl/index.asp?link_id=30.1175

NAME: _____ DATE: _____

The Water Cycle

Z	T	I	R	W	Z	Y	E	O	P	D	R	T	C	B	SUN	TRANSPIRATION
H	C	I	C	B	U	G	X	J	L	Y	S	R	R	A	OCEAN	
G	R	O	U	N	D	W	A	T	E	R	E	A	B	K	LAKE	
U	S	S	N	N	G	X	G	F	O	G	E	N	O	F	SNOW	
L	N	Y	U	D	D	O	T	I	V	S	P	S	H	O	RUNOFF	
Z	O	R	H	B	E	E	C	G	U	W	A	P	P	I	PRECIPITATION	
I	W	P	U	G	L	N	W	E	U	D	G	I	C	C	FOG	
V	M	E	P	N	T	I	S	S	A	H	E	R	G	N	DEW	
H	E	X	X	D	O	T	M	A	C	N	C	A	U	D	SEEPAGE	
N	L	T	W	R	N	F	Q	A	T	O	H	T	P	L	EVAPORATION	
O	T	R	Q	D	F	P	F	N	T	I	X	I	D	S	CONDENSATION	
L	A	K	E	C	S	E	W	N	W	I	O	O	A	U	GROUNDWATER	
P	R	E	C	I	P	I	T	A	T	I	O	N	T	N	UPDATE	
F	S	N	O	W	I	F	M	V	E	A	N	N	E	R	SNOWMELT	
E	V	A	P	O	R	A	T	I	O	N	H	X	C	I	SUBLIMATION	

Source: <http://tools.atozteacherstuff.com/word-search-maker/wordsearch.php>



Grade 3 - Module 4: Water Cycle

Purpose

To familiarize students with the Water Cycle through texts and video, and identify the differences between fact and fiction, as well as compare and contrast different accounts of the same story.

Activities

Students will read *The Magic School Bus at the Waterworks* and watch a video based on the book from the television series. They will create Venn Diagram showing the differences between the two versions. They will also develop a T-chart that shows the factual parts of the story vs. the fictional parts of the story.

Product

Students will choose whether to write a review of either the book or of the video, with sentence frames to assist in the writing process.

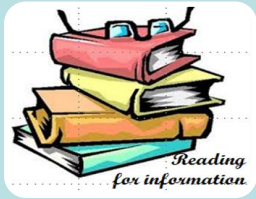
Resources

The Magic School Bus at the Waterworks by Joanna Cole

Wet All Over (video version of the book)

Video by Bill Nye on The Water Cycle

Grade 3 - Module 4: Water Cycle



Reading Standards for Informational Text

- RI.3.7. I can use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).



Writing Standards

- W.3.1. I can write opinion pieces on topics or texts, supporting a point of view with reasons.

Speaking and Listening Standards



- SL.3.4. I can report on a topic or text with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

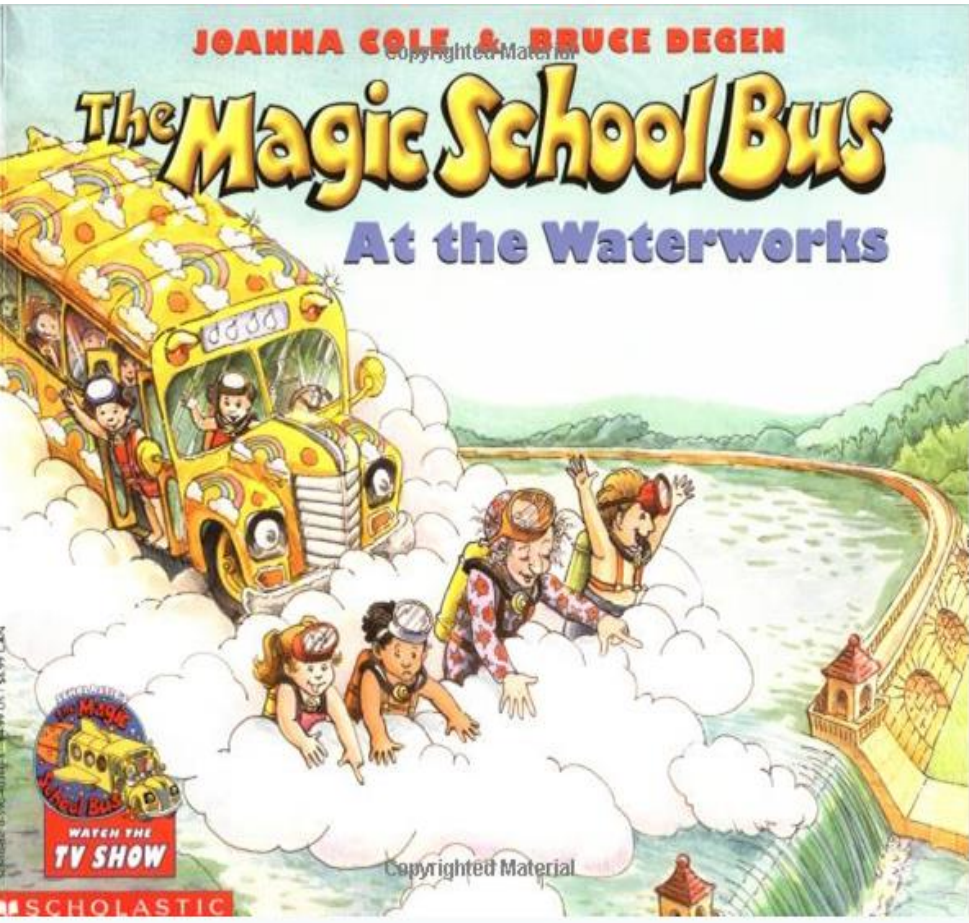
Language Standards



- L.3.1. I can demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Read Aloud: The Magic School Bus: At the Waterworks

Students will get a first-hand look into the water cycle and how it functions. This book shows the students how water flows through the purification system and how it flows down streams and rivers after falling from the sky. The book is available in both English and Spanish.



Water Fact #2
by Tim

Water is the only substance that is found in the form of a liquid, a solid, and a gas in nature.

- LIQUID (WATER)

SOLID (ICE)

GAS (WATER VAPOR)



In the parking lot, the old school bus was waiting. To our surprise, there was no bus driver. Instead, The Friz herself was behind the wheel.

Copyrighted Material





<https://www.youtube.com/watch?v=hpiCzD1Ghdw>



The Water Cycle



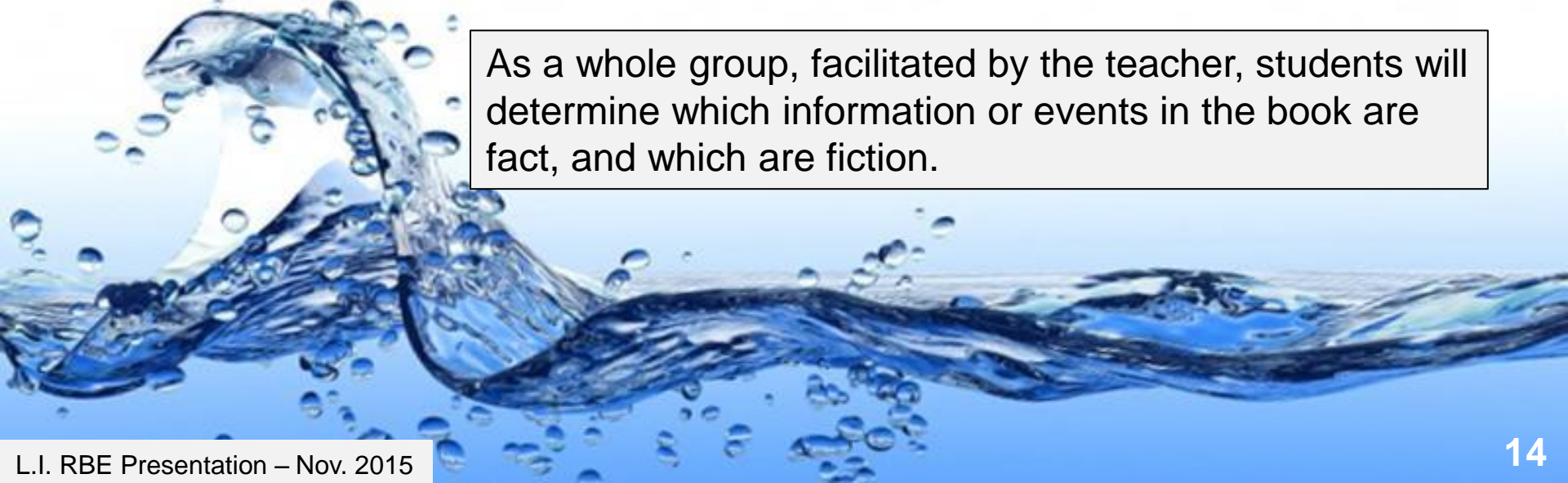
<https://www.youtube.com/watch?v=eng31SoXoRI>



Fact vs. Fiction

The Magic School Bus at the Waterworks

FACT	FICTION

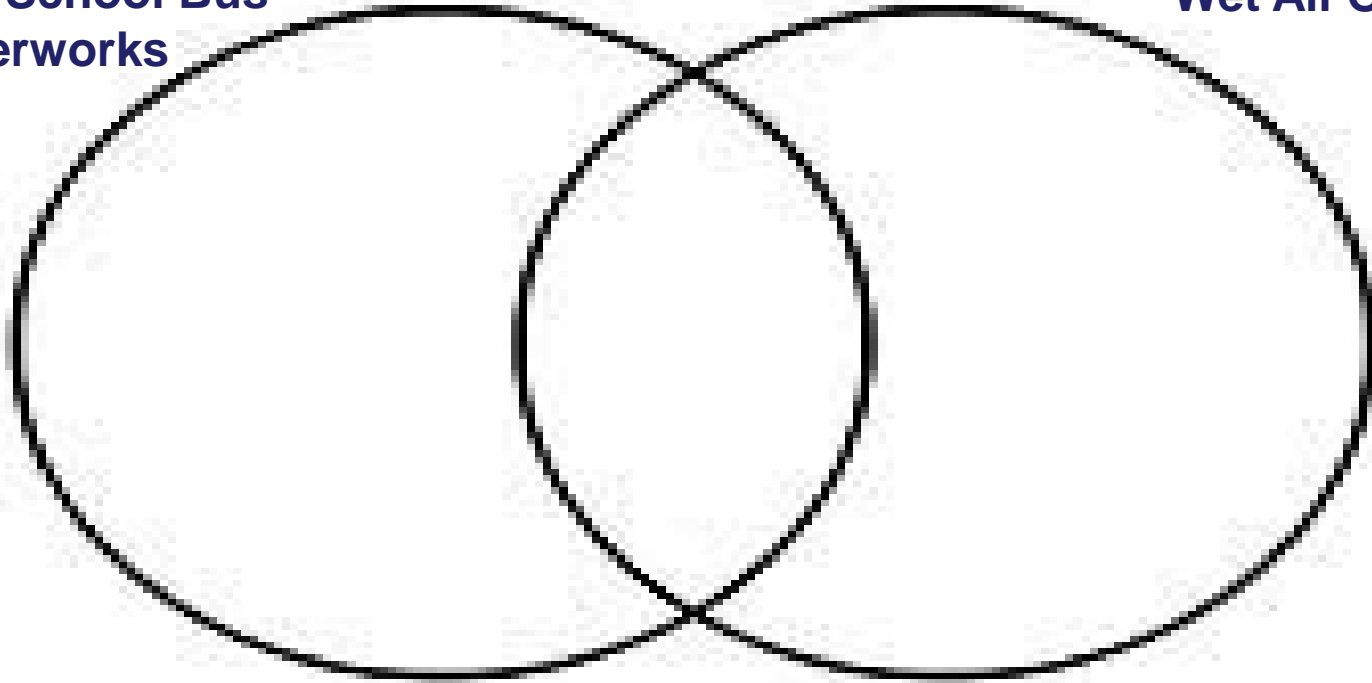


As a whole group, facilitated by the teacher, students will determine which information or events in the book are fact, and which are fiction.

Compare/Contrast Venn Diagram

**The Magic School Bus
at the Waterworks**

Wet All Over



After reading the book and viewing the video, students will work in small groups to complete the Venn diagram, finding at least 3 similarities and 3 differences between the book and the video. They will then present their findings to the whole class.

Book or Video Review

By: _____
In <i>(the book/video)</i> _____, the most
important facts I learned were _____
I thought the <i>(book/video)</i> was _____
because _____
People should <i>(read or see/not read or see)</i>
this <i>(book/video)</i> because _____

Working independently, with extensive scaffolding from their teacher, students will write a review of either the Magic School Bus book or video, or the Bill Nye video.

Students will need to cite at least one or two details (or more) from the source selected.

Then, students will give their opinion about the book or video.

Finally, they decide whether to recommend the book or video to their readers, and explain why.



Grade 3 - Module 4: Water Pollution

Purpose

In this unit, students will learn about the various causes of the pollution of freshwater, and will be able to explain the effects of such pollution.

Activities

In this unit students will listen to an informational text on water pollution that the teacher reads aloud and complete a graphic organizer based on what they heard. Later, students will individually read another text closely, and using their graphic organizers, work in small groups to complete a cause and effect graphic based on the key details in the text.

Product

Each small group will choose one cause and effect of freshwater pollution that they believe is the most important, share their choice with the whole class, defending their choice.

Resources

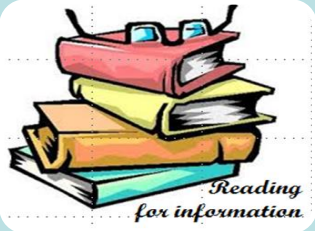
<http://thinkonline.smarttutor.com/story-time-water-pollution-cause-and-effect>

<https://www.youtube.com/watch?x-yt-cl=85114404&v=MwX3FFOJZwk&x-yt-ts=1422579428>

http://www.ducksters.com/science/environment/water_pollution.php

http://www.readwritethink.org/files/resources/lesson_images/lesson1035/cause.pdf

Grade 3 - Module 4: Water Pollution



Reading Standards for Informational Text

- RI.3.3. I can describe how events, ideas or concepts in an informational text are related)



Writing Standards

- W.3.1. Write opinion pieces on topics or texts, supporting a point of view with reasons.
- W.3.4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.



Speaking and Listening Standards

- SL.3.4. I can report on a topic or text with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.



Language Standards

- L.3.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Read-Aloud: Water Pollution *by Regina Drew*

All living things need water to stay alive, which is why water is our most precious natural resource. For this reason, it is important to learn about the causes of water pollution.

Water pollution is simply any harmful thing that is added to water. There are many causes of water pollution, but you cannot always see what is polluting it. Water can look clear, yet still be unsafe. It can be polluted by microscopic organisms, which are so tiny, they can only be seen with a microscope. These organisms are sometimes contagious and can make us sick. One cause of microscopic organisms in water is sewage from pipes.

Another major cause of water pollution is the fertilizers farmers use to make their crops grow fast and the pesticides they use to kill bugs and rodents. When it rains, these fertilizers and pesticides can wash off into waterways.

In addition, wastewater from factories contains harmful chemicals that can be poisonous to marine life. This wastewater is also very hot, and when it is pumped into waterways, it has the effect of heating up the temperature of the water. Many plants and animals cannot survive if the temperature of the water rises due to lack of oxygen.

Litter also pollutes waterways. When not disposed of properly, garbage shows up on the shorelines of beaches and can also be harmful to marine animals. Moreover, anything with a sharp edge can cut a mammal or fish. Marine animals are also known to mistake garbage for food.

Petroleum companies ship their oil all over the world in large supertankers, but accidents do happen. An important cause of water pollution and a great loss of marine life along shorelines is accidental oil spills by these large supertankers.

Sources:

Text: <http://thinkonline.smarttutor.com/story-time-water-pollution-cause-and-effect>

Video: <https://www.youtube.com/watch?x-yt-cl=85114404&v=MwX3FFOJZwk&x-yt-ts=1422579428>

READ-ALoud: LISTENING ACTIVITY

**What is one cause of water pollution?
Please write and/or draw your answer.**

**What is a cause of microscopic organisms in water?
Please write and/o draw your answer.**

**What is a harmful effect of litter in waterways?
Please write and/or draw your answer.**

**What is the effect of very hot wastewater pumped into waterways?
Please write and/or draw your answer.**

Additional Text on Water Pollution

Retrieved on 2/1/15 from http://www.ducksters.com/science/environment/water_pollution.php

Water Pollution



What is water pollution?

Water pollution is when waste, chemicals, or other particles cause a body of water (i.e. rivers, oceans, lakes) to become harmful to the fish and animals that need the water to survive. Water pollution can disrupt and negatively impact nature's water cycle as well.

Natural Causes of Water Pollution

Sometimes water pollution can occur through natural causes like vulcanoes, algae blooms, animal waste, and silt from storms and floods.

Human Causes of Water Pollution

A lot of water pollution comes from human activity. Some human causes include sewage, pesticides and fertilizers from farms, waste water and chemicals from factories, silt from construction sites, and trash from people littering.

Oil Spills

Some of the most famous incidents of water pollution have been oil spills. One was the Exxon Valdez oil spill which occurred when an oil tanker hit a reef off the coast of Alaska and over 11 million gallons of oil spilled into the ocean. Another bad oil spill was the Deepwater Horizon oil spill when an explosion at an oil well caused over 200 million gallons to spill into the Gulf of Mexico.

Acid Rain

Air pollution can also have a direct effect on water pollution. When particles like sulfur dioxide get high into the air they can combine with rain to produce acid rain. Acid rain can turn lakes acidic, killing fishes and other animals.

1

Retrieved on 2/1/15 from http://www.ducksters.com/science/environment/water_pollution.php

Effects on the Environment

Water pollution can have disastrous effects on the environment.

- Pollution in the water can reach a point where there isn't enough oxygen in the water for the fish to breathe. The fish can actually suffocate!
- Sometimes pollution affects the entire food chain. Small fishes absorb pollutants, such as chemicals, into their bodies. Then bigger fishes eat the smaller fishes and get the pollutants too. Birds or other animals may eat the bigger fishes and be harmed by the pollutants. One example of this was the use of the insecticide (bug killer) DDT. When birds of prey ate fishes that were infected with it, they would lay eggs with thin shells. The population of birds of prey began to drop until DDT was banished.
- Sewage can also cause major problems in rivers. Bacteria in the water will use oxygen to break down the sewage. If there is too much sewage, the bacteria could use up so much oxygen that there won't be enough left for the fish.
- Water pollution from major events like acid rain or oil spills can completely destroy marine habitats.



Water pollution warning sign

Effects on Health

One of the most precious and important commodities for life on planet Earth is clean water. For over 1 billion people on the planet, clean water is nearly impossible to get. Dirty, polluted water can make them sick and is especially tough on young children. Some bacteria and pathogens in water can make people so sick they can die.

Types of Water Pollutants

There are many sources of water pollution. Here are a few of the major causes:

- Sewage - Even today sewage is flushed directly into streams and rivers in many areas around the world. Sewage can introduce harmful bacteria that can make people and animals very sick.

2

Retrieved on 2/1/15 from http://www.ducksters.com/science/environment/water_pollution.php

- Farm animal waste - Waste from large herds of farm animals such as pigs and cows can get into the water supply from the runoff of rain and large storms.
- Pesticides and herbicides - Pesticides are often sprayed on crops to kill bugs and herbicides are sprayed to kill weeds. These strong chemicals can get into the water through runoff of rain storms. They can also contaminate rivers and lakes through accidental spills.
- Construction, floods, and storms - Silt from construction, earthquakes, floods, and storms can lower the oxygen content in the water and suffocate fish.
- Factories - Factories often use a lot of water to process chemicals, keep engines cool, and for washing things away. The used waste water is sometimes dumped into rivers or the ocean. It can be full of pollutants.

What can you do to help?

- Save water - Fresh and clean water is a precious resource. Don't waste it! Take shorter showers, ask your parents not to water the lawn, make sure the toilet isn't running, and don't leave the faucet running.
- Don't use weed killer - Ask your parents if you can pull the weeds in the yard so they don't need to use weed killer (an herbicide).
- Scrape your plates clean into the trash and don't put grease into the kitchen drain.
- Trash - Always pick up your trash, especially when at the beach, lake, or river.

Facts About Water Pollution

- Soap from washing your car can run down the street drain and cause water pollution.
- Only around 1% of the Earth's water is fresh water. The rest is salty and we can't drink it.
- Around 40% of the rivers and lakes in the United States are too polluted for fishing or swimming.
- The Mississippi River carries around 1.5 million tons of pollution into the Gulf of Mexico each year.
- Between 5 and 10 million people die each year from water pollution related illnesses.

3

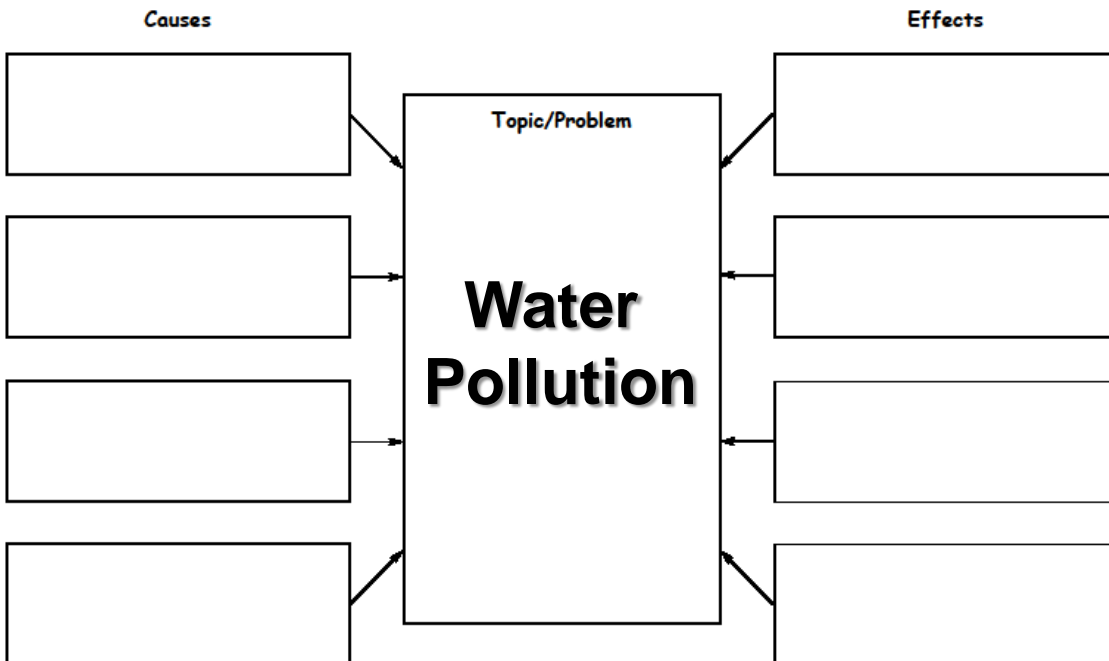
Source: http://www.ducksters.com/science/environment/water_pollution.php

Name: _____

Date: _____

CAUSE AND EFFECT GRAPHIC ORGANIZER

Instructions: List the topic or problem that you are exploring in the center of the organizer. Under the Causes section record what you think makes the problem happen. Under the Effects section, record what happens because of these causes.



Formative Evaluation Tools

<i>Sewage from Pipelines</i>	<i>Microscopic Organisms/Make People Sick</i>
<i>Fertilizers/Pesticides</i>	<i>Can Wash off into Waterways</i>
<i>Chemicals/Hot Water from Factories</i>	<i>Poisonous to marine life/Temperature of water rises due to lack of oxygen.</i>
<i>Litter</i>	<i>Marine animals can mistake harmful garbage for food and get hurt</i>
<i>Oil Tankers/Accidental Oil Spills</i>	<i>Great loss of marine life along shore lines</i>

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Source: http://www.readwritethink.org/files/resources/lesson_images/lesson1035/cause.pdf

Grade 3 - Module 4: Research Project

Purpose

In this unit students will conduct a survey on the ways in which water is used at home, and write a research report based on their findings.

Activities

Students will survey their family to determine the amount of water that is used at home on a daily basis, analyze the results, and report the results of the survey to the whole class.

Product

In small groups, students will create a poster, video, or audio public service announcement about ways to conserve water use.

Resources

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

http://www.swfwmd.state.fl.us/publications/files/daily_water_use.pdf

<http://www.sandiego.gov/water/conservation/contests/poster/index.shtm>

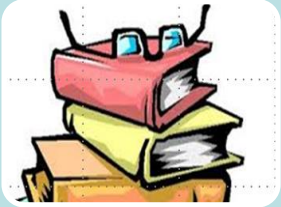
<https://www.youtube.com/watch?v=0Am9JPfuNsw>

<https://www.youtube.com/watch?v=x0dAYgVlcHE>

<http://rubistar.4teachers.org/index.php?screen=NewRubric&module=Rubistar>

Grade 3 - Module 4: Research Project

Reading for Information Standards



- RI.3.7. I can use information gained from illustrations (e.g., maps, photographs) to understand informational text.

Writing Standards



- W.3.7. I can conduct a research project to become knowledgeable about a topic.
- W.3.4. With support from adults, I can produce writing that is appropriate to task and purpose.

Speaking and Listening Standards



- SL.3.4. I can report on a topic or text with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- SL.3-5. I can use drawings or other visual displays to support what I say.

Language Standards



- L.3.1. I can use grammar conventions to send a clear message to a reader or listener.

Grade 3 - Module 4: Research Project

[Games & Activities](#) >> [Water](#) >> Water Conservation Around the House

WATER CONSERVATION AROUND THE HOUSE



More about this topic

- [The Story of Water](#)
- [Energy Quiz](#)

Printables

- [Water Quality Tips](#)

RATE THIS GAME

★ ★ ★ ★ VOTE

5/5

TELL A FRIEND
about EcoKids

Water conservation begins at home and we can all do our share.

INSTRUCTIONS:

To reveal simple water conservation tips, click on the rooms in the house.

For a printable version of all the tips found in the house, download the [Water Quality Tips](#) PDF.

PLAY THE GAME

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

Grade 3 - Module 4: Research Project

How much water do you use when you take a shower? Wash a load of clothes? Flush a toilet? Even brush your teeth? One important measurement of water use is how much water one person uses in one day, or per-capita water use (per is Latin for by and capita is Latin for head). The number is usually expressed as gallons of water used per person per day.

Talk to your family and complete one of the following form to get an estimate of how much you use on a typical day.

Teacher will use an exemplar to explain how to analyze the survey results.

Students work in pairs or small groups to complete their analysis. Using the information they gained throughout the unit thus far, they will choose either to compose a poster, create a video, or make a radio announcement that will persuade others how to help ensure the purity of freshwater or how to conserve their freshwater use.

Simple Survey on Daily Water Use



Daily Water Use at Home



Complete this survey to estimate how much water is used in your home daily.

Average Use: Write the number of times you and your family members do each activity in one day. Then multiply the number for **Water Used** by the **Number of Times** the activity is done. This will give you the number for the **Gallons Used** column.

Calculated Use: Record the number of total minutes used for each activity. Then multiply the number for **Water Used** by the number of **Total Minutes** to find the number for the **Gallons Used** column. For an activity you didn't do, place a 0 under **Gallons Used**. Add all the numbers under **Gallons Used** to find the **Total Gallons Used**.

AVERAGE USE

Activity	Water Used	Number of Times	Gallons Used
Dishwasher	12 gallons per load		
Toilet Flushing	4 gallons per flush		
Bathing	45 gallons (full tub)		
Laundry	43 gallons per load		

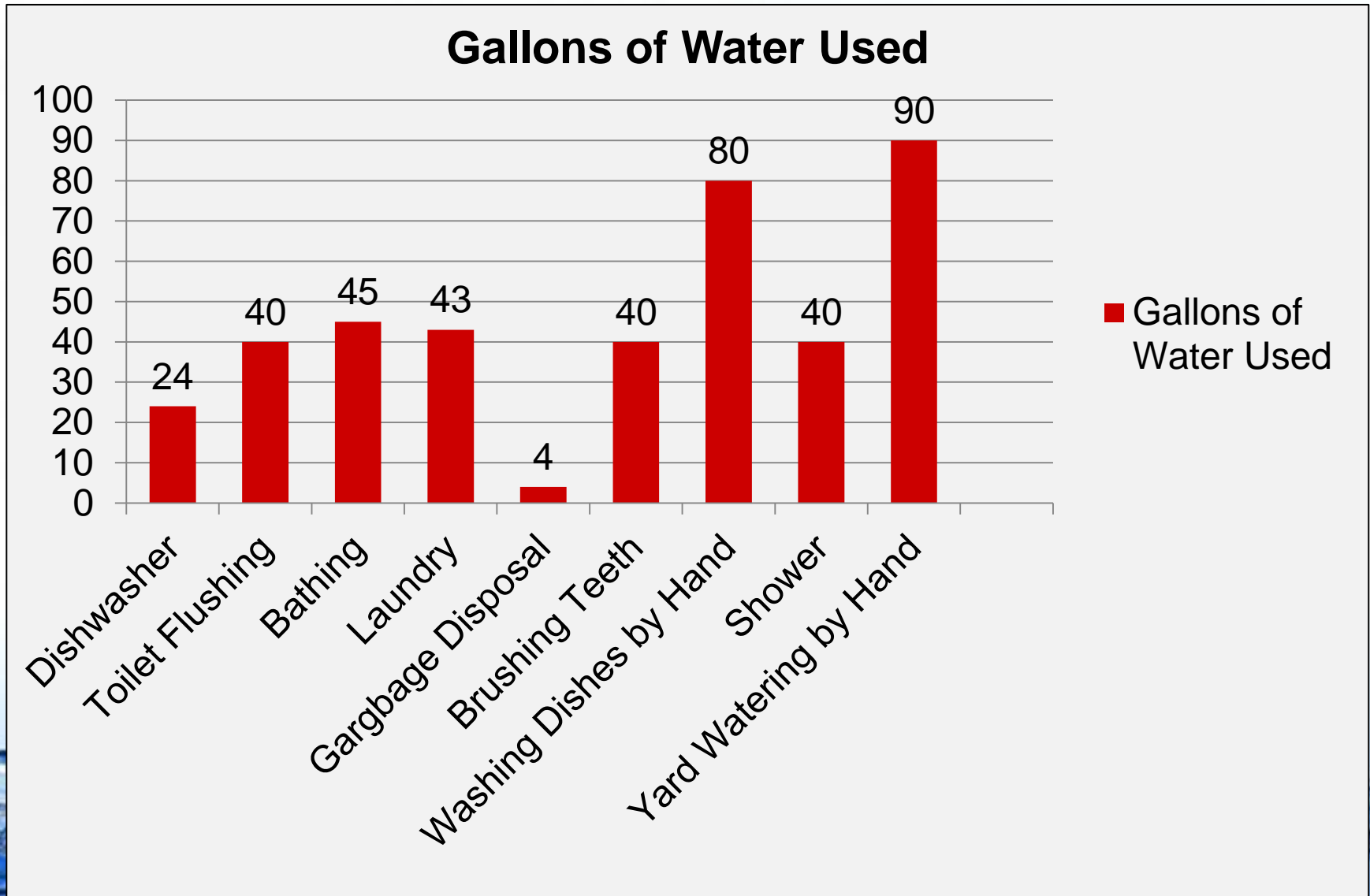
CALCULATED USE

Activity	Water Used	Total Minutes	Gallons Used
Garbage Disposal	4 gallons per minute		
Brushing Teeth	4 gallons per minute		
Washing Hands	4 gallons per minute		
Washing Dishes by Hand	4 gallons per minute		
Shower	4 gallons per minute		
Yard Watering by Hand	9 gallons per minute		

Total Gallons Used

Source: http://www.swfwmd.state.fl.us/publications/files/daily_water_use.pdf

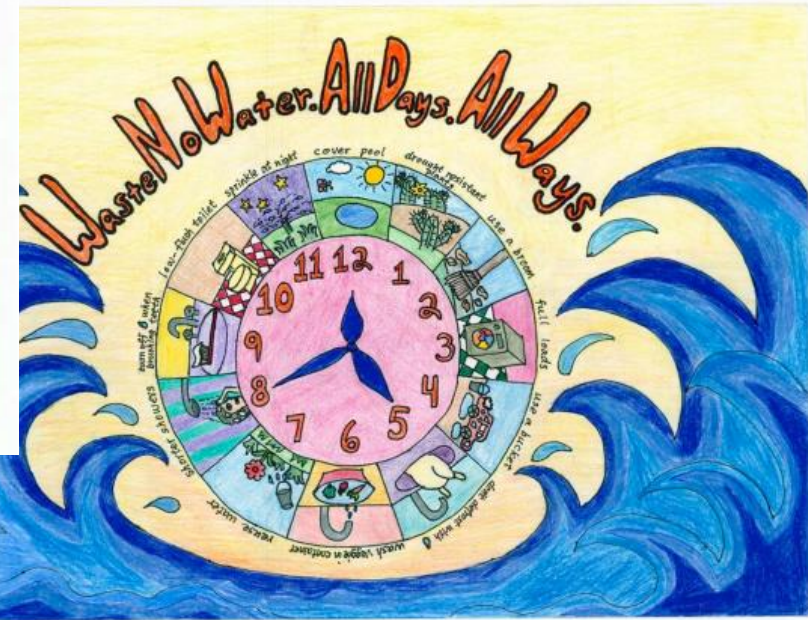
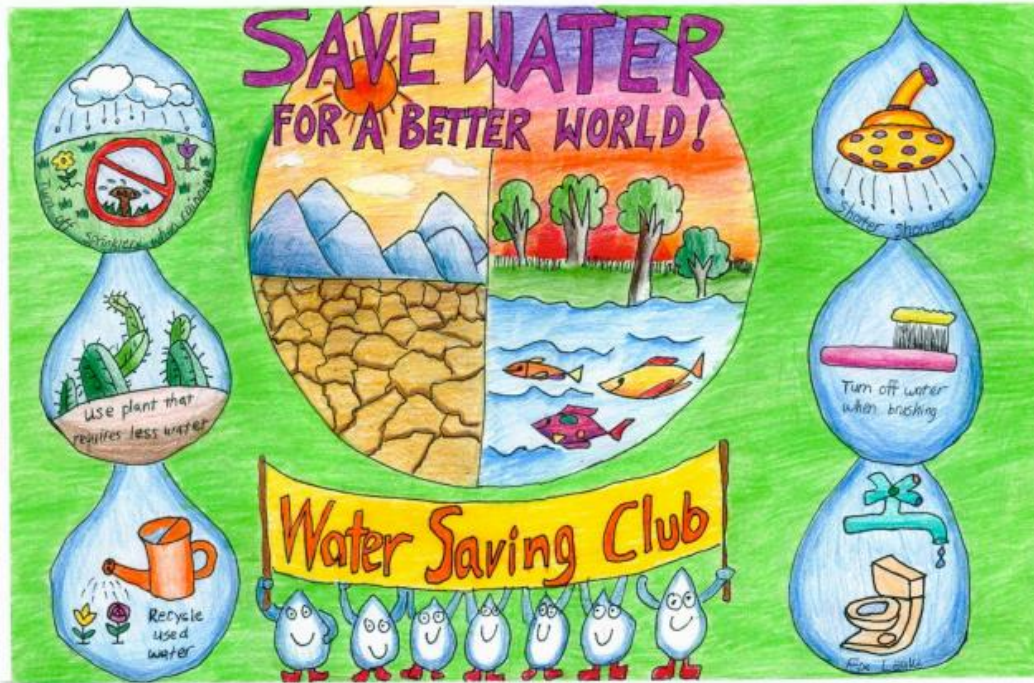
Bar Graph of Survey Results



On the basis of what you have learned, work with your group to create a Public Service Announcement (PSA) to convince people to conserve their freshwater use.



Examples of Poster-Style Public Service Announcements



Retrieved from:

<http://www.sandiego.gov/water/conservation/contests/poster/index.shtm> |

Example of a Video Public Service Announcement



Source: <https://www.youtube.com/watch?v=0Am9JPfuNsw>

Example of a Video Public Service Announcement



<https://www.youtube.com/watch?v=x0dAYgVlcHE>

Rubric for Evaluating PSA Project

CATEGORY	Ready for Madison Avenue	Junior Account Executive	Apprentice	New Recruit
Quality of Information	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
Interest and Purpose	Video, announcement, or poster has a clear and interesting purpose.	Video, announcement, or poster is interesting but purpose is somewhat unclear.	Video, announcement, or poster is not very interesting and purpose is somewhat unclear.	Video, announcement, or poster is not interesting and has no discernable purpose.
Conventions	No grammatical, spelling or punctuation errors.	Almost no grammatical, spelling or punctuation errors	A few grammatical, spelling, or punctuation errors.	Many grammatical, spelling, or punctuation errors.

Source: <http://rubistar.4teachers.org/index.php?screen=NewRubric&module=Rubistar>



Additional Resources for Instructional Planning

- <http://www.watereducation.org/general-information/water-cycle>
- http://www.slideshare.net/yapsmail/3-d-amelia-wong-water-pollution-project?qid=6b18a483-c332-42c9-a4e4-338b12c9b88a&v=qf1&b=&from_search=8
- <http://www.watereducation.org/general-information/water-conservation-measures>
- <http://www.epa.gov/WaterSense/kids/>
- <http://wateruseitwisely.com/kids/lesson-plans/>