



Kids Conserve... Water Preserved

Curriculum Unit 03.05.09

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What is the liquid that freezes at 0° C and boils at 100° C, is tasteless and odorless when pure, falls from clouds in various forms makes up 75% of our body and covers 70% of the Earth's surface? Water. Let me repeat the word again, **WATER**. Water is the most common substance on Earth. Only 1% of the world's water supply is available for human use. The remaining amount is salty or found in glaciers. Simply without it there would be no life. The world's demand for water is becoming increasingly significant. Do you know that the average man consumes over 150 gallons of water per day? Whether or not you answered yes or no to this question is not relevant but what steps as educators are we going to take to create young conservationists. My plan of action is to have my students' measure their families typical water usage in their home, graph their data and research their family behavior about the specified topic. I feel the students will gain a new perspective about water conservation that will serve as a stepping stone for future water usage because it is valuable resource that should not be wasted.

Kids Conserve... Water Preserved is an integrated, multi-sensory unit, which will incorporate the two disciplines of Science and Mathematics. The time allotted to this unit is 3 to 4 weeks. The above-referenced unit was devised to meet The New Haven Board of Education Curriculum requirements for Science and Mathematics. For Science the students are required to use and develop a critical understanding of the ecology in relation to natural resources, science and technology through personal and community health as it addresses present day and global challenges. The Math curriculum focuses on the students' ability to demonstrate a variety of skills in order to graph data and solve a variety of numerical equations. Through interdisciplinary discussions with the Mathematics teacher I decided that the will unit would transpire during the month of October because the sixth grade Math curriculum focuses on Measurement and Graphing at that time.

This unit is designed for the population that I work with on a daily basis, which are special education students in sixth grade. My students range in disabilities from Learning Disabled to Autism. As a result I decided that a multi-sensory approach would be most suitable to meet the goals and objectives in their Individual Educational Plan. Therefore, my unit will include various lessons, which will integrate the auditory, visual and kinesthetic methodologies of learning. The lessons will be easy to execute for both the teacher and the students. The lessons will be clear and concise with minimal instructions and materials. Based on the activity if difficulty does arise modifications will be made for individual students. I have designed the lessons so that every student can meet the tasks with success while learning and having fun.

As a Special Education teacher I am faced with challenges on a daily basis. Many of my students detest Science because of all the scientific jargon. Therefore, not much effort is put into learning. As teachers we know that Science is beneficial to our well being because it encompasses many facets of our daily living such as water, ecosystems, climate and ecology. Along with Science many Mathematical concepts come into play such as measurement and estimation. Students need to acquire an understanding of how important these two disciplines are interrelated in order to survive on a daily basis whether in be in measuring an item in a recipe or taking a shower every morning. Not only can they take what they learn and use it for personal growth but also they can apply their skills on standardized tests such as the Connecticut Mastery Test, which they will take in eighth grade. It has been brought to my attention that a Science section will be added to the test. Presently the science section of the test is being piloted in New Haven Public Schools. A Mathematics section of the test is already in place. It is comprised of Estimation and Approximation, Percent, Measurement and Patterns all of which will occur during this unit.

Throughout this above-referenced unit, the students will learn to become active learners about water conservation by forming an initial understanding, developing and interpreting knowledge and demonstrating a critical stance through awareness and the beliefs systems of their household. Through inquiry-based learning the student will be the researcher asking questions (formation of the hypothesis), performing experiments, collecting data, recording observations, reading and discussing their individual outcomes. The readings that I selected for this unit are intended to give basic information about my selected topic. Also, I have chosen many sources for the students and the teachers that will enlighten their interest in other areas of water as well. As a conservationist one needs to be knowledgeable about different sub-topics within a topic.

This unit, Kids Conserve... Water Preserved is broken down into five parts. The first section will focus on conservation. The next four sections will apply the research skills through hands-on application. A PowerPoint presentation will demonstrate all four objectives highlighted above. The first objective is to focus on the terminology of water conservation. Over decades the United States has become a changing force from rural living to fast paced city life. What was once a way of live for Americans to go and get well water from their backyard has become dated. Through technology and urbanization cities and suburbs have organized a public water-supply system that provides daily water to their homes.

According to the United States Census Bureau, in 1995, the U.S. had a population of about 267 million. Of that 267 million of people 225 million received water from their local water authority. According to the Census Bureau in July of 2002, the population in the United States was estimated at 280,562,489 people and growing daily. As the population increases the demand for water grows. Although the Earth is made up of 70% of water, less than 2% is fresh water. Water is not continuously created but it is recycled. The process is called the hydrological cycle (see illustration 1). The hydrological cycle gains its energy from the heat source of the sun. Also known as the water cycle, water falls to the Earth in many forms and moves to different locations. Some of these forms include snow, rain, sleet, fog and dew all of which can be categorized as precipitation. Once one or a combination of these elements fall to the Earth's surface it starts to melt. Some of the runoff finds it way into a body of water such as a lake, river or ocean. The other portion of the water is absorbed into the ground. This water becomes part of the groundwater supply. At that point within the cycle groundwater is relinquished back into the atmosphere through a process known as transpiration. Once this has step of the cycle has transpired then the water turns from a liquid state to a gaseous state. As a gases rise into the atmosphere clouds are formed. Without delay, the process initiates all over again.

Groundwater is a very important source for people's daily water use. Groundwater moves continuously underground until it reaches a lake or a larger water source where it then becomes surface water. Aquifers are

the storage facilities for a large portion of groundwater. An aquifer is an empty space between rocks or soil. Aquifers are the central location for wells to get water.

Presently, the average American living in the United States uses over 140 gallons of water per day. This number is by far massive. Most of us take our national water supply for granted. It is important to realize that a water shortage or drought can occur at any given moment. Many of our daily routines involve waking up, taking a shower, brushing our teeth, flushing the toilet, and washing the dishes and our clothes. Yes these items are all necessary but do we conserve the most that we can while doing these tasks? Do you ever think about the unnecessary items that we do that involve wasteful water use such as washing your car and watering the lawn? Since so much water is wasted, many scientists believe water conservation is one of the most effective ways to increase our nation's water supply. I believe former EPA administrator, Christine Todd Whitman said it best, and "I believe water is the biggest environmental issue we face in the 21st century in terms of both quantity and quality." In the State of Connecticut many important accomplishments have been made to improve the quality of ground and surface water. As more and more information is available to people about the quality and quantity of water, there is a growing concern about the amount of water that will be available for future use. Presently, Connecticut is in the process of creating a plan of action for a water policy that will incorporate the management of water resources. According to the Environmental Protection Agency Connecticut believes in a "water allocation methodology". This belief system is based in the idea of equally sharing the available water between many people and industries. This creates a competition for all water recipients.

When looking at the whole scope of the water quantity, Connecticut can be classified as having a large amount of water both groundwater and surface-runoff. There is always a concern in case of a drought, for example in 1999 during the summer some local water companies had to monitor the usage of water usage due to underlying factors such as the amount of groundwater, stream flow and temperature.

This state has 5,800 miles of rivers and streams which deposit their water supply into the Long Island Sound. Statistics done by the United States Geological Survey show that public suppliers of water gives 49% out to households. Since water is inexpensive households often do think about water conservation.

According to the New Haven Water Authority in December of 2000 they serve 12 municipalities throughout the Southern portion of Connecticut. On a daily average they supplied between 55 to 90 million gallons of water a day. One of their main purposes is to help consumers become ecologically aware. Ecologically aware water use helps to decrease the need for water treatment facilities and costly water bills. Personal conservation helps preserve rivers, streams and marine life.

Water conservation has many benefits one, anyone can become a conservationist. Two, it is very cost effective. Three, it is not time consuming. The process can happen within minutes. Once we start to conserve water in our homes we can teach other people such as family members and people in the community to become active participants in the fight for future water usage. In the late 90's they conducted a study in households in the North to determine how much water was used. After three years the study revealed that if a household had teenagers then the water use was higher in comparison to full-time workers who were adults. Additionally, a yearly total of 146,000 gallons were used in homes. The second objective is to take the information from the terminology and develop and interpret the text from personal knowledge in their homes. The students will start their research by formulating a hypothesis. They will guess how many gallons of water their household uses on a daily basis. The students will have a clear understanding of gallons because it will have been already introduced in Math class. For those students who have difficulty remembering the

terminology they will be provided with the definition as well as visual aides. A gallon is a unit measurement used to quantify the capacity of a liquid. The students will be able to equate that one gallon is equal to two half-gallons, four quarts and eight cups. For further clarity the students will have visual aides such as a milk container and they will also have the opportunity to cut out paper gallons.

Upon completion of the second objective the students will start their experiment by monitoring their daily household usage of water. They will create a survey to determine the amount of water used in gallons by each family member. When measuring the students will keep a count of how many times a day an activity occurs and for how long. The students will continue their observations over a one-week period logging their data on a daily basis. After the week is up the students will compile their individual data.

Many local governments now have laws that specify that water faucets, toilets, and showers only allow a certain amount of water flow per minute. In fact, if you look real close at the head of a faucet, you might see something like "1.5 gpm," which means that the faucet head will allow water to flow at a maximum of 1.5 gallons per minute.

Lastly, the students will use the data that they gathered to state their independent variable. Within the outcome each student will determine how much water was being used (gallons) and what would it take to change the mindset of his or her family members about using water wisely? It would be interesting for the students to create an incentive program where their family members could be rewarded if their water bills decreased over time.

In order to assess the learning of my unit, I would ask each student to complete a PowerPoint Presentation. I chose this form of assessment because it serves as a tool for different learning styles. The presentation will logically organize and structure information about their family water use. Through the use of sound and graphics the students will enhance their information and demonstrate the creativity. Their classmates will be able to visually and orally respond and make a personal connection with the presentation. At a later time students can use their presentation as a resource for further studies and a stepping-stone for sharing information with their community.

As an extension to this unit, Kids Conserve....Water Preserved the students will have a field trip to a regional water authority and the local watershed. They will learn to read their water meters and local water bills.

Terms to Know Relating to Water Preservation

A

Aquifer: A natural underground layer, often of sand or gravel that contains water. An aquifer gives water to wells.

C

Condensation: the change of state from a gas to a liquid.

Conservation: to protect from loss and waste. Conservation of water may mean to save or store water for later use.

D

Domestic use: The quantity of water used for household purposes such as washing, food preparation, and bathing

E

Evaporation: the change by which water is converted from a liquid state to a vapor state.

G

Gallon: A unit of volume in the U.S. Customary System, used to measure liquid, equal to 4 quarts (3.785 liters) and weighs 8.3 lbs.

Groundwater: The supply of fresh water found under the surface of the Earth usually found in aquifers. Groundwater often supplies wells and springs with water that is needed.

H

Hydrologic cycle: The constant circulation of water where water changes between a liquid, solid and gaseous state. Also, known as the water cycle.

R

Recycle: to reprocess a product over and over again for further use instead of being disposed for example paper, glass, plastic, metals and water.

Resource: A person, thing, or action needed for living or to improve the quality of life.

Runoff: The amount of rainfall found in streams, rivers, and lakes.

S

Surface Water: The water that systems pump and treat from sources open to the atmosphere, such as rivers, lakes, and reservoirs.

W

Water (H₂O): An odorless, tasteless, colorless liquid formed by a combination of hydrogen and oxygen; forms streams, lakes, and seas, and is a major constituent of all living matter.

Water conservation: The care, preservation, protection, and wise use of water.

Water quality : The condition of water for use in terms of its chemical, physical, and biological.

Watershed: The land area that drains into a stream

Well: A pit, hole, or shaft sunk into the earth to tap an underground source of water.

Lesson Plans

Overall Objective: Students will increase their understanding of the water cycle and their daily water usage and how these two topics impact the future of water conservation.

Lesson # 1

Objective: The students will learn about the water cycle and they will determine how it impacts human lives.

Key Concepts: water cycle

Materials: KWL chart, marker, chart paper, overhead, vocabulary worksheet, word search

Initiation: 5-10 minutes

- Students will be given a KWL chart on the Water Cycle. They will be asked to complete it based on their previous knowledge.
- Students will share orally the K section of the chart (Know)
- Teacher will record ideas on chart paper for future reference (visual aide)
- Students will share W section of the chart (What they want to learn?)
- Teacher will record ideas down on chart paper

Lecture: 10-15 minutes

- Teacher along with student will read about the water cycle from Science text
- Teacher will use overhead to explain the process of water cycle in detail.
- Students will take notes based on lecture.
- Teacher will give students handout with vocabulary terms relating to the water cycle that must be defined

Activities: 10 minutes-15 minutes

- Students will be broken up into groups of three's and they will use the computer and/or science book or any other reference material in order to look up key vocabulary words i.e. aquifer, well,
- Students will draw a picture of the water cycle using key vocabulary terms

Closure:

- Students can tell me two things that they learned about the water cycle

Follow-Up Activity:

- Students will complete Water Word Search (see attached)
- Complete picture of water cycle
- Review lecture notes

Water Cycle

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

AQUIFER

CONDENSATION

CONSERVE

EVAPORATION

FLOW

GROUNDWATER

LAKE

OCEAN

RAIN

RECYCLE

RESERVOIR

RUNOFF

STORAGE

SUPPLY

WATER

WELL

Water, Water Cycle, Water Conservation

All of the words below are water related.

Please define the words below and keep this ditto in your Science folder for future reference. Please define the words in your Science notebook.

Name: _____ Date: _____

1. evaporate
2. precipitation
3. groundwater
4. run-off
5. condensation:
6. conserve
7. drought
8. faucet
9. gallon
10. save
11. supply
12. demand
13. liquid
14. resource
15. commode

16. appliance

17. leak

18. efficiency

19. river

Lesson # 2

Objective: The students will learn about the importance of conserving water and they will determine how it impacts future water use.

Key Concepts: gallons, conservation, average

Materials: index cards, chart paper, marker, handout, 150 milk gallons (ask for people to save them), water

Initiation: 10-15 minutes

- Teacher will ask students if they could tell what they learned about the water cycle (orally)
- Students will share pictures of water cycle diagrams
- Some students will be assigned to role-play how the water cycle works (i.e. each student will be given an index card with a one job. The students must communicate with other members to establish the proper order of the water cycle. Once this has been completed the students must act out their job. The rest of the class must determine if the students have the cycle in the correct order. (kinesthetic)
- Question of the day: On a daily basis the average amount of water I use is? (must in gallons)
- Students will orally provide me answers to the? of the day. Ideas will be recorded on chart paper (visual aide) (I think it will be interesting to see the variation of amounts used on a daily basis).

Lecture: 10-15 minutes

- Teacher will review how the water cycle works
- Teacher will give handout about background information in regards to daily water use see attached.
- Students will read handout silently. Then students along with teacher will re-read handout orally.

Activities: 10 minutes-15 minutes The following activities will incorporate math skills. The students will have a follow-up review during their daily Math lesson. For some special education students a calculator will be provided for their use.

- Each student will be given six milk gallons of water. Each student will be asked to fill up their water gallons to the top. Upon completion each student will be asked to put their water gallons in the front of the room all together. Students will be asked to estimate how many gallons of water are up in the front of the room? ($6 \times 25 = 150$) $150 =$ average amount of water a person consumes on a daily basis. 6 represents the # of gallons and 25 represents how many students are in the class.

- Students will be asked to determine if there are 25 students in the classroom then how many gallons of water does the class consume on a daily basis? ($25 \times 150 = 3750$ gallons of water)
- Students will be asked to determine how the above-referenced activity relates directly to water conservation? (get in groups of 2-3)

Closure:

- Students will think about the amount of gallons that they use on a daily basis and they are going to determine if that is a small or large amount? If so, how does the amount we use go on to affect our future water use?

Follow-Up Activity:

- Science notebooks /journal: How does the amount of water you use directly correlate to water conservation?

17 Fun Facts to Know about Water & Water Conservation:

- 75% of the body is made up of water
- 75 % of the Earth is covered with water
- Water boils at 100o Celsius
- Water freezes at 32o Fahrenheit or 0o Celsius
- The first United States water plant with filters was built in 1872 in Poughkeepsie, New York.
- 110 million gallons of water are consumed every day in the United States
- 27% of water is used in homes by showers and baths
- Less than 2% of the Earth's water supply is fresh water.
- Between 140-170 gallons of water daily are used by Americans
- 37 gallons of water are used during an average bath.
- 20 gallons of water are used during an average shower
- A faucet with a leak can use up to 100 gallons of water daily
- 6.5 gallons of water are used per 1 flush
- 881 gallons of water are used weekly by an average family with four individuals by flushing the commode after each use.
- An average of 5 gallons of water is used if the water is left running while you brush your teeth.
- 25 gallons of water are used during an average cycle on the dishwasher.
- Between 30-35 gallons of water are used during an average cycle of washer.

Lesson #3

Objective: The students will discuss the importance of conservation and they will

develop a survey design which they will use to determine how much water is used in their households on a daily basis.

Key Concepts: survey design, water use, conservation

Materials: empty gallon container, marker, chart paper,

Initiation: 5-10 minutes

- Teacher will review how we can measure the amount of water is used (gallons) and the quantity of water the American uses on a daily basis.

- Question of the day: What goes into a survey design? Students will jot ideas in notebook then they will share answers in small group setting. One student in each group will record student responses on chart paper. Teacher will float to each group to hear responses.

- Chart paper will be displayed in front of classroom to serve as a learning and reference tool

Lecture: 10-15 minutes

- Teacher will lecture about water conservation

- Students will take notes in Science notebook/journals.

Activities: 10 minutes-15 minutes

- Students will get in pods of 2 or 3 they will brainstorm about what they would like to put into their survey design about their daily water use in their homes

- Teacher will review key concepts of a good survey design

1. objective should be clear and precise,
2. design should reflect behavior/beliefs of different groups
3. clear planning (collecting data in a timely fashion)
4. layout should be well constructed and easy to understand
5. results should reflect objective

(Steps 1-5 should be similar to the scientific method which students are required to know)

Closure: Students will briefly review some important facets of water conservation

Follow-up Activity: Students will be given a handout about their personal water use for 1 day. The students will be asked to monitor each time they bathe (shower/bath), flush the commode, wash hands, brush teeth, wash

the dishes (hand/dishwasher), and wash their clothes.

1. The students will measure the amount of water used in their homes (gallons-unit of measurement). Each student will be given an empty milk gallon to bring home. The student must use the gallon container to measure the amount of water used in each household activity .i.e. if the student is washing the dishes he or she must see how many gallons they use by filling their container up. This will allow them to use a hands-on technique.
2. The students are to record (Science Notebook) how many times per day he/she does one of the above-mentioned activities. (It is vital that you keep an accurate record for a true test)
3. Students should also record any additional items that are relevant to this experiment i.e. leaky faucet, if they do laundry outside the home.
4. The students are not to share any of their information with family members at this time for fear of inaccurate results for the next testing stage.
5. After a 24 hour period has gone by then the students will bring information back to class a come to a scientific conclusion about his or her daily water use.

* Estimates of students daily water use should vary based up students who have water-efficient equipment in their homes and those who do not.

Lesson #4

Objective: The students will complete survey design for family household water use based on a 1 week interval.

Key Concepts: survey design,

Materials: Science notebook, disks, access to computer with Publisher

Initiation: 5-10 minutes

- Teacher will ask students about their personal experience about their daily water use.

- Question of the day: How can you conduct a true test?

Activities: 10 minutes-30 minutes

- Students will return to their groups of 2 or 3 they will finish completing their survey design for their household.

- Groups will present sample survey design to teacher for review.

- Upon approval students will enter and save their survey design on word processor.

Closure: Students will return disk to teacher to save

Follow-up Activity: Students will make an educated guess about their personal weekly water use based upon

their daily use. They will write down ideas in their journal. Their answer must be detailed and they must show how they came to their conclusion.

Lesson #5

Objective: The student will give oral presentations about their daily water use & the will complete Water Design Survey for their household.

Materials:

Science notebook, disks, access to computer with Publisher

Chart paper, marker

Initiation: 5 minutes

- Teacher will review key skills will giving an oral presentation (good eye contact, key points)
- Question of the day: Does your sample design for your household reflect all of the elements of good design?

Activities: 10 minutes-30 minutes

- Students will a 2 to 3 minute presentation about personal water use. They will state whether or not their initial guess of how much water they use comes close to the actual amount.
- After presentation students will come to a general consensus about the classroom water consumption and a graph will be developed to display results on chart paper.

(Students will have the option of a creating a computer generated graph for extra-credit.)

- Students must complete survey design and save to disk.

(Design survey for household use will start on upcoming week)

Closure: Students will quickly reflect on their experience about personal water use.

Follow-up Activity: Students will write a persuasive piece in their journal why it is important to conserve water? Students are to support their ideas with evidence from their research and classroom lectures.

Lessons #6-10

Lessons 6-10 have been put together because this week the students will be testing the amount of water used in their household on a weekly basis. So I have tried to leave this time open for questions and reviewing their data. Also, I have incorporated some classroom activities outside their survey design relating to the overall theme of water conservation .

Objective: Students will use survey design to calculate weekly family household use.

Materials: screwdrivers, washers, faucets, construction paper, crayons, sample copies of water bills, overhead projector, computer,

Initiation:

- Students will have an opportunity to conference with teacher and group mates regarding testing.

Activities for the week:

- Learning how to change a washer for a leaky faucet (plumber visit classroom)
- Learning how to read your local water bill and water meter
- Learning what agencies are in their local area that have water conservation programs
- Have students draw maps showing where they get their water from
- Trip to local hardware store like Home Depot or Lowe's where students can get a hands on class about energy saving appliances.

Closure: Questions that are relevant to the daily activity

Follow-up: Students should be working on household design for water consumption.

Lessons # 11-12

Lessons 11- 12 have been combined because I will give the students an opportunity to write their labs during classroom time. Many of the students have difficulty taking their data and writing a lab therefore I as well as their classmates can serve as a support system.

Objective: Students will review data from household sample design to formulate a general conclusion.

Materials: Science notebook

Initiation: 5 minutes

- Students will ask themselves?'s pertaining to their design sample. i.e. Do I have a hypothesis? Is it in an if then statement form? Did I take accurate count? Did I use my gallon container each time? Did I notice anything that may hinder my results?

Activities: 30 minutes

- Students will get back in their groups. Each team member is responsible for writing up a lab. Students make seek other team members for support in completing lab.
- Students may see me for any assistance during this time.

Closure: 5 minutes

- Students must use their lab to come up with ways to conserve water in their households.

Follow-up Activity: Complete labs

Lessons #13-14

Lessons 13-14 have been combined because I am giving the students two days in class to complete their PowerPoint presentations because many of my students do not have access to a computer in their homes.

Objective: Students will take lab from their Family Household Water Use and they will construct a Power Point Presentation.

Materials: lab, computer

Initiation: 5 minutes

- Question of the day: Do you think based on your findings, that it is going to be difficult to change the way your family consumes water at home on a daily basis? If so, how can you change their belief system?

Activities: 30 minutes

- Students will go to the Computer Lab to construct Power Point Presentation.

(students are able to add any graphics or personal design that will enhance presentation but it must include all of their scientific inquiry.)

Closure:

- Students will make sure that presentation follows all of the steps of good presentation & they will make sure that it has all of the data of their sample design

Follow-up Activity:

- Students will write down in Science Notebook how would they change their family belief system about their household water use? Then they will pick 1 family member and discuss it with them and see if they were open to the idea. Students would have to act as conservationists and they would tell their family member some of the important reasons why water conservation can be beneficial i.e. save money on water bills (students will include this data in presentation as well)

Lesson #15

Objective: Students will present Power Point presentation to class to reveal findings about the average household water use.

Materials: Presentations, computer lab

Initiation:

- Students will be given 5-7 minutes to add 1 more slide regarding to Follow-up from previous lesson.

Activity:

- Students will present Power Point Presentations and they will be graded based evidence, method, analyses, organization, layout, documentation, style and originality of piece.

Closure: Students must jot down 2 items that they learned about a classmate's presentation.

Follow-up Activity:

- Try to use what they learned about water conservation and make it a lifestyle for themselves and their families.

Summary

This unit, Kids Conserve...Water Preserved has just served as a stepping stone for the way students think about water. Water is odorless, colorless liquid that makes up most of our Earth and something humans can survive without. As summer quickly approaches people are looking for a drink that is going to quench their thirst: water. Water is not generated it is recycled, as a result of this it is crucial for young students to be become more aware of the water use around them. What a better way to do it than by starting at home. Maybe the next time they might see their mother or father running water they will turn it off. I know this is just a start but you must start somewhere.

Teacher Resources

Barass, Karen J. *Clean Water (Earth at Risk)*. Chelesea House Publishers, 1992. Good book that deals with environmental issues such as pollution and keeping clean water.

Cech, Thomas V. *Principles of Water Resources: History, Development, Management, and Policy*. John Wiley & Sons, Inc. New York, New York, 2003. Easy to follow by Chapters with great information.

Lucas, Eileen. *Water: A Resource in Crisis (Saving the Planet)*. Children's Press, 1991.

Good piece of information especially for students who have difficulty reading.

Perdue, Peggy K. *Diving Into Science: Hands-On Water Related Experiments*. Scott, Foresman and Co. Glenview, IL, 1990. Great for Science-Fair.

Perry, Phyllis J. *The World of Water: Linking Fiction to Nonfiction*. Teachers Ideas Press. Englewood, Colorado, 1995. Good book for using a multidisciplinary approach.

Roa, Michael L. *Environmental Science Activities Kit*. West Nyack, NY. 1993. Great ideas for experiments.

Wick, Walter. *A Drop Of Water*. Scholastic Press. NY.1997 Great use of photos.

Water Saver in Homes

http://www.epa.gov/own/water_efficiency

Advancing the Science of Water: Facts About Water

<http://www.awwarf.org>

Water Quality

<http://www.dep.state.ct.us/wtr>

Water Conservation

<http://www.rwater.com>

Water Cycle

<http://getwise.org>

Glossary of Water Resources

<http://www.edwardsaquifer.net/glossary>

National Water Use by State

<http://wwwga.usgs.gov/edu>

American Water Works Association: Water Conservation Tips

<http://www.waterwiser.org>

Student Resources

Cosgrove, Brain. *Weather* . Alfred A. Knoph, New York, 1991. Bits of information about subject with pictorials.

Crawford, Leslie. *Water Conservation: Student Edition* . Dale Seymour Publications; 1997. Great book for students to look at water issues such as conservation.

Galatis, Alex . *Dudley's Tea Party* . Scholastic, 1995. Good book about water conservation for academically challenged readers.

Wheeler, Jill C. *Every Drop Counts: A Book About Water* . Rockbottom Books, 1993. A great book full about ways kids can preserve water in their own homes and has great illustrations.

Conservation Tips

<http://mojavewater.org>

Water Conservation Flyers & Drought

<http://www.state.nj.us/drbc/drought/frameset.htm>

Puzzles on Line

<http://www.puzzlemaker.school.discovery.com>

Classroom Materials

- Chart Paper
- Marker
- Computer
- Water from Tap
- 1 Gallon Containers (Empty)
- Washers
- Faucet
- Screwdrivers
- Construction paper/oaktag
- Crayons/markers
- Index cards
- Science notebooks (1 subject notebook)
- Pencils/pens
- Copies of water bill
- Overhead projector
- Disks

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