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PREFACE

The enclosed material is the actual script used by the Extension teachers in the Water-er Our Chances program which went into the schools and taught fourth grade students how to not only save water, but educated them on the reasons there is water and water issues. This program was a grant-funded program sponsored by the Southern Nevada Water Authority and ran from the years 1989-1998 through the Cooperative Extension and was developed through the efforts of Gini Mitchell and the Water Team. It was revised from a two-part program to a three-part program in 1997. The program is no longer active due to lack of funding.

Therefore, the handouts referred to by the program are no longer distributed by the Nevada Cooperative Extension. The videos, however, are available in limited supply and may be checked out by contacting the Nevada Cooperative Extension, at 222-3130.

The teacher that wishes to give the program to his/her class must duplicate all enclosed worksheets and props used for the demonstrations. Some teachers who had the program in past years may have copies of the handouts used in the program and they may want to duplicate these as well for their classes.

The Nevada Cooperative Extension is pleased to be able to offer this valuable program to those educators that wish to make their students aware of the importance of water and water conservation. Please check our web site for more information at www.nce.unr.edu/clark.
ONE HOUR WATER LESSON

DEVELOPED BY
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ONE HOUR WATER LESSON

WATER FACTS:
1. What is needed for life? Life Box demonstration.
2. Is most of the Earth covered with water? Answer: Yes, 80% of the Earth is water, only 20% is land. Globe toss demonstration used here. Make tally marks on how often your finger lands on land or water.
3. Is most of the world’s water salt water or fresh water? Answer: Most of the world’s water is salt water.
   A. Can you drink salt water? No. If you do, your body will lose more water due to the salt and you will die. Sailors must have a supply of fresh water when they are on the ocean and also have fresh fruits to avoid getting an awful disease known as scurvy.
   B. Do Cylinder demonstration here to find out how much of the world’s water can be drunk by humans. Fill out worksheet.
4. Can we drink all of the fresh water? No. We can drink about one drop out of every liter of fresh water. Less than 3% of the water is freshwater and out of that, humans can drink less than 1%.
   A. Why?
      Much of our fresh water is so polluted that it cannot be cleaned. Examples are water contaminated with oil, such as oil spills and water contaminated with sewage, soil, and pesticides.
   B. Another reason is that a lot of the fresh water is trapped in our polar ice caps. If that water melted, we would have global floods and most of our coastal cities would be under water. It never gets warm enough in the north and south poles to melt them completely, just a little of that is melted during the summertime.
   C. A lot of the water on earth is trapped underground. We cannot get to most of the water that is trapped underground. If we could get it all out, most of our streams and lakes would dry up.

DRINKING WATER IS VERY SCARCE
2. Our bodies are made up mostly of water.
   A. The amount of water that is in the body varies with our age.
      1. Boys and girls 10 years old have about 66% water in their bodies. That is equal to five gallons.
      2. Babies are about 85% water, which is a good thing since they fall often when learning to walk.

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3. Older people are 45% water. That is why they have wrinkles and arthritis in their joints.
4. Use demonstration about how much water there is in each person and the five-gallon comparison.

How long can we live without drinking water or other liquids?
A. We can only live about three to four days. We can live without food for one month, provided we drink clean water. Without clean water we get sick and die.
B. There is a simple way to clean the water when clean water is not available.
   1. Boil the water.
   2. Add 1 part of Clorox bleach to 50 parts non-potable water. Let it sit for 8 hours.
   3. Construct a solar still. Let the water, covered with plastic wrap, sit in the sun.

DESERTS
1. Deserts in the United States and Mexico. Use the desert map for this activity.
   A. Great Basin Desert
      1. Covers most of Nevada and some of Utah, California, and Idaho.
      2. It is a cold desert.
         a. A cold desert mostly gets snow and the overall temperatures are lower.
   B. The Sonoran Desert.
      1. A hot desert located in northern Mexico and southern Arizona.
         a. A hot desert mostly has rainfall and the temperatures are high in the summer.
         b. Flash floods suddenly occur in the hot desert.
         c. Never cross a flash flood during a storm.
         d. Famous for the saguaro cactus grows natively.
   C. The Chihuahuan desert located in southern New Mexico and northern Mexico.
      1. A hot desert where the ocotillo and saguaro cactus grow naturally.
   D. The Mojave desert.
      1. The smallest desert.
      2. The Joshua tree is native to the Mojave Desert.
      3. The hottest desert, largely due to Death Valley.
2. Why are we a desert?
   A. Rain Shadow demonstration with worksheets.
   B. High Pressure Zone demonstration with worksheet.
3. Water is scarce in the desert.
   A. What can you do about this?
      1. Water conservation.

WATER CONSERVATION
1. Why we have the problem.
   A. Growth—do this with “Colorado River States” handout.

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1. States.
2. Growth causes a scarcity of water because more people need more water.
   B. Drought.
1. Droughts cause us to have less water than usual, so we need ways to use less.
2. Droughts end when the rainfall returns to normal.
3. Droughts that happen along the Colorado River affect others living down river.

C. Pollution—Use the pollution solution worksheet.
1. Water pollution is a big problem because more people means more pollution and some of the water cannot be cleaned up even after the pollution source is stopped.
2. How do we pollute? Go through characters that pollute.
   a. Don the Dumper, dumping waste in the desert.
   c. Guy the Gardener. Using pesticides in the landscape.
   d. Tina Trash. Letting trash leaks out of bags and pollutes.
   e. Mike the Magician. Dumping oil out of the car onto the desert. Where should we dispose of oil? Use handout on places to dispose of waste.

D. Waste
1. Wasteful use of water is the one thing we can all do something about. But how could one person ever make a difference?

E. How we all can prevent waste. Use the “How Can I Save Water” worksheet.
1. Indoor Waste
   A. In the bathroom.
      1. Toilet.
         a. Get a low-flow model toilet. A regular toilet uses 7 gallons a flush. A low flow model uses only 1-½ gallons per flush.
      2. Shower.
         a. Limit your time in the shower. The shower uses 5 gallons per minute, so the fewer minutes, the less water is used.
         b. Install a low-flow showerhead. This cuts the water usage in half.
         a. Fill the bathtub half way. This will use half the water.

   B. Other parts of the house.
      1. The washing machine.
a. Put clothes in first to save water. The washer operates on a water level basis, so the clothes take up the room the water would have.

2. The dishwasher.
   a. Use a dishwasher rather than doing the dishes by hand.
      1. A dishwasher only uses 10 gallons per load and more than one table setting of dishes can be put in there.
      2. When doing dishes by hand, turn off the water or fill two sinks with water; one for washing, one for rinsing.

C. Outside water usage.
   1. Watering the grass.
      A. Put a timer on the water controls. Only water late at night or early in the morning in summer. Use less in winter.
      B. Use a drip system for plants other than grass.
      C. Don’t water too long and don’t let the water run down the gutter. Time to only five minutes in each spot.
   2. Washing the car.
      A. Use a bucket to wash the car and use a nozzle on the hose to rinse it.
   3. Cleaning the driveway and patio.
      A. Use a broom, not water spray, to clean off the driveway.
      B. On stubborn spots, use a brush with cleaner and then rinse them off.

CONSERVATION PAYS OFF

   A. One person can make a difference if we all do it together.
   B. It is not hard to do, but we need to think about it and do it.
TEST QUESTIONS FOR ONE HOUR WATER LESSON

1. What are the four things needed for life (life box demonstration).
   1.
   2.
   3.
   4.
2. How much of the Earth is covered with water (what per cent)?
3. What percentage of the world's water is drinkable for us?
4. What is the name of the desert we live in?
5. Name three of the six conditions that make us a desert.
   1.
   2.
   3.
6. List three of the five ways water can be polluted.
   1.
   2.
   3.
7. Where do we get most of our water in the Las Vegas area?
8. List four ways to save water.
   1.
   2.
   3.
   4.
9. Why do we need to save water? List two of the reasons there is a water problem.
   1.
   2.
10. What are the four things needed for life (life box demonstration).
   1. Light
   2. Soil
   3. Air
   4. Water

11. How much of the Earth is covered with water (what per cent)? 80%

12. What percentage of the world’s water is drinkable for us? Less than 1%

13. What is the name of the desert we live in? The Mojave Desert

14. Name three of the six conditions that make us a desert.
   1. Low Rainfall
   2. High Evaporation
   3. Low Humidity
   4. Hot
   5. Windy
   6. Sunny

15. List three of the five ways water can be polluted.
   1. Properly dispose of pet waste.
   2. Do not dump waste on the desert
   3. Dispose of waste oil properly.
   4. Be careful of disposal of pesticides.
   5. Trash must be disposed of properly.

16. Where do we get most of our water in the Las Vegas area? The Colorado River.

17. List four ways to save water.
   1. Use a low-flow toilet.
   2. Use a broom, not a hose to clean your driveway.
   3. Fill your bathtub up half-way.
   4. Take 5 min shower with low flow showerhead.
   5. Water grass 5 min.
   6. Use a dishwasher.
   7. Clothes go in washer 1st.
   8. Turn off water when washing face or hands.

18. Why do we need to save water?
   Water is a limited resource and very little can be used for drinking.
   We need to save it in order to have enough to go around not only for us, but for our kids and future generations.

19. List two of the reasons there is a water problem.
   1. People do not save water.
   2. Water is limited in supply.
   3. Water is necessary for life.
   4. We all need water to live.
“Wat-er” Our Chances

Day One

Objectives:
The students will:
- Identify water as one of the elements needed to sustain life.
- Sequence the water (hydrologic) cycle.
- Identify fresh water as a limited resource.

Materials needed:
- Life Box and signs (not included, see water demonstrations section)
- Water cycle signs (not included, use chalkboard)
- Video: *Take A Look Rain* (available for checkout at NCE)
- Globe ball (use globe in the classroom)
- A Drop in the Bucket: (see water demonstrations section)
  - 3 graduated cylinders
  - a liter of water
  - cylinder sign
  - bucket
  - signs and holders
  - measurement handouts
- Water cycle handouts (in packet)
- *The Story of Drinking Water* handouts (Not available)

INTRODUCTION

Good morning! My name is ___________ and I am a presenter of a program from the University of Nevada Cooperative Extension. I will be here for an hour today and again for two more sessions to talk about water. Today we will learn the water cycle, why water is important to life, and how much water on earth is available for our use.

THE IMPORTANCE OF WATER

I am going to ask the class to name ways that we use water. If you hear a way that *you* use water, stand up next to your desk and say, “That’s Me!” and then sit back in your seat. Okay, would someone like to raise his/her hand and tell me one way that you use water? (For each suggestion, raise your hands to direct the students to stand up and say “That’s Me!” Lower your hands when you want the students to sit down. Continue this game for six or seven suggestions.) We use water in many ways, don’t we? We use it for survival, for our daily needs and for fun. Which do you think is the most important? (Survival) How long could you survive without water or any drinks? (Pause for answers) We could live without water only three to five days and we would be thirsty in only a few hours.
Water is necessary for the proper functioning of our bodies. Would the student who said that we need water to drink please come up and help me for a minute? What is your name? I want you to guess what percentage of ______’s body is made up of water. If you tell me 100%, s/he’s just a puddle on the floor. If you tell me 0%, then s/he is as hard as this table. (Knock on the table. Pause for answers.) That’s right! About 60 to 70% of your body is made up of water. For the average size fourth grader, that is about 5 gallons, the size of a big jug of bottled water! Why doesn’t ___________ slosh when s/he walks? (Pause for answers.) The water is contained in cells in all parts of the body. If I could turn ___________ into a sponge and squeeze all the water out of his/her body, s/he would only be this tall! (Indicate a level midway between the hip and knee of the student.) Thank the student for being a good sport.

**LIFE BOX**

This is my Life Box. Inside this box are the four things that are necessary for life to exist. I am passing around a green sheet. As I open my box, see if you can write down the four things that are inside, not including the signs or bottles. (Give the students a minute or so.) Who would like to tell me one of the things that they wrote down? (The students will mention the water and soil first. You may have to provide hints for them to guess air and light. Ask students why each item is necessary for life. Responses will include: we need air to breathe, water to drink, soil to grow plants for food and light to provide heat and light energy to the earth.) Astronomers look for these four things when they look for life on other planets.

**THE WATER CYCLE**

Where can we find water in this room? (Pause for answers. Lead students to the concept of water in the air of the classroom.) What is water called when it’s in the air? (Pause for answer.) Water, in the form of a gas, is called vapor. Water is the only substance that appears naturally on earth in three forms: solid, liquid and gas. What is solid water called? Ice.

How does water vapor get into the air? (Pause) *Evaporation.* See how the word evaporation has vapor right inside of it? Tell me places on earth from which water evaporates. (Show globe ball. Pause. Lakes, rivers, oceans, puddles, etc. Draw a body of water near the bottom of the board. Draw an upward arrow and put up the sign and picture of evaporation. This will be the start of a circle to form the water cycle.)
What happens to water vapor as it moves high into the sky and cools? (Pause for answer.) It turns into liquid droplets and forms clouds. This process is called condensation. (Put up sign and picture.) Can anyone think of another example of condensation? (fog on the bathroom mirror or cold drink glass sweating) As the water droplets get bigger and heavier, what begins to fall out of the cloud? (Pause for student answers. Draw lines coming out of the cloud. Put up signs for rain, snow, sleet, and hail as students suggest them.) What is the big word for water that falls out of clouds? (Pause.) Precipitation. (Put up sign and picture.) What happens to precipitation? (Pause.) Some precipitation soaks into the ground, some evaporates, and some runs into rivers, lakes and oceans. Who knows what this whole process is called? That’s right, the water cycle.

Does the water cycle ever stop? No. We have about the same amount of water on the earth now that we have had for millions of years. That means that the water you brushed your teeth with this morning may have been the same water a dinosaur drank millions of years ago! Does the water still have dinosaur germs in it? (Pause for discussion.) What happens to water as it goes through the water cycle? (Pause for answers.) It gets cleaned. Which stage of the water cycle cleans the water? (Pause.) Let’s talk about how this works. Think back to the last time it rained and how it made mud puddles on the sidewalk. What happened to the puddles after a day or two? They dried, didn’t they? What was left on the sidewalk? (Pause) The dirt, sand or soil was left when the water evaporated. Only the water evaporates. Anything contained in the water is left behind. Evaporation is the step in the water cycle where water is cleaned. Every time water goes through the water cycle it is cleaned.

VIDEO: Take a Look, Rain

We are now going to watch a short video about the water cycle.

WATER CYCLE CHARADES

Everyone stand quietly by your desk and we will act out the water cycle. Do what I do and say what I say. (Raise your hands palms up and wiggle your fingers and say EVAPORATION. Hold your hands over your head in a circle and say CONDENSATION. Lower your hands palms down, wiggle your fingers and say PRECIPITATION. Repeat.)

Good job! Now you know the water cycle words.
GLOBE BALL

Do you think there is more water or more land on earth? (Hold up your globe and show students. Take a few answers.) Let’s see how we can find out. I would like the student of the day to come up to the board and write the words Land and Water next to each other. I am going to throw my globe ball to different students. If you catch the ball, say whether your RIGHT THUMB is on land or water. Will everyone show me their right thumb? Good. Then the person at the board will put a mark under the word. Let’s begin. (Throw the ball to ten students. The tally should come out: 7 water to 3 land or 8 water to 2 land. If it does not come out right, you may want to do 20 throws.) Our thumbs landed on more water than land because 73% of the earth’s surface is water. That is why we are sometimes called the water planet.

A DROP IN THE BUCKET

(Hold up globe.) Where can we find saltwater on our planet? (Pause.) Yes, in the oceans. Most lakes and rivers are not salty. They are fresh water. Can you drink saltwater? (Pause for answers.) No, because the salt in the water causes your body to lose more water than you gain by drinking it. It is possible to die of thirst while sitting in a boat on the ocean. Can you wash in saltwater? No, it makes you sticky. Can you water your plants with saltwater? No, it would kill them. The water we use for drinking, cleaning and watering is fresh water.

I am passing out a sheet of paper called, “What do you know about water...on earth?” Place this paper on your desk until I tell you what to do with it. (Hold up globe and one liter of water.) Let’s pretend we could take all the water in the world and put it in a bottle. This represents all the water in the world. Is this really all the water in the world? Of course not. But we will pretend that it is. Let’s measure it by pouring it into this graduated cylinder. The water comes up to the very top. Take a look at the sheet in front of you. It has three pictures of cylinders like mine. The cylinder on the left side says, “Amount of SALTWATER”. Draw a wavy line across the cylinder to show how much of the world’s water you think is saltwater. (Allow several minutes for this.) I will now pour out all the fresh water and leave only saltwater. (Pour 30 ml of water into the medium size cylinder.) Draw a straight line across your cylinder at the 97 mark. (Demonstrate this by placing your blue Velcro line at 97% on your sample cylinder.) How close was your guess? I am going to pour all the saltwater back into my bottle. Now I will show you what percent of the world’s water is fresh.
(Pour the 30 ml of water back into the 1000 ml cylinder.) Draw a line showing the world’s fresh water in your middle cylinder. (Demonstrate this by placing your green Velcro line at 3% on your sample cylinder.) I will now put the fresh water back into the smaller cylinder to make it easier for me to pour. Is all the fresh water in the world found in a form that we can make use of? (Pause for answers.) What form of water is found at the north and south poles? That’s right, ice! We can’t melt all that ice to use, can we? No. So let’s pour off the amount of freshwater that is not ice. (Pour 6 ml of water into the smallest cylinder.) Where is this remaining freshwater found? (Pause.) In lakes, rivers and underground. Is all of this water available for use by people? (Pause.) No. Some of it occurs in places where we can’t get it, such as deep in the earth or in areas far from civilization. Some of it is polluted. How much fresh water is available for use by people? (Use eye dropper to draw a little water from the small cylinder. Hold over the bucket and ask students to be silent. Drop one drop into the bucket.) If this were all the water in the world (show all your water containers), than one drop would be the amount of freshwater people would have available to use.

Another way of saying this is that for every liter of water in the world, only one drop is available for drinking. Draw one drop in the bottom of the cylinder that says “Water we can drink.” (Demonstrate this by placing your green dot at the bottom of your sample cylinder.) This is the reason that people must learn to use their water carefully. I will show you how to do this in the next two weeks that I will be here.

HANDOUTS

I have a water cycle handout that I will leave with your teacher. (Show students.) Sometime before next week, color these and cut out the strips. Then feed them through cuts in the paper where the dotted lines are. Label the pictures with the water cycle words printed in the top left-hand corner of the paper. These will help you remember the water cycle.

I will also leave you with The Story of Drinking Water booklet. I would like you to read pages one through seven before I come back. This booklet provides a good review of what we talked about today. Keep this booklet handy because we will be using it for three weeks.
What did you learn today that you didn’t know? Do you have any questions? I will be back next week to talk about why we have a desert climate, where we get our water and where it goes after we use it.

See you then!
“Wat-er” Our Chances

Day Two

Objectives:

REVIEW:
Students will:
1. Identify water as one of the elements needed to sustain life.
2. Sequence the water (hydrologic) cycle.
3. Identify fresh water as a limited resource.

NEW:
4. Locate the Mojave Desert and give two of its characteristics.
5. Sequence the local water use cycle.

Materials needed:
Review: name, life box signs, water cycle signs (not included, use board)
Desert map, transparency and signs (if desired, made by teacher or use board)
Globe (use classroom globe)
“Why are we a Desert?” handouts, transparencies and board graphics
Rain shadow board and spray bottle (not included)
Mojave Desert Conditions cartoons, signs and handouts
Ribbons (not included)
Water Rides A Cycle video (available for checkout at NCE office)
Colorado River map, transparency and handouts (Use map in classroom)
The Water Users Cycle signs (not included)
Student and teacher folders (not included)

INTRODUCTION AND REVIEW

Good morning! As you may remember, my name is________ and I am here again to present a program from the University of Nevada Cooperative Extension about water. Let’s take a few minutes to see what you remember from last week. (Review the four things that are necessary for life to exist--soil, water, air and sunlight. Review the water cycle and do water cycle charades.) Ask how much of the water on Earth is salt water. {97%} And the 3 % of freshwater aren’t all available to us. Out of each liter of water on earth, only one drop is drinking water. We have to learn to make good use of that freshwater.

Today we are going to find out why our weather is dry and how our climate affects the amount of water that is available to us. We will also learn where we get water for Las Vegas and what happens to it after we use it.

DESERT CLIMATE

The weather that is typical for a certain place is known as its climate. Do you know what climate we live in? (Pause.) That’s right, a desert. Let’s see where deserts occur in our country. (Show deserts
Have students name the four deserts of the southwest: Great Basin, Mojave, Sonoran and Chihuahuan. Put desert name signs on the board.) How would you describe a desert? (Take several answers.) A desert may be described as a place that receives less than ten inches of rain a year. Does a desert have to be hot? (Pause for answers.) No, it doesn’t. It just has to be dry. Some deserts are cold. They receive most of their precipitation as snow. Do you think any of these deserts (point to the list on the board) are cold? Yes, the Great Basin. Why did you guess that? (Pause.) Yes, it is because it is farthest north. It is cold but it is still dry.

WHY ARE WE A DESERT?

Which desert do we live in? (Pause.) The Mojave desert. Do you know what is special about the Mojave Desert? (Pause for answers.) It is the smallest of our country’s deserts and it is the driest. We receive an average of only four inches of rain in a whole year. Let’s find out why. I am passing out a paper called “Why are we a desert?” When you get your paper, look at the two reasons that we are a desert. Who would like to read number one? (Select a student to read: “We are in the Rain Shadow of the Sierra Nevada Mountains.” Put up the rain shadow transparency or board sign. Point to the Pacific Ocean.) Put your finger on the Pacific Ocean in your picture. Follow the arrows with me. The prevailing winds blow from west to east in our country. The moist air blows into California from the Pacific Ocean. It moves across the land until it comes to the Sierra Nevada Mountains. How does the air get past this mountain range? (Pause for answers.) It has to go over the mountains. As the air gets pushed upward, it cools. What happens when water vapor cools? It condenses into droplets and forms a cloud. Then it either rains or snows on the mountain. When the air moves past the mountain peaks, it has very little water vapor left in it. It is dry. It is this dry air that blows into the Mojave Desert and Las Vegas.

Let’s see this another way. (Hold up your cardboard mountain range and your spray bottle. Demonstrate the rain shadow again.) So, a rain shadow is when the mountains block rain. Mountains have a wet side and a dry side. Have any of you driven to southern California? Did you notice how green everything becomes once you get over the mountains?

There is another reason that we are a desert. Who would like to read number two? (Pick a student to read: “We are in a Global High Pressure zone.” Hold up your globe.) Who knows what goes around the center of the Earth? (Pause.) That’s right, the equator. What type of climate is found at the equator?
What is a tropical climate like? (Hot and rainy.) Why is the equator so warm? (Because the sun’s rays hit the Earth most directly along the equator.) What happens to warm air? (It rises.) A good example of warm air rising is a hot air balloon. The hot air in the balloon rises and lifts the basket with it. What happens to warm, moist air as it rises and cools? (The water vapor condenses and forms clouds.) Rain falls along the equator, creating rain forests. See the green on my globe along the equator? Warm air from below rises and pushes the now dry air to the north or the south. (Show this on the Global High-Pressure transparency.) When this clear, dry air comes down to earth it creates high-pressure zones. See the brown bands on my globe? These high-pressure zones are where many of the Earth’s deserts occur.

MOJAVE CHARACTERISTICS

I am now passing around a paper called “Mojave Desert Conditions.” You will find six cartoons on this paper. We will try to match the cartoons to the desert conditions that are listed in the center box. (Go through the cartoon signs with the students. Have students guess each one and fill out the line beneath each picture.)

RIBBONS

This ribbon (take out blue ribbon) shows how much rainfall we get in an average year. How much water do you think would evaporate from a swimming pool in a whole year if we did not add any to it? Hold your hand above the floor to show how much water would evaporate. (Unwind red ribbon vertically.) This is how much water would evaporate from a swimming pool in a year: 82”, or almost seven feet. (Hold up the blue ribbon.) If this is how much rain we get in a year (hold up the blue ribbon) and this is how much water evaporates in a year (hold up the red ribbon), how is it that we have any water at all? (Lead students to the idea that we have to get most of our water from somewhere else--the Colorado River.)

WATER USERS CYCLE

I will now show you a short video that shows where we get our water in Las Vegas and where it goes after we finish using it. This is called the Water Users Cycle. Watch carefully because I am going to ask you: What are our two sources of water and why can’t we have all the water we want? (Show Water Rides a Cycle video.)

What is one source of our water? (Pause. Lake Mead or the Colorado River are acceptable answers, but explain that they are the same source of water.) And the other source? (Groundwater.)
Which gives us more? The Colorado River or groundwater? We get 85% of our water from Lake Mead and 15% from groundwater. Why can’t we take all the water we want from the Colorado River? (Pause. We have to share it with six other states and Mexico.)

I am going to pass out a map of the states that share the Colorado River. Fill in the states as well as you can and then we will go through this together. (When students finish, hold up the Colorado Basin States map and call on students one by one to come up and put on the names of the states. Or, use the transparency of the map and have students come up and write in the state names.

Let’s go through the steps of the Water Users Cycle. As I put this on the board, copy it on the back of one of your papers. Where do we get most of our water? (From the Colorado River at Lake Mead) We pump the water and send it through pipes to where? (The Water Treatment Plant) The Water Treatment cleans the water. Then where does it go? (Reservoirs) What happens to it there? (It is stored.) Where does it go after it leaves the reservoirs? (To homes, schools and businesses in Las Vegas.) Where does the water go after it is used? (To the Wastewater Treatment Plant) What happens to it there? (It gets cleaned again.) Then where does it go? (To Las Vegas Wash and Lake Mead, to rejoin the Colorado River) What is this whole process called? (The Water Users Cycle.)

I will now pass out your water folders. Open your folders when you get them and you will see a colorful drawing of the Water Users Cycle. Let’s read this together. Who would like to read number one? (Have each student read one sentence.) Are there any questions about the Water Users Cycle? Be sure to review your folder and your drawing this week. Next week when I come back, I will have you draw each step of the Water Users Cycle in order.

Look at the back of your folder. There are several ways to save water. One of the ways is to check for leaks. I am now passing out the Home Check-Up Sheet. Use it this week to check for leaks in your home. We will talk about your experiences next week.

Next week we will learn about water waste and pollution and find out ways to help take better care of our water.
“Wat-er” Our Chances

Day Three

Objectives:

REVIEW:
Students will:
1. Identify water, as one of the elements needed to sustain life.
2. Sequence the water (hydrologic) cycle.
3. Identify fresh water as a limited resource.
4. Locate the Mojave Desert and give two of its characteristics.
5. Sequence the local water use cycle.

NEW:
6. Describe two ways to help keep water clean.
7. Name two personal water conservation methods.

Materials needed:
Review: water users cycle words
Growth, Drought, Pollution, Waste signs (not available, use chalkboard)
“Away on the Bay” script (look in handout section)
Cartoon Polluter signs (look in handout section)
“Pollution Solution” handouts (look in handout section)
“How You Can Keep Water Clean” handouts (look in handout section)
Waterhog Haven video (available for checkout at NCE)
“How Can I Save Water?” handout (look in handout section)
“Personal Water Use Worksheets” (look in handout section)
Pledge Cards (not available)
Bookmarks (not available)
The Story of Drinking Water (not available)

INTRODUCTION AND REVIEW

Good morning! My name is _____________ and I am here again to present a program from Nevada Cooperative Extension about water. Let’s take a few minutes to see what you remember from the last two weeks. (Briefly review the four things that are necessary for life to exist. (Soil, water, air and sunlight) Review the water cycle words (Evaporation, condensation, and precipitation). Ask whether the world has more saltwater or freshwater. (Saltwater) Ask what desert we live in. (Mojave). Ask students to list our local desert conditions. (Low rainfall, sunny, windy, hot, high evaporation rate, low humidity) Ask where we get most of the water for our city. (The Colorado River at Lake Mead) Review the Water Users Cycle on the board, erase and have students draw the Water Users Cycle on the back of the Colorado River States handout. Review and have students correct their work.
We will now find out about four things that can affect our water supply: growth, drought, pollution and waste.

**GROWTH**

Who can tell me how a city grows? (More people move in, more houses and businesses are built, people have babies) Las Vegas is currently one of the fastest growing cities in the United States. Between 4,000 and 5,000 people a month are moving here. How does growth affect our water supply? (Guide students to the conclusion that as more people move into an area, the demand for water increases). As our city grows, does our water supply grow? (No). We need additional water for the new houses, businesses and schools that we must build for all of the new people. One way we could have more water is for everyone to use less water. We will find out how to do this in a few minutes.

**DROUGHT**

Who knows what a drought is? (A drought occurs when we get less rain than is usual over a long period of time). A drought in southern Nevada would affect how much rain seeps down to the groundwater. However, we would be more affected by a drought in the Rocky Mountains of Colorado and Wyoming. Do you know why? (Precipitation that falls in the Rocky Mountains flows into the Colorado River. We get 85% of our public water supply from the Colorado River). To protect against drought years, the government has built a series of dams on the Colorado River. Water stored in lakes behind these dams can ensure a water supply even during droughts. However, citizens are asked to conserve water during times of low rainfall.

**POLLUTION**

Pollution is another thing that can affect our water supply. Who knows what pollution is? (Pollution means dirty or contaminated). I am going to read you a poem called “Away on the Bay” that tells how water can become polluted. It is about a little town called Away that sits on the shore of a bay. Who knows what a bay is? (A bay is part of a lake or sea that curves into the land. Draw a bay on the board). As I read this poem, point your thumb over your shoulder whenever I say the work “away.” Read “Away by the Bay.”
We do not live on a bay but we do live by Lake Mead. (Pass out “Pollution Solutions” handout). Everything we do on land or pour down our drains in and around Las Vegas drains to Lake Mead. Where do we get our drinking water? That’s right, Lake Mead!

Your Pollution Solutions handout shows cartoon people doing different things around Las Vegas. Let’s look at what a few of them are doing. (Put Tina Trash cartoon on board). Take a look at Tina Trash. Is she doing anything that could pollute the water? (Yes. Her trash bag is leaking. Rain could carry this waste into the groundwater or to Lake Mead). What should she do? (Get a new bag, double bag or use a trash can). What about Polly Pet Owner? (Her dog leaves droppings that pollute the water). What should she do?

(Bag pet wastes and place them in trash container. Trash goes to the sanitary landfill that is lined to protect groundwater). This is Mike the Magician. He thinks he can make waste oil magically disappear by pouring it down the storm drain. Where does it really go? (Lake Mead) What should Mike do with the oil? (He should put it in a one gallon capped container labeled “oil” and put it out on the curb on recycle day). Guy the Gardener is trying to improve the look of his lawn. He thinks that he needs to use lots of fertilizer and pesticides. He doesn’t realize that the extra fertilizer will wash off his lawn and pollute the ground and surface water. What should he do? (He should fertilize and spray sparingly).

Don Dumper dumps household trash in the desert. Chemicals from decomposing trash can wash into groundwater and Lake Mead. What should Don do? First, he should recycle as many things as he can. Then he should have the rest of his trash picked up or use a public dump called a transfer station.

I will now pass around a sheet called “How You Can Help Keep Water Clean.” This sheet tells the proper way to dispose of trash. We will read numbers one through four together. Who would like to begin? (Select students to read). The rest of the information on this sheet is for your parents. It tells them how they can dispose of hazardous household wastes safely. Please show this to them.

WASTE

The fourth thing that can affect our water supply is “waste.” (Put up sign). I am going to show a short video called Waterhog Haven. Look for the many ways that water is being wasted. (Show video). Who can tell one way that water was being wasted? (Go through as many situations as time allows). What happened to the boy who was fishing?
(He could not fish because the waterhogs had used all the water in the reservoir). At the end of the video, what happened to the house? (It caught fire and there was no water left to put it out).

Some of us may be waterhogs and not even realize it. Today we are going to see how much water we really can save. I will be passing out a worksheet titled “How Can I Save Water?” You will see several columns on the worksheet that we will be filling out, so get out a pencil. The first question we have to ask is, How many gallons of water do I think I use in one day? Think about all the ways you use water and put a number in that answer at the top of the page right under the title. At the end we will be adding these columns up to find out how much we really do save.

First, we will look at the first column. It is entitled “Doing My Dishes”. How many of you do your dishes by hand? How long does it take you? (Get responses). I’m sure you would agree it would take you at least 20 minutes to do a large amount of dishes. Water coming out of the kitchen faucet comes out at the rate of three gallons per minute. So, if we multiply three times twenty we get sixty. Put 60 in the first column. Do you think a dishwasher uses more or less water than doing the dishes by hand? (Get responses). The actual answer may surprise you. A dishwasher uses only 10 gallons per cycle. Now, put 10 in the second column for water savers.

Next, we will look at the second category. It is called “Watering My Lawn”. How long do you actually water your lawn? (Get responses). I’m sure you will agree that you at least water it for twenty minutes. Water outside of the house comes out at the rate of five gallons per minute. So, lets multiply five times twenty. That equals 100 gallons! So write 100 gallons in the first column. But, how long should we water our lawn? It should be watered only 5 minutes in each spot. That means, that if we did save water, we would only use 5 gallons. Write 5 in the water saver column. Now, let’s subtract. One hundred take away 25 is 75 gallons. Put that number in the last column.

The third category is “Brushing My Teeth”. When you brush your teeth, what should you do? Yes, turn the water off between brushings. If you let the water run, it would use 3 gallons x 5 minutes or 15 gallons. Write 15 in the first column. But, if you turned it off between brushings, you would probably use much less than one gallon, but we will be generous and put in one gallon. Now, don’t forget to subtract. That means you save 14 gallons.
The next one is “Taking a Bath”. When you take a bath and fill the bathtub completely full you will use 36 gallons of water. So, what can you do? Fill it up halfway, of course. So we save 18 gallons.

Now comes “Taking a Shower”. The water comes out at 5 gallons per minute. We have to multiply the time we spend in the shower times 5. Let’s see how long you spend in the shower. Does anyone want to share this? (Get responses) Well, some of us take really long showers and some of us take really short showers. Do you think 20 minutes would be about average? So let’s multiply 20 x 5. That will give us 100 gallons. Put that in your water hog column. But, for how long should we take a shower? That’s right, about 5 minutes. Five times 5 are only 25 gallons. But wait! What about those low-flow shower heads? They take half the water. So, with one of them we can divide 25 in half. That equals about 13 gallons.

Now, don’t forget your subtraction. We would actually save 87 gallons if we only watched how long we spent in the shower and used a low-flow showerhead.

The next category is “Washing Clothes”. How many times does your mom wash clothes per week? (Get responses). Each time your mom washes clothes it takes 50 gallons of water! An easy way to save water in the washing machine is to put the clothes in first, before you fill it with water. If you do that you will use only half the water or 25 gallons. Put the numbers in your worksheet.

The last one is “Flushing your Toilet”. The average person flushes their toilet five times a day. Each time they flush they use 7 gallons. So, 5 x 7 is 35 gallons. If you install a low-flow toilet, it will only use 1-½ gallons per flush or about 7 gallons per day. So, write 35 in the water hog column and 7 in the water saver column and subtract. That equals 23 gallons.

Now, we need to add the columns. Let’s see who can add the waterhog column first. (Give them time to add the columns). Does anyone have the answer? It is 393 gallons. Now, let’s see who can add the water saver column first (give them time to add the columns). It is 100 gallons. Now, to find out the differences just subtract 100 from 393. That is 293. You can save 293 gallons per day. How many are in your class? To find out what your class can save multiply the number of students in your class times 293 gallons. That is a lot, isn’t it? Now, how many classes are there in your school? To find out what they can save, then multiply the number of students in your class by the number of classes in the school. Do you see how this number grows and grows? And, if you think about it what if every school in the school district decided to save water? We would have so much water that we would not have to worry about it for years and years.
I hope you have learned how important it is to conserve water. Did you think it was easy or hard? It is so easy, and yet it means so much to everyone, doesn’t it? How many of you are going to tell your family and everyone you know about saving water? You see boys and girls you can do something to help our water situation.
DEMONSTRATIONS
FOR
WAT-ER OUR CHANCES
A DROP IN THE BUCKET
Materials needed:
1. Three graduated cylinders (Three varied sizes, small to large)  2. A liter of water.

Where can we find saltwater on our planet? (Pause) Yes, in the oceans. Most lakes and rivers are not salty. They are fresh water. Can you drink saltwater? (Pause for answers) No, because the salt in the water causes your body to lose more water than you gain by drinking it. It is possible to die of thirst while sitting on a boat in the ocean.

This represents all the water in the world. Is this really all the water in the world? Of course not. Let’s measure it by pouring it into this graduated cylinder. The water comes up to the very top. Take a look at the sheet in front of you. It has three pictures of cylinders like mine. The cylinder on the left side is the amount of salt water. Draw a wavy line across your cylinder to show how much of the world’s water you think is saltwater. I will now pour out all the fresh water and leave only saltwater. (Pour 30 ml of water into the medium size cylinder.) I will now put the fresh water back into the smaller cylinder to make it easier for me to pour. Is all the fresh water in the world found in a form we can make use of? What form of water is found in the north and south poles? That’s right, ice! (Pour 6 ml of water in the smallest cylinder.) Where is this remaining fresh water found? (Pause) In lakes, rivers and underground. Some of it occurs in places where we can’t get it, such as deep in the earth or in areas far from civilization. Some of it is polluted. How much fresh water is available to use by people? (Hold up the small bucket and ask the students to be quiet. Then get the eyedropper and carefully let one drop fall into the bucket.) If this were all the water in the world (show the original one liter bottle with all the water poured back into it), then one drop would be the amount of freshwater people would have available to use. Another way of saying this is that for every liter of water in the world, only one drop is available for drinking. 97% saltwater and 3% freshwater. Out of each liter, only one drop is drinking water.
LIFE BOX

This demonstration is done in day 1

Materials needed: A box such as a shoebox. Two empty pop bottles, one with soil in and one with water in. Put these inside the box and close the lid.

This is my Life Box. Inside this box are the four things necessary for life to exist. I am now passing around sheets of scrap paper. You will need this to record what you think. As I am opening the box, see if you can write down the four things that are inside it, not including the box or any other thing that might hold something. (Give them a minute or so before you actually open the box). Who would like to tell me the things he/she wrote down? (The students will probably mention the soil and water first.) You may have to provide them with hints for them to guess air and light.
WATER DEMONSTRATIONS
PAGE 3

WATER CYCLE
This demonstration is done in Day 1

Materials: a chalkboard or signs indicating evaporation, condensation and precipitation (that will stick to board).

Does the water cycle ever stop? No. We have about the same amount of water on the earth now that we had for millions of years. That means that the water you brushed your teeth with this morning may have been the same water a dinosaur drank millions of years ago! Does the water still have dinosaur germs in it? (Pause for discussion) What happens as water goes through this water cycle? (Pause for answers.) It gets cleaned. Let’s see how this works. Water collects in rivers, lakes and ponds and the sun heats this water up. Where does it go? Up to the sky. The water changes form from liquid to gas and makes water vapor. This water vapor travels up to the sky and collects and forms clouds. Soon, the clouds change appearance and they get dark. This is known as condensation. Thunder and lightning then occur and precipitation comes down to the earth. Finally it goes to various places. Some of it runs off into rivers, lakes and streams. Some more of it evaporates back into the sky to reform into clouds again. Some more of it sinks down under the earth to form ground water.
GLOBE BALL

This demonstration is used in Day 1
MATERIALS NEEDED: A BLOW UP GLOBE. MAKE A CHART ON THE BOARD INDICATING WATER AND LAND AND CHOOSE A PERSON IN THE CLASS TO MAKE TALLY MARKS.

Do you think there is more water or land on Earth? (Hold up your globe and show it to the students). I am going to throw this ball to different students in the room. If you catch the ball, say whether your right thumb lands on land or water. Would everyone show me their right thumbs? Good. The person at the board will put a tally mark under Land or Water on the board. (Now throw the ball to the students, and have the person at the board put a tally mark for each response). Now, which one did we land on most of all? (This should work out to be water by the law of averages) The actual amount of water on earth is 80% and the actual amount of land is 20%. Add the tally marks and discuss conclusions.

NOTE: If you don’t have a blow-up globe, you can use a standard globe and rather than throwing it, spin it and ask students to put their finger on it without looking and count that instead.
WATER DEMONSTRATIONS
PAGE 5

RIBBONS
This demonstration is done in day 2.

MATERIALS NEEDED: 4 SMALL DOWELS CUT ABOUT THREE INCHES. ONE RED RIBBON ABOUT SEVEN FEET LONG AND ONE BLUE RIBBON ABOUT 4 INCHES LONG.
WRAP THESE RIBBONS AROUND THE TWO DOWELS AND SECURE THEM AT THE ENDS.

This ribbon (take out blue ribbon or smaller ribbon) shows how much rainfall we get in an average year. How much do you think would evaporate from a swimming pool in a whole year if we did not add any to it? (Wait for responses). Unwind larger or red ribbon vertically. This is how much water would evaporate from a swimming pool in a year: 82 inches or almost seven feet. How is it that we have any water at all?
PERCENTAGE OF WATER IN A PERSON
MATRIALS NEEDED: A five-gallon water container.

This demonstration is used in day 2.
PICK A PERSON THAT IS WILLING TO COME IN FRONT OF THE CLASS TO DO A DEMONSTRATION

Water is necessary for the proper functioning of our bodies. I want you to guess what percentage of his/her body is made up of water. If you tell me that 100% of this person’s body is made up of water he/she is just a puddle on the floor. If you tell me that it is 0%, then he/she is as hard as this table (knock on table and pause for answers) About 60% to 70% of your body at the age of 10 is made up of water. But, as you grow older you lose water. Babies have 85% water and older persons have as little as 45%. So as you grow older you lose water and get things like wrinkles and even your height shrinks.
ALTERNATE ACTIVITIES
FOR
WATER OUR
CHANCES
ALTERNATE ACTIVITIES

The following is a list of alternate activities that can be used in place of the suggested activities in the script. Also, feel free to invent some of your own!

PART 1 - ALTERNATE ACTIVITIES

Water cycle charades may be omitted or used as a refresher activity between parts.

PART 2 - ALTERNATE ACTIVITIES

DESERT CLIMATE—A map of the southwest indicating deserts may be used in lieu of the visual aid (that is not available) showing deserts.

RAIN SHADOW DEMONSTRATION—The teacher can use a spray bottle and something solid to block the spray instead of the mountain model that is not available.

THE WEATHER MASTER MYTH can be used in the portion about climates and weather as an addition to enhance the use of literature appreciation in this program. It is enclosed with the handouts in that section.
JUG STRING ACTIVITY—Instead of using the suggested math activity, you may simply orally ask the students the various aspects of conservation. You may also use models to demonstrate which each thing uses in relationship to water use (Note: the models can be miniature examples such as doll furniture etc.) You may also want to simply write on the board the various aspects of this activity.
HANDOUTS
FOR
WAT-ER OUR CHANCES
HANDOUTS FOR PART ONE
WHAT DO YOU KNOW ABOUT WATER...ON EARTH?
Water Cycle

Evaporation
Condensation
Precipitation
HANDOUTS FOR PART TWO
Once upon a time, in the days when the Universe was younger, the four weather makers—the Earth, the Sun, the Air, and the water—decided to hold a huge weather celebration. So, the Sun and the Air volunteered to send out the invitations to all the inhabitants of the world. And the Water and the Earth volunteered to find the best spot for the celebration.

But, when the Earth saw the finished invitations, he wasn’t very happy.

“They listed me last,” the Earth said angrily. “Last! Why I should be first. For without me there would be no weather at all!”

The Earth kept thinking as he spun around, “This just isn’t right. I should be the Master of the Weather. And the Sun, the Water, and the Air should take orders from me.”

So, the Earth sent out a notice to all the inhabitants of the World that said:

“On the day of the celebration, we will hold a debate and elect the true Master of Weather. It is time someone took charge!”

Well, the Sun and the Water and the Air were shocked. “What does he think he is doing?” asked the Sun. “Without me there would be no heat. And without heat there would be no weather.”
The Water was so mad he was steaming. “I am as important as the Earth. How dare he think he’s more important!”

And the Air was so upset he just blew around muttering.

“I’ve got an idea, my friends,” said the Sun. And she whispered to the other two weather makers. “We’ll show the inhabitants of the world who is the most important!”

On the day of the big celebration, all the inhabitants of the world came dressed in their best.

“What a wonderful day for a celebration!” exclaimed the trees and flowers.

“Yes, its’ beautiful. The Sun is shining and there are big, puffy, clouds in the sky.” Howled the coyotes.

“And feel the wind—blowing just enough to keep us cool,” said the mountain.

“And there’s plenty of food and water for everyone,” sang the birds.

Suddenly, the Earth proclaimed, “It is time for us to vote for the master of the Weather. I’m sure you’ll all agree that it should be me, the Earth, who is made the Master. For without me, there would be no weather!”

All at once, huge black clouds filled the sky and the Sun disappeared behind them. The Air became frosty and the wind whipped through the trees and flowers. Then rain began pouring down and lightening flashed and thunder roared. In seconds, it got so cold the rain changed to sleet and then to snow. And the wind blew harder and harder.

The coyotes, rabbits and birds all shivered and tried to keep warm. The trees and flowers were blown every which way. And the sand and dirt were tossed around in the wind.

Please stop,” begged the trees and flowers.
“Yes, please,” cried the rocks. “It’s not our fault that the Earth is so vain.”

“We know that without the four weather makers there would be no life and there would be no weather,” the sand sputtered.

“Without Air, we animals and plants couldn’t live,” said the lizards and trees. “And there would be no wind.”

“And without Water there would be no oceans, rivers, lakes, streams, puddles, clouds or seas. And there would not be drop of rain or a flake of snow. Why there wouldn’t even be animals or plants because we’re all made of water!”

“And without the Sun, there would be no warmth and no sunshine to make the plants grow,” said the trees. “And no heat to stir the winds and evaporate the water to make clouds.”

“And, yes, the Earth is important, for he gives us a place to live,” whispered the butterflies, who were having a hard time in the blowing snow and winds. “We know the Earth rotates around the Sun and makes our seasons. And the Earth absorbs the heat from the Sun and keeps us warm.”

“You are all the Masters of Weather!” cried the animals, plants, mountains, rocks, and sand together.

Suddenly, the Earth felt very ashamed. “I’m sorry, my friends. The Water, the Air, and the Sun are all just as important as I am. For we are a weather team. I never thought about what it would be like without them. I have learned a lesson I will never forget!”

And suddenly, the wind stopped blowing and the rain stopped pouring. The Sun came out smiling on all the inhabitants of the world. The celebration went on and on. The four weather makers never had a disagreement again.
Global High Pressure Zones

Warm air rises at the equator and descends at about 30 degrees latitude in both hemispheres, creating High Pressure zones.
Rain Shadow

Air passing over mountains loses most of its moisture, leaving the area beyond dry.
1. We are in a Global High Pressure Zone. Why are we a desert?

2. We are in the Rain Shadow. What is a global high pressure zone?

What is a Rain Shadow?

The mountains catch all the moisture so the air reaching the other side of the mountains is dry. When warm moist air rises over the mountains, its water vapor condenses into rain or snow.
What is a Rain Shadow?

The mountains catch all the moisture so the air reaching the other side of the mountain is dry. When warm moist air flows over the mountains, the water vapor condenses into rain or snow.

What is a Global High Pressure Zone?

1. We are in a Global High Pressure Zone.

2. We are in the Rain Shadow of the Sierra Nevada Mountains.

AND

Why are we a Desert?
UNITED STATES DESERTS

- Great Basin Desert
- Mojave Desert
- Sonoran Desert
- Chihuahuan Desert

States:
- Oregon
- Idaho
- Nevada
- Utah
- California
- Arizona
- New Mexico
- Texas
- Arizona
- Colorado
- Kansas
- Nebraska
- South Dakota
- North Dakota
- Montana
- Wyoming
Why Am I shrinking?
Mojave Desert Conditions

Write each of the following words or phrases under the cartoon it best describes.

High Evaporation  Hot  Low Humidity  Low Rainfall  Sunny  Windy

Rain Gauge  WHY Am I Shrinking?
NAME THE COLORADO RIVER STATES!
NAME THE COLORADO RIVER STATES!

Student Name ____________________________
THE WATER USER CYCLE

1. Water comes from

2. Water is cleaned at

3. Water is stored at

4. Water is used at

5. Water is cleaned after use at

Where does wastewater go after it is cleaned?
THE WATER USER CYCLE

1. Water comes from LAKE MEAD

2. Water is cleaned at WATER TREATMENT PLANT

3. Water is stored at RESERVOIRS

4. Water is used at LAS VEGAS

5. Water is cleaned after use at WASTEWATER TREATMENT PLANT

Where does wastewater go after it is cleaned?

WATER GOES BACK TO LAKE MEAD.
HANOUTS
FOR
PART THREE

[Image of a person holding a hose, possibly watering plants]
AWAY ON THE BAY
Author Unknown, adapted version

This is a tale of a town called AWAY—
A town that was built on the shore of a bay.
A town where the folks didn’t think much about
What they dumped in their water day in and day out.

For one thing a sink was an excellent place
To get rid of messes and not leave a trace.
Cleansers and cleaners and hamburger grease
Went away down the drain with a swishy release.

On Main Street each day there were sidewalks to sweep
The litter and dirt were swept into the street.
And then when it rained, everything washed away
Into drains in the roads that dumped into the bay.

A mine near AWAY produced gold ore to use
But a pipe from the mine churned out oodles of oozes.
And the oozes, well it goosed from the pipe in the bay
Where it bubbled and glubbed as it drifted away.

When the weather was warm, it was always a treat
To sail on the bay and bring picnics to eat.
But when the folks were finished, they’d toss all their trash
Overboard and away with a plop and a splash.

Then folks started seeing that things weren’t quite right;
The bay had become an unbearable sight.
Beaches were covered with garbage and glop
That rolled in with the waves—and the waves didn’t stop.

The fish in the bay all seemed sluggish and sick,
The algae was everywhere—slimy and thick.
The birds near AWAY were all suffering too,
“Cause the fish they were eating were all covered with goo.”

So a meeting was called to discuss the sick bay
And townspeople came from all parts of AWAY. And during the meeting one person proclaimed, “I know who’s at fault! We all should be blamed!”

“For years we’ve washed chemicals, grease, and debris Down our sinks, off our streets, and out pipes—so you see, Although we all thought that our waste went away, It all ended up going into the bay.”

“Now the bay is a mess—full of trash, soap and goop, The water’s turned green—like a bowl of pea soup. And our wildlife are sick from the garbage and grime; The bay needs our help, right now while there’s time.”

So they signed an agreement that very same minute To care for the bay and to stop putting in it Soaps that pollute and the ooze from the mine, That made the bay icky and filled with grime.

The also agreed to stop dumping their trash Overboard and away with a plop and a splash. And all of their efforts have been a success! Today the bay’s clean and no longer a mess!

And that is the tale of a town called AWAY— A town where the people, to this very day, Remember a saying that’s simple and plain; NOTHING JUST GOES AWAY WHEN IT’S WASHED DOWN THE DRAIN!
HOW YOU CAN HELP KEEP OUR WATER CLEAN

Many of the products we use around our homes (such as lawn care products, cleaning products, paints and automotive products) can be hazardous if they are not used and disposed of properly. They can be a source of water pollution.

Follow these guidelines in managing your hazardous household waste.

1. Buy only what you need and use it all.
2. Recycle motor oil and batteries.
3. Rather than throw out hazardous household products, give them away to someone who can use them.
4. Follow the use and disposal directions on the label. NEVER: bury household waste; dump waste along the side of the road, pour wastes into any drain or storm sewer; or dump waste into a stream, pond or lake.
5. Las Vegas disposal suggestions: waste oil in one-gallon capped, plastic containers can be placed on your curb with other recyclables. Environmental Technologies of Nevada, Inc. (phone 734-5400) will accept waste oil (not mixed with anti-freeze), paint (5 gallons maximum, no spray cans) and car batteries seven days a week at the following locations.
6. If you discover a dump or an oil or chemical spill, contact the Clark County Health District’s Illegal Dump Section at 383-1027.

CHEYENNE TRANSFER STATION RECYCLING
315 W. Cheyenne Avenue
N. Las Vegas, Nevada 89030
Hours: 7:00 a.m. to 5:00 p.m., seven days per week
701(399-1900)
Nearest crossroads/directions: I-15 to Cheyenne, turn left and follow up to station.

SHELBOURNE TRANSFER STATION
2555 Shelbourne Avenue
Las Vegas, Nevada 89123
Hours: 7:00 a.m. to 5:00 p.m., seven days per week
Nearest crossroads/directions: Las Vegas Blvd. South and Shelbourne.

SILVERSTATE RECYCLES NEVADA
333 Gowan Road
N. Las Vegas, Nevada 89030
Hours: 7:00 a.m. to 5:00 p.m. five days per week
(702) 399-1112
Nearest crossroads/directions: I-15 to Cheyenne, turn left and go towards Gowan and Commerce.

BLACK MOUNTAIN TRANSFER STATION
1224 McCormick
Henderson, Nevada 89105
Hours: 7:00 a.m. to 5:00 p.m., seven days per week
(702) 565-8568
Nearest crossroads/directions: Lake Mead and Warm Springs Road. East side of Boulder Highway on Lake Mead on the way to the lake.
ENVIRONMENTAL TECHNOLOGIES
Hazardous Household Waste Program: Collections are held four times per year for one day during the second week of January, April, September and November at two locations, only.

SILVER STATE RECYCLING STATION
333 Gowan Road
N. Las Vegas, NV 89030
Hours: 9:00 a.m. to 3:00 p.m.
(702)399-1112
Nearest crossroads: I-15 to Cheyenne, turn left and go toward Commerce. Is at Gowan and Commerce.

BLACK MOUNTAIN TRANSFER STATION
1224 McCormick
Henderson, NV 89015
Hours: 9:00 a.m. to 3:00 p.m.
(702)565-8568
Nearest crossroads: Lake Mead and Warm Springs (East of Boulder Highway towards Lake Mead).
Will see the signs.

Waste accepted:
- waste oil
- paint (5 gallon limit)
- oil-based paint
- paint thinners
- off spec. fuels (i.e., gasoline, lighter fluid, diesel, etc.
- pesticides
- aerosol cans
- fungicides
- oven cleaners
- household waxes and polishers
- fertilizer
- medicines - prescriptions - cosmetics
- photo processing chemicals
- anti-freeze (cannot be mixed with waste oil)
- car batteries
- water-based paint
- solvents
- pool chemicals
- herbicides
- drain cleaners
- auto waxes, polishes and cleaners
- adhesives and glues
- hobby and art supplies

- The waste must be in its original container or be properly labeled
- If not the same, cover up the label and write the name of its contents
- The containers are sound and not leaking
- There is a maximum of 40 pounds or 5 gallons of material per vehicle
- Wastes are placed securely in the vehicle for safety

We will not accept the following:
- Explosives
- Radioactive waste
- Pressurized gas cylinders
- Infectious waste
- Shock-sensitive chemicals
- Ammunition (black powder, etc.)
- Controlled substances (illegal drugs, etc.)

Information provided by:
Environmental Technologies of Nevada, Inc.
770 East Sahara Ave.
Las Vegas, NV 89104

University of Nevada Cooperative Extension
2345 Red Rock Street, Ste. 100
Las Vegas, Nevada 89102

The University of Nevada, Reno, is an equal opportunity/affirmative action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, and in accordance with university policy, sexual orientation, in any program or activity it operates. The University of Nevada employs only United States citizens and aliens lawfully authorized to work in the United States.
POLLUTION SOLUTIONS

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POLLUTION SOLUTIONS

DON THE DUMPER

GUY THE GARDENER

MIKE THE MAGICIAN

POLLY THE PET OWNER

TINA TRASH

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DON THE DUMPER
GUY THE GARDENER
POLLY THE PET OWNER
CAN YOU SUPPLY POLLUTION SOLUTIONS?
HOW YOU CAN HELP KEEP OUR WATER CLEAN

Many of the products we use around our homes (such as lawn care products, cleaning products, paints and automotive products) can be hazardous if they are not used and disposed of properly. They can be a source of water pollution.

Follow these guidelines in managing your hazardous household waste.

1. Buy only what you need and use it all.

2. Recycle motor oil and batteries.

3. Rather than throw out hazardous household products, give them away to someone who can use them.

4. Follow the use and disposal directions on the label. NEVER: bury household waste; dump waste along the side of the road, pour wastes into any drain or storm sewer; or dump waste into a stream, pond or lake.

5. Las Vegas disposal suggestions: waste oil in one-gallon capped, plastic containers can be placed on your curb with other recyclables. Environmental Technologies of Nevada, Inc. (phone 734-5400) will accept waste oil (not mixed with anti-freeze), paint (5 gallons maximum, no spray cans) and car batteries seven days a week at the following locations.

6. If you discover a dump or an oil or chemical spill, contact the Clark County Health District’s Illegal Dump Section at 383-1027.

CHEYENNE TRANSFER STATION RECYCLING
315 W. Cheyenne Avenue
N. Las Vegas, Nevada 89030
Hours: 7:00 a.m. to 5:00 p.m., seven days per week
701(399-1900)
Nearest crossroads/directions: I-15 to Cheyenne, turn left and follow up to station.

SHELBORNE TRANSFER STATION
2555 Shelbourne Avenue
Las Vegas, Nevada 89123
Hours: 7:00 a.m. to 5:00 p.m., seven days per week
Nearest crossroads/directions: Las Vegas Blvd. South and Shelbourne.

SILVERSTATE RECYCLES NEVADA
333 Gowan Road
N. Las Vegas, Nevada 89030
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(702)399-1112
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Information provided by:

Environmental Technologies of Nevada, Inc.
770 East Sahara Ave
Las Vegas, NV 89104

University of Nevada Cooperative Extension
2345 Red Rock Street, Ste. 100
Las Vegas, Nevada 89102
HOME CHECK-UP

Do you think you have any water leaks in your home? ______________
Many families don't check for leaks. You can use this sheet to learn how and where to check for leaks in your home.

1. Check the kitchen and bathroom sink faucets for leaks.
   
   _____________ faucet leaks   ______ no leaks found
   
   Where is the leak?

2. Check all bathtub and shower area faucets for leaks.
   
   _____________ faucet leaks   ______ no leaks found
   
   Where is the leak?

The amount of water wasted by a leaking faucet depends on how fast the water is dripping.

   One drop a second wastes 6 1/2 gallons a day

   A slow drip (2-3 drips a second) will waste about 15 gallons a day.

   A steady drip (4+ drips a second) will waste 20+ gallons a day

3. Check all the toilets in your home for leaks.
   You can check toilets for leaks by putting a few drops of food coloring in the water in the tank at the back of the toilet. After adding the food coloring don't flush! Wait about 30 minutes then look to see if any colored water has appeared in the bowl. If it has, the toilet is leaking and should be repaired. Usually replacing the rubber flapper at the bottom of the tank will stop the leak.
   
   _____________ toilet(s) leaking   ______ no leaks found
   
   Where is the leak?

A leaking toilet is the most common water leak found in homes. It often goes unnoticed because the toilet can leak up to 250 gallons a day and not make a sound. Be a leak detective and check your toilets every other month.

4. Remember to check the faucets going to the clothes washer.
   
   _____________ faucet(s) leaking   ______ no leaks found
   
   Where is the leak?

5. Check all outside faucets like those used to connect the hose.
   
   _____________ faucet(s) leaking   ______ no leaks found
   
   Where is the leak?

6. Check the sprinkler system for broken heads and heads that may be turned the wrong direction.
   
   _____________ sprinkler(s) leaking   ______ no leaks found
   
   Where is the leak?

   _____________ sprinkler(s) need adjusting
   
   Where is the sprinkler?

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The University of Nevada, Reno is an Equal Opportunity/Affirmative Action Institution. The University employs only U.S. citizens and those aliens authorized to work in the United States.
## HOW CAN I SAVE WATER?

I think I use ___ gallons of water a day.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Gallons a water hog uses</th>
<th>Gallons a water Saver uses</th>
<th>TOTAL GALLONS SAVED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOING MY DISHES</strong></td>
<td><img src="image1.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WATERING MY LAWN</strong></td>
<td><img src="image2.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BRUSHING MY TEETH</strong></td>
<td><img src="image3.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
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<td><img src="image4.png" alt="Image" /></td>
<td></td>
<td></td>
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<tr>
<td><strong>TAKING MY SHOWER</strong></td>
<td><img src="image5.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WASHING MY CLOTHES</strong></td>
<td><img src="image6.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FLUSHING MY TOILET</strong></td>
<td><img src="image7.png" alt="Image" /></td>
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<td><strong>DOING MY DISHES</strong></td>
<td>3 gallons per min times 20 min equals 60 gallons</td>
<td>Dishwasher takes only 10 gallon Per cycle</td>
<td>Subtract 10 gallons from 60 gallons equals 50 gallons</td>
</tr>
<tr>
<td><strong>WATERING MY LAWN</strong></td>
<td>Watering the grass 20 minutes times 5 gallons per minute equals 100 gallons</td>
<td>Water the grass only five minutes times five gallons per minute equals 25 gallons</td>
<td>you subtract 25 from 100 and get 75 gallons</td>
</tr>
<tr>
<td><strong>BRUSHING MY TEETH</strong></td>
<td>When you brush your teeth and wash your face you could spend five minutes x 3 equals 15 gallons</td>
<td>If you turn off the water between brushing your teeth and washing your hands you only use 1 gal</td>
<td>You can save 14 gallons, just subtract 1 from 15 equals 14</td>
</tr>
<tr>
<td><strong>TAKING MY BATH</strong></td>
<td>A full bathtub takes 36 gal To fill</td>
<td>Fill the bath only half way you will save 18 gallons</td>
<td>Subtract 18 from 36 and you will get 18 gallons.</td>
</tr>
<tr>
<td><strong>TAKING MY SHOWER</strong></td>
<td>People usually take a 20 min shower multiply 20 x 5 you get 100 gal</td>
<td>If you take a five minute shower and use a low flow shower head you use 12 gallons</td>
<td>Subtract 12 from 100 and you get 88 gallons saved</td>
</tr>
<tr>
<td><strong>WASHING MY CLOTHES</strong></td>
<td>A washing machine takes 50 gallons per load</td>
<td>Put your clothes in first and you use half The water.</td>
<td>You save 50 gallons of water.</td>
</tr>
<tr>
<td><strong>FLUSHING MY TOILET</strong></td>
<td>A toilet is flushed 5 times per day at 7 gal flush or 35 gal</td>
<td>A Low flow toilet only uses 1.5 gal per flush or 10 gal a day</td>
<td>By using a low flow toilet you save 25 gal a day</td>
</tr>
</tbody>
</table>

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TEACHER EVALUATIONS

THE NEVADA COOPERATIVE EXTENSION WOULD APPRECIATE IT IF THE TEACHERS THAT UTILIZED THIS MATERIAL WOULD PLEASE COMPLETE THIS EVALUATION. WE NEED THIS FEEDBACK BECAUSE THE INFORMATION MAY BE PLACED ON THE WEB FOR THE FURTHER EDUCATION OF WATER CONSERVATION FOR OTHERS. THANK YOU FOR YOUR COOPERATION.
TEACHER EVALUATION

Please answer the following questions and send them to

Nevada Cooperative Extension
2345 Red Rock Street
Suite 100
Las Vegas, Nevada 89146
ATTENTION: M.L. ROBINSON

1. Did you think the Water Our Chances material was beneficial to you? Why or why not?

2. What did you especially like about the material?

3. How could we improve it?

4. If this material were offered as a web page would you and other teachers use it as a resource? What do you think would make it better as a web page?