

2008

Just Passing Through! The Water Cycle! On-site Programming -- Support Materials (Grade 4)

Discover Mojave: Forever Earth

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GRADE 4

Just Passing Through! The Water Cycle!

ON-SITE PROGRAMMING • SUPPORT MATERIALS

Student Worksheet:
OBSERVATION RECORD

The Water Cycle: Just Passing Through!

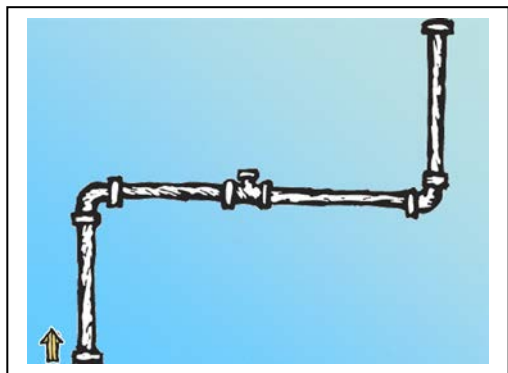
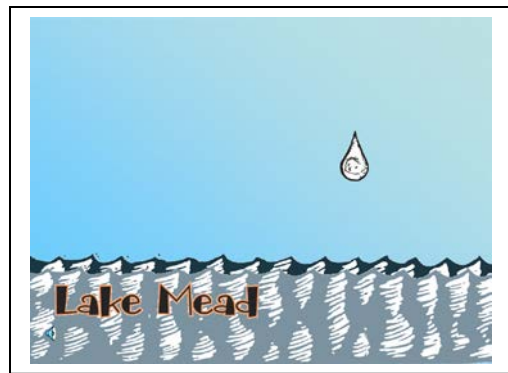
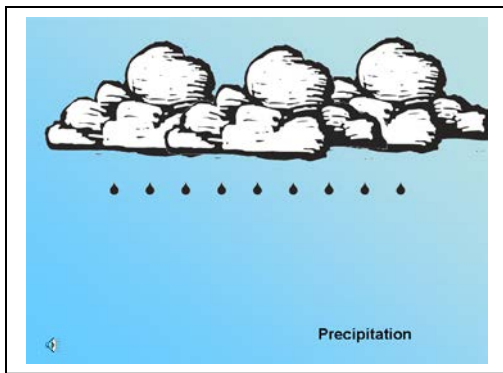
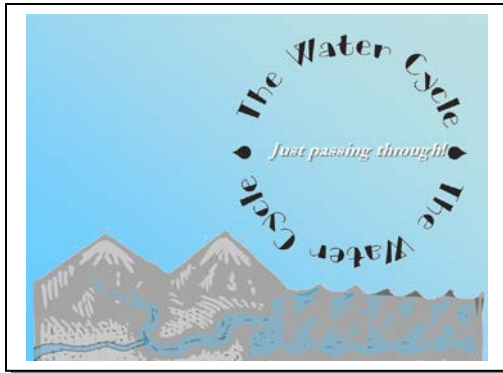
<p>Two ways I found people having fun on the water:</p> <p>1. _____</p> <p>2. _____</p>	<p>Two things I saw along the shore that need water in order to live:</p> <p>1. _____</p> <p>2. _____</p>
<p>Two things I observed that live on or in the water:</p> <p>1. _____</p> <p>2. _____</p>	<p>Other things I saw that use water in some way:</p> <p>1. _____</p> <p>2. _____</p>

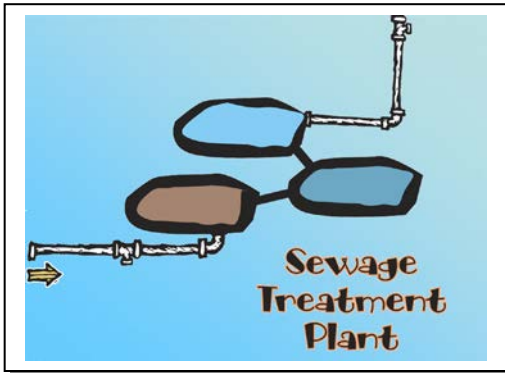
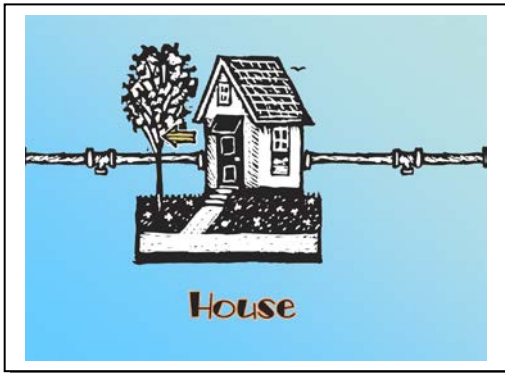
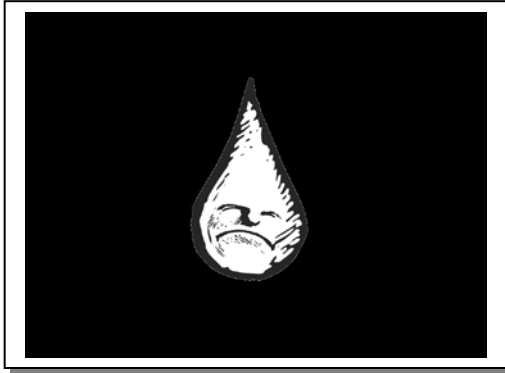
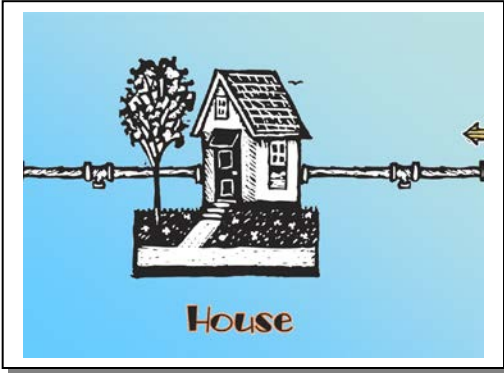
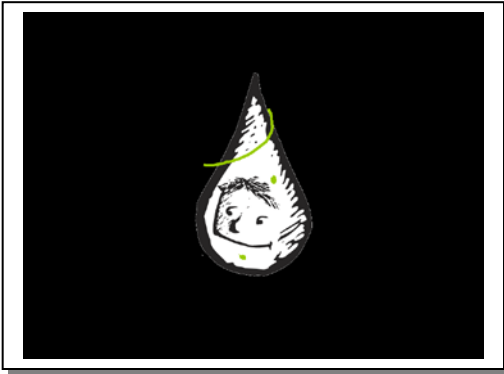


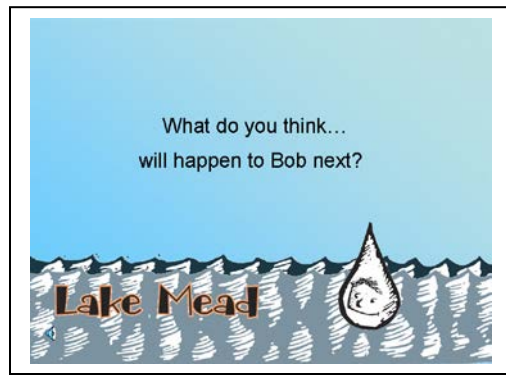
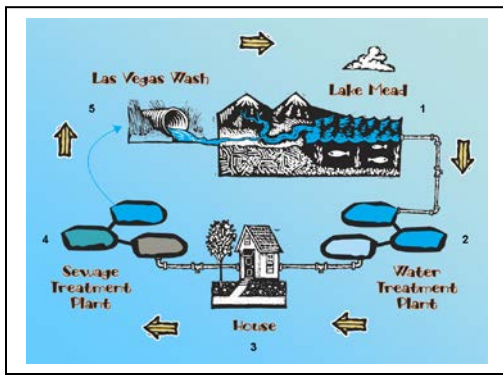
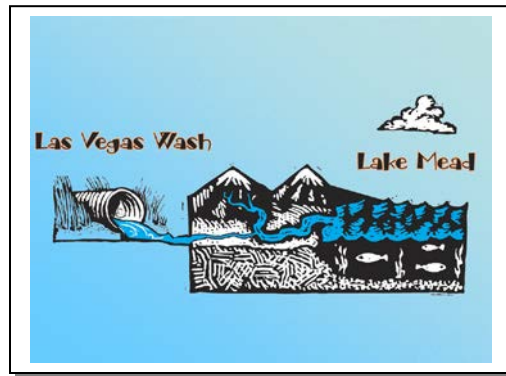
Demonstration: BOB'S WONDERFUL ADVENTURE

Bob's Wonderful Adventure is an entertaining PowerPoint presentation developed to guide students through the water cycle in a way that is meaningful and pertinent to the area. Clipart images © Ron and Joe, Inc. are used with permission.

Note that the actual PowerPoint file includes animations.







Facilitator Reference:
NARRATIVE OUTLINE OF BOB'S WONDERFUL ADVENTURE

<i>Slide</i>	<i>Graphic</i>	<i>Narrative</i>
1	Intro slide	Now that we've made some observations about how water from Lake Mead is important to plants, animals, and people, let's learn a little bit more where the water in Lake Mead comes from, what happens to it, and where it might go. To help us, a special guest will show us his story. Let's meet Bob, the water drop.
2	Clouds, sun, sounds of thunder	Our story begins when Bob ended up in a cloud as water vapor. The cloud blew right over Lake Mead. The air got cooler and thunder could be heard.
3	Clouds, rain drops	It began to rain and water drops fell into Lake Mead. Rain is one kind of precipitation.
4	Lake Mead, Bob	One of the water drops was Bob!
5	Lake Mead, pipe, fish, Bob	So there was Bob hanging out with all the other water in the lake. But oh-oh, here comes a fish headed right for Bob! Look out! Whew, Bob went right out of the fish's gills. That was close! Wait, why is Bob being pulled towards that pipe? Where does this pipe go? Bob got sucked right into the pipe.
6	Black slide	It's awfully dark in this pipe for Bob. Where is he going?
7	Pipe, moving arrow	This pipe is headed towards Las Vegas. Lake Mead is where people in Las Vegas get their water.
8	Bob, "green" dirt	That means that Bob and other Lake Mead water drops need to get cleaned up a little before people can use them for drinking, to do laundry, or taking a shower.
9	Water treatment plant, moving arrow	So Bob gets sent to a water treatment plant, a place where dirt and harmful things are removed from Bob and the other water drops. When the water leaves here, it's good enough to drink!
10	Bob, sponge	At that water treatment plant, Bob got the treatment! When Bob first left the lake, he was not clean enough to drink. But now, after going to the water "spa," he's all clean.
11	Black slide	Oh-oh, it's dark again. That can only mean one thing. Bob is another pipe, and where is he going this time?
12	House, arrow moving along pipe	Bob is heading towards a house! Maybe it's your house or your house or my house.
13	Bob with frown, moving in circles	AAhhh! Bob doesn't look happy! What's that minty smell? Look out, Bob is getting swirled around and around, and it goes dark again. Splat! What just happened?

14	Girl with big grin	Oh, that's what happened! Bob was just used to help brush this girl's teeth! And then he got spit down the drain with the rest of the water!
15	House, arrow moving along pipe	So now Bob is headed down a pipe away from the house along with a lot of other water that been used by people.
16	Bob with frown and dirt	Bob is with water that did the laundry, brushed teeth, flushed the toilet, cleaned the dishes, and much more. He's really dirty and doesn't smell so good. Where do you think Bob is going next?
17	Sewage treatment plant, moving arrow	Bob needs to be cleaned up! So he and the rest of the dirty water go a place where that happens, a sewage treatment plant. This place smells much different than the water treatment plant. There's a lot of dirty water here.
18	Bob with frown, moving sponge, Bob with smile	At the sewage treatment plant, Bob gets scrubbed and scrubbed. Pretty soon, he's smelling much better and looking very clean.
19	Bob, Las Vegas Wash, Lake Mead	Now Bob is on his way back to Lake Mead! From the sewage treatment plant, Bob is dumped out into a flowing creek called the Las Vegas Wash. This creek takes Bob all the way back to Lake Mead! What an adventure for Bob! Let's see if we can remember what happened to Bob after he fell into the lake as rain. On your magnet boards, use the arrows and pieces to describe Bob's adventure starting and ending in Lake Mead.
20	Diagram of Bob's adventure	Let's check to see if you have the pieces in the right order: <ol style="list-style-type: none"> 1) Bob began in Lake Mead. 2) Bob was sucked through a pipe and went to a water treatment plant to get cleaned and scrubbed until he was good enough to drink. 3) Bob went to a house in Las Vegas where he was used to brush a little girl's teeth. 4) Bob was not smelling so good and was really dirty, so he was sent to a sewage treatment plant to get cleaned up again. 5) Then Bob was sent down another pipe to the Las Vegas Wash, a creek that took him right back where he started – Lake Mead.
21	Lake Mead, Bob, question	What do you think will happen to Bob next?

**Student Worksheet:
DATA COLLECTION SHEET**

The Water Cycle: Just Passing Through! Data Collection Sheet

■ — Middle of Lake Mead — ■ ■ — Las Vegas Wash — ■

	surface	2 m	5 m	surface	2 m	5 m
Temperature	_____ °C _____ °F	_____ °C _____ °F	_____ °C _____ °F	_____ °C _____ °F	_____ °C _____ °F	_____ °C _____ °F
pH						
Odor						
Secchi Disk Depth	<div style="border: 1px solid black; border-radius: 15px; width: 150px; height: 30px; margin: 0 auto;"></div>			<div style="border: 1px solid black; border-radius: 15px; width: 150px; height: 30px; margin: 0 auto;"></div>		

1) Do you think there are things, like plankton, living in the water? yes no

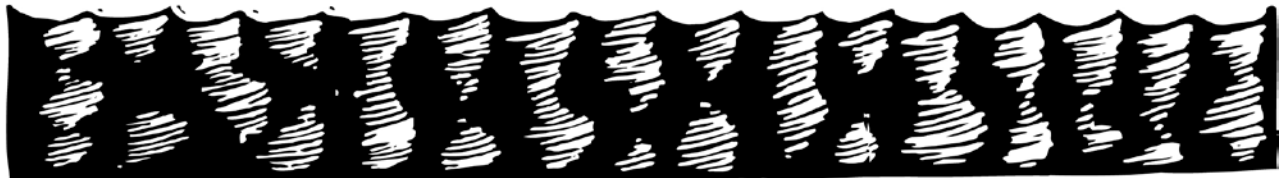
2) Is there plankton in the middle of Lake Mead? yes no

3) Is there plankton in Las Vegas Wash? yes no

4) What kind of plankton did you find? _____

5) Is the water in the middle of Lake Mead the same as the water in Las Vegas Wash?

yes no

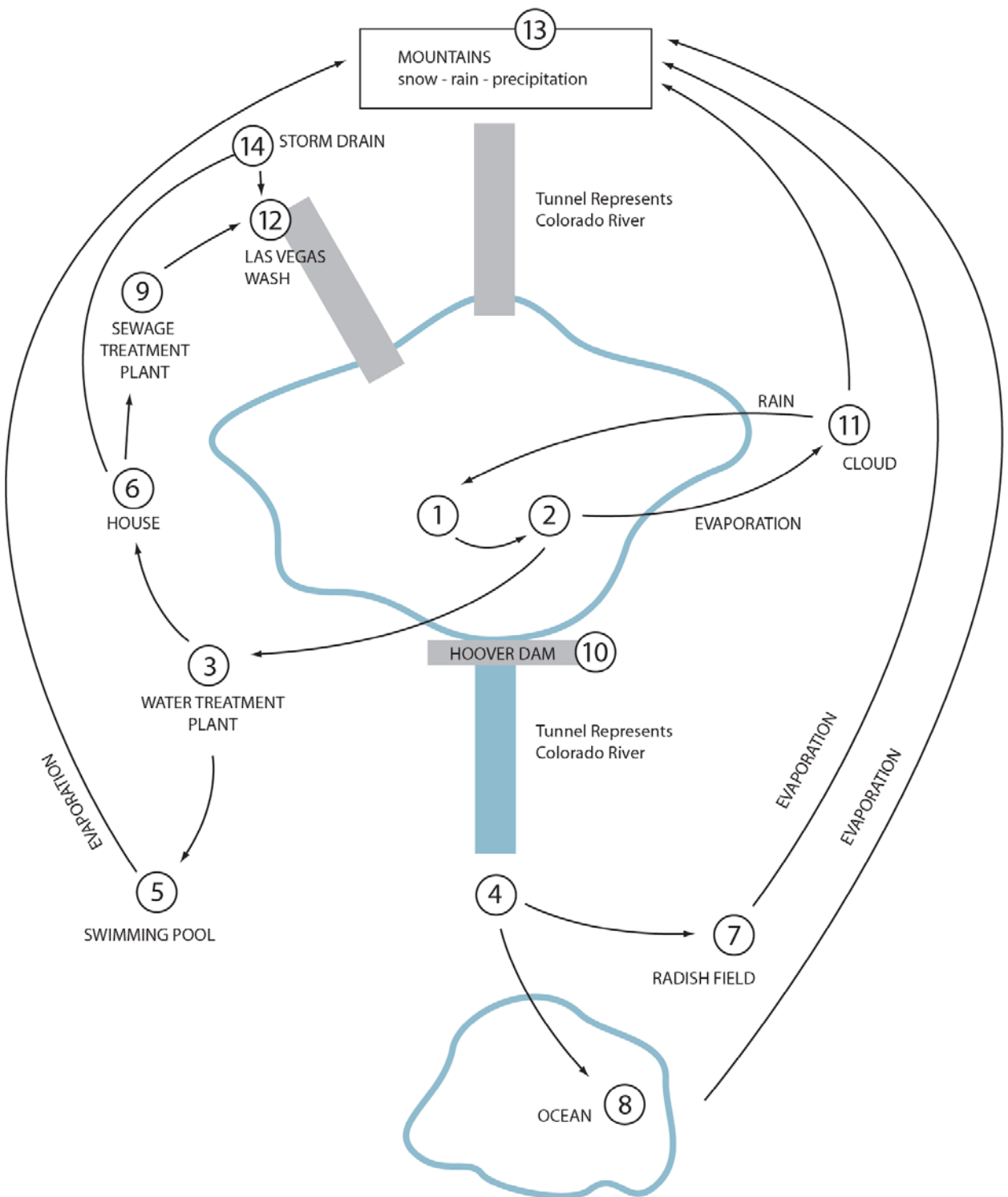


TEAM MEMBERS:

**Student Worksheet:
CASE OF THE MISSING WATER**

Under Construction

Facilitator Reference: OBSTACLE COURSE LAYOUT



**Facilitator Reference:
OBSTACLE COURSE – STATION MATERIALS**

<i>Station #</i>	<i>Station</i>	<i>Materials</i>	<i>Purpose</i>
1	Lake Mead	Rope	Lake boundary
2	Lake Mead	Rope	Lake boundary
3	Water treatment plant	Sponge	Water cleaned for human use
4	Colorado River	Tunnel	Water flowing down river
5	Swimming Pool	Tarp (optional)	Represents pool
6	House	Hula Hoops (2) Toy car, towel	Swishing toothpaste; flushing toilet; washing car
7	Radish Field	None	N/A
8	Ocean	Rope	Ocean boundary
9	Sewage treatment plant	Sponge	Water cleaned before returning to Lake Mead
10	Hoover Dam	Jump ropes (2)	Water turning turbines to generate electricity
11	Cloud	None	N/A
12	Las Vegas Wash	Tunnel	Water flowing into Lake Mead
13	Mountains/river	Tunnel	Melting snow flowing down Colorado River to Lake Mead
14	Storm Drain	Hula Hoop	Water runoff that bypasses sewage treatment plant

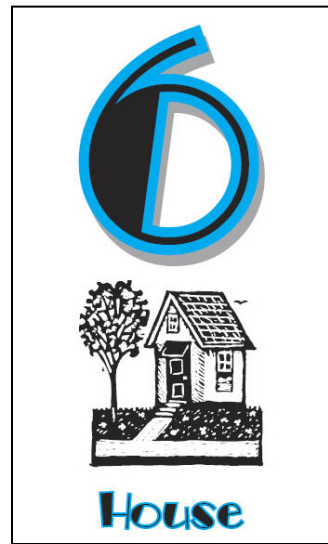
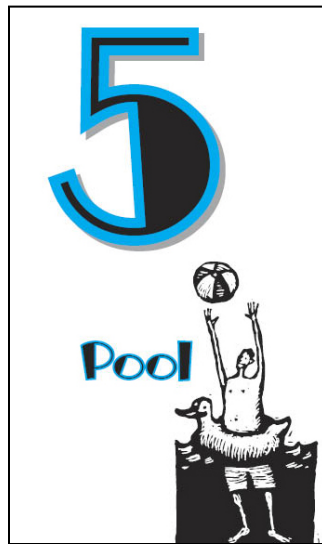
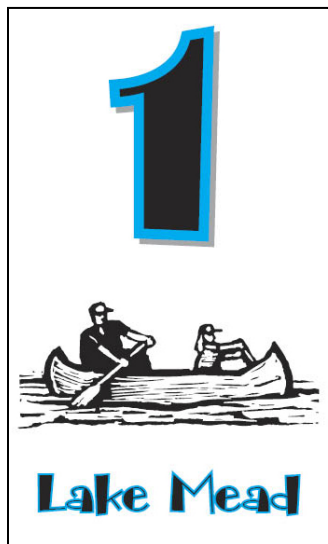
Other materials for activity:

- Tent stakes
- Bungee cords
- Hammer
- Plastic envelopes with direction cards for each station (13)
- Wooden dowels (13)
- Cones (13)
- Numbered marker for each station (13 total)
- Plastic sandwich bags
- 8 ½ x 11 paper
- Markers, colored pencils, crayons
- Pencils



Facilitator Reference: OBSTACLE COURSE – STATION MARKERS

Shown below and on the next page are scaled down versions of the numbered station markers. The full sized images are printed, laminated, and attached to a stake at each station on the obstacle course. Clipart images © Ron and Joe, Inc. are used with permission.



7



Radish Field

8



Ocean

9



Sewage
Treatment
Plant

10



Hoover Dam

11



Cloud

12



Las Vegas
Wash

13



Mountains

14



Storm
Drain


Facilitator Reference: OBSTACLE COURSE – CLUE CARDS

The following clue cards (scaled down here) are printed and placed in envelopes at the corresponding obstacle course station. Students collect the cards as they make their way through the course. In the subsequent portion of the activity, they use the cards to help them describe how water moves through the system. Note that some stations feature multiple cards.

1

one

Lake Mead



You are floating in Lake Mead!

- 1** *Walk around the lake 3 times. Follow the rope.*
- 2** *Walk to CONE #2.*

2

two

Lake Mead




BYE, BYE!
You are leaving Lake Mead through Hoover Dam.

Walk to CONE #10.

2

two

Lake Mead



You are floating in Lake Mead!

- 1** *Walk around the lake 3 times. Follow the rope.*
- 2** *Walk to CONE #2.*

2

two

Lake Mead




LOOK OUT!
It's really hot out here. . .
You just evaporated and became part of a cloud. You float up into the sky.

Skip to CONE #11.

3

three

Water Treatment Plant



RUB-A-DUB-DUB.
You are getting a scrub! You are at the Water Treatment Plant.

- 1** *Use the sponge to wash yourself. What will happen next?*
- 2** *Walk to CONE #6 to find out.*

3

three

Water Treatment Plant



RUB-A-DUB-DUB.
You are getting a scrub! You are at the Water Treatment Plant.

- 1** *Use the sponge to wash yourself. What will happen next?*
- 2** *Walk to CONE #5 to find out.*



Colorado River

WOW!
The Colorado River is very long!
Where will you flow to next?

Walk to CONE #7 to find out!



Colorado River

WOW!
The Colorado River is very long!
Where will you flow to next?

Walk to CONE #8 to find out!



Swimming Pool

SPLASH!
You flowed into a swimming pool at a casino!

- 1 Sit down and hold your breath while you count to 20. Then . . .**
- 2 evaporate and become part of a cloud! The wind blows you to the mountains. Skip to CONE #13!**



House

WHOOOSH!
Oh, no! Is that the sound of a flushing toilet?

- 1 Do the hula hoop 3 times.**
- 2 Twirl to cone #9.**



House

SWISH! SWISH!
It's dark in here. Ooh! You are being swished around in somebody's mouth!
It smells like toothpaste!

- 1 Do the hula hoop 3 times.**
- 2 Twirl to cone #9.**




House

AHHHH!
What a nice bubble bath!
Hey, look at all these dirty clothes.
This is not a bath, this is a washing machine!

- 1 Do the hula hoop 3 times.**
- 2 Twirl to CONE #9.**



Radish Field




HOW COOL!
A farmer is watering
a field of radishes with you!

- 1 Sprinkle the plants by doing 5 jumping jacks.
- 2 Evaporate and skip to CONE #13.



Ocean



WOW!
You went all the way to the ocean!

- 1 Do "the wave" while you count to 10.
- 2 Evaporate! Skip to CONE #13.



Sewage Treatment Plant




RUB-A-DUB-DUB!
You are getting a scrub . . . again!
This time you are getting clean at
the sewage treatment plant.

- 1 Use the sponge to wash yourself. What will happen next?
- 2 Walk to CONE #12 to find out.



Hoover Dam




You use your muscles here
at Hoover Dam! Spin the turbines
to create electricity.

- 1 Jump rope 5 times.
- 2 Go down the Colorado River (the tunnel) to CONE #4.



Cloud




WHEE!
You are part of a cloud and
the wind is blowing you toward
the mountains.

Walk sideways to CONE #13.

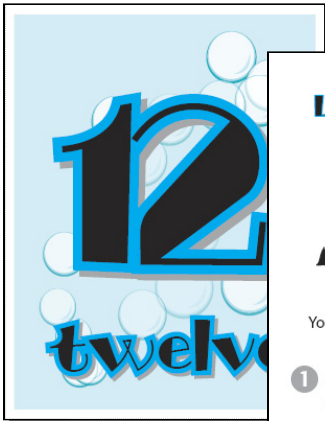


Cloud



WHOO! GET READY!
You are part of a cloud high in
the sky. You become a raindrop and
fall back into Lake Mead.

Walk backwards to CONE #1.



Las Vegas Wash



ALL CLEAN!
You are clean and ready to go back to Lake Mead.

- 1 Flow down Las Vegas Wash (tunnel).
- 2 Walk to CONE #1.



Mountains



You were a snowflake that fell on the mountains. Now you have melted into a drop of water.

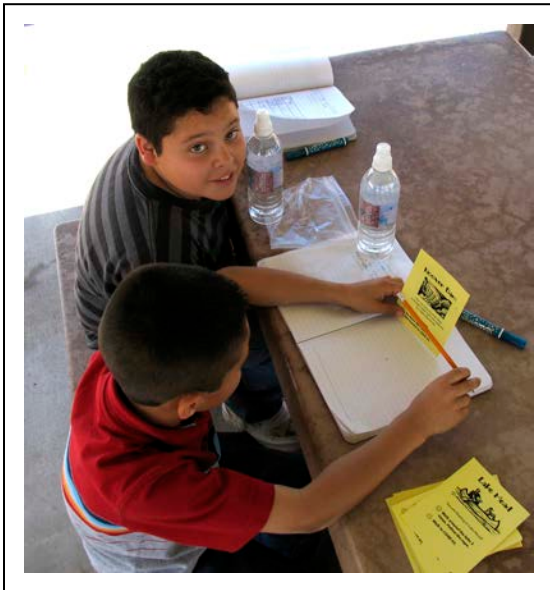
- 1 Go down the Colorado River (the tunnel) into Lake Mead.
- 2 Walk to CONE #1.



Storm Drain

It is really dark in this storm drain and a long way to Las Vegas Wash. And, there's no cleaning for you!

- 1 Step into the hula hoop and pull the hoop up over your head. Repeat 3 times.
- 2 Twirl to CONE #12.



Using words, pictures, and the clue cards they collected, students re-create the cycle of water through the Southern Nevada system after completing the obstacle course activity.