



Children's Water Festival

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Middle Rio Grande Children's Water Festival 2005 Report on Outcomes

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The organizers of the Middle Rio Grande Children's Water Festival 2005 are committed to implementing an event that delivers effective and meaningful water education. We are determined to seek methods to verify that specific outcomes have been achieved. So we have set performance targets for the Water Festival that focus on learning and also on action - changing behavior!

Goals and Performance Targets

Educating students and teachers about water and its relationship to human and other natural resources in a fun and interactive atmosphere continues to be the primary goal of the Children's Water Festival. The Water Festival program is designed to help students understand that water is an essential and limited resource; to present water related facts, concepts and values through fun, hands-on learning activities; and to demonstrate actions that each of us can take to protect and conserve our precious water.

Performance Targets

- ◆ Students demonstrate that they can answer the Big Water Questions:
 1. Why is water so important to life?
 2. What is the water cycle and why is it important?
 3. What is a watershed and how does it function?
 4. How do trees, plants, animals, people, soils, and water depend on each other?
 5. How do our actions affect water quality?
 6. How much water does my family use?

- ◆ Students take action to conserve water and protect water quality.
- ◆ Students urge their family and friends to take action to conserve water and protect water quality.

- ◆ Teachers continue water education in the classroom using the resources and concepts learned at the Teacher Workshop and Festival.
- ◆ Teachers utilize new resources, adopt expanded curricula and modify teaching methods.
- ◆ Teachers take action to conserve water and protect water quality.

How will we verify that the performance targets were reached? Four methods were used:

Water Conservation Before and After - We developed questions about water use at home and asked teachers to ask their students to complete these questions and return the questionnaires to us. After the Festival, we asked the same teachers to ask their students to complete another set of questions to see if their water use at home has changed.

Evaluations - Teachers, students, volunteers and presenters were asked to complete evaluation surveys. In addition each activity was observed at least once per day by an Activity Evaluator, but most activities were observed more than once on a single day.

Classroom Visits - We made visits to 25 classrooms, to ask what everyone learned at the Water Festival and discuss the Big Water Questions.

Real Water Use Measurement – We asked teachers to send a letter from the Albuquerque /Bernalillo County Water Utility Authority home with their students. This letter invited parents to provide their address for a study of actual water use. The response was quite good and this study is in process. Results will be reported separately at a later time.

The analysis of the results of the first three verification methods is presented in this report. Based on these results, it is possible to conclude that all of the performance targets were reached by many of the student and teacher participants and that some participants actually reached most of the targets.

The quantity of water that will be conserved by participants and their families was calculated based on the analysis of the Before and After Water Conservation Surveys. The outcomes for water conservation and protection of water quality that will be achieved in the coming months and years can only be approximated but we believe that the value of the water education that is delivered by the Children's Water Festival is significant and essential.

Before and After Water Use Surveys

Analysis and Conclusions

Before and After Water Use Surveys were administered in order to estimate the actual amount of water conservation that resulted from the Water Festival. Teachers were asked to send the “Before” water use survey home with their students before the Water Festival, and to send the “After” survey home after the Water Festival to verify effectiveness of the lessons learned at the Festival. The survey requires the student to enlist the help of an adult in filling out the responses, which, in itself, reminds them of the lessons of conservation from the Water Festival.

Conclusions

Based on the survey results that follow, water savings of at least 5 gallons per person per day due to shorter showers and turning off the water when brushing teeth. Therefore, the water conservation that resulted is shown in the table below:

	Students	Family*	Students	Family*
Participants	Gallons/Day	Gallons/Day	Gallons/Year	Gallons/Year
1,004	5,020	20,080	1,832,300	7,329,200
* Family of 4, assuming conservation of 5 gallons per day per family				

These water savings are significant. This number does not include additional savings from future household decisions (appliances or landscape) that the student may influence or other household water conservation efforts. Even where the survey does not show demonstrable water savings on some questions, the numbers clearly show that families are conserving water, both before and after the Water Festival.

Analysis

The survey instruments that follow show the total number of responses for each question, and the percentage of the total responses for that question. The percentages are helpful in comparing answers from before and after the Water Festival because the number of respondents for the “Before” survey is greater (359), compared to the number of respondents for the “After” survey (144). The lower response rate after the Festival is coupled with a higher number of surveys being completed in class rather than being sent home, as evidenced by the much higher number of “don’t know” answers. This explains the lower proportions of definite answers (yes or no) to some the questions that would require an adult at home to answer, and somewhat skews the results.

Indoor Use

The survey begins by asking those students that take showers, as opposed to baths, to time their own and a family member’s shower. It also asks whether the home has a low-flow or regular shower head, or whether they do not know. The average times demonstrate improvements in water conservation in the home after the Water Festival. For the student respondent, the average time before the Festival was 10.3 minutes and after the Festival was 7.5 minutes. For the family member, the average time before was 11.4 minutes and 9.0 minutes after the Festival. To compute the water savings from these improved water conservation habits, we assume an average water flow of 3.75 gallons per minute. More than half of the respondents both before and after the Festival had low-flow shower heads, which deliver about 2.5 gallons/minute. The other shower heads were either not low-flow or unknown, delivering about 5 gallon/minute. Thus, an average of 3.75 is a reasonable assumption for both before and after the Festival calculations. A student taking a 7.5 minute shower would use 28.1 gallons per shower, and a 10.3 minute shower would use 38.6 gallons, yielding a savings of

10.5 gallons per shower after the Festival. The family member averaged a savings of 9.0 gallons per shower.

There was an increase after the Festival in the already high numbers of students and family members turning off the water when they brushed their teeth. This is not surprising, as it is one of the easiest concepts to understand and immediately alter behavior.

There was not an increase in the number of low-flow toilets after the Festival, but the numbers were slightly improved over last year's totals. This may indicate an overall trend to replace toilets with low-flow models.

The small number of drippy faucets remained approximately the same after the Water Festival. This was also the result last year, which may indicate the need for more education about the water savings to be gained from fixing leaks.

The question about whether the dishwasher or washing machine is full when run resulted in a slightly smaller number of affirmative responses after the Festival. Still, a great majority waited until the appliances were full before running them. There may be some machines that are run with less water for lighter loads, as well.

Outdoor Use

Many, but not a majority, of the students responded that they had discussed landscape changes with their families after the Festival.

More than 75% of families are watering their lawns in the morning or evening, with some still watering midday. The percentage did not improve after the Festival, but these numbers suggest that local prohibitions to midday watering and conservation education efforts are showing success.

Native plants in the students' yards are reported to have decreased after the Festival, although half of the families report having some native species planted. Rain barrel use increased.

The last question on the survey asked how cars were washed at home. There were many remarks written on this question, indicating that people used a hose with a trigger on it to stop the water, that they used both a hose and a bucket, or that they used a car wash. This question could be reworked to offer these options. Still, a majority of the respondents used a bucket, and the answers did not change significantly after the Water Festival.

Lessons We Learned

As in 2004, we received some surveys that were not taken home. This was demonstrated by the lack of folding and the higher percentage of "Don't know" responses. Also, we received more "Before" surveys than "After" surveys. Never the less, we remain convinced that this method is valuable, not only for the data but also for the teaching value.

Before the Water Festival

How Much Water Does My Family Use?

Indoors

Bath or shower

Do you and your family take baths or showers?

Baths 5 1% Showers 239 69% Both 81 24% Yes 21 6%

If you answered "shower"....

Does your shower have a Low-Flow shower head?

Yes 183 52% No 79 22% Not sure 92 26%

How many minutes does it take for a shower?

✓ Ask a family member to time you when you take a shower.

My Shower took 10.3 minutes.

✓ Now, time a family member when they take a shower.

His/Her Shower took 11.4 minutes.

Brushing Teeth

Do you turn off the water when you brush your teeth?

Yes 309 87% No 40 11% Not sure 6 2%

Does everyone in your house turn off the water when they brush their teeth?

Yes 232 65% No 89 25% Not sure 38 11%

Flushing the Toilet

Is the toilet in your home a Low-Flow Toilet?

(Look between the tank and the seat. If it tells the number of gallons, like 1.6gpf, it is a Low-Flow Toilet.)

Yes 186 55% No 85 25% Not sure 68 20%

Drip, Drip, Drip

Look around the house for dripping faucets. Did you find a drip?

Yes 62 17% No 288 80% Not sure 8 2%

Washing clothes and dishes

Does everyone in your family make sure the dishwasher and washing machine are full before running them?

Yes 310 88% No 21 6% Not sure 21 6%

Outdoors

In the yard

Do you have a lawn?

Yes 187 53% No 161 46% Not sure 2 1%

If so, what time of day is the lawn watered?

Morning 108 45% Midday 49 20% Night 85 35%

Do you have native plants in your yard?

Yes 168 51% No 129 39% Not sure 35 10%

Do you have a rain barrel in your yard?

Yes 31 9% No 281 84% Not sure 21 6%

Car Washing

When your family washes the car at home, does the hose run all the time or do you use a bucket of water?

Hose 69 21% Bucket 202 62% Not sure 56 17%

After the Water Festival

How Much Water Does My Family Use?

Indoors

Bath or shower

Do you and your family take baths or showers?

Baths 2 4% Showers 39 81% Both 7 15%

If you answered "shower"....

Does your shower have a Low-Flow shower head?

Yes 74 52% No 27 19% Not sure 41 29%

How many minutes does it take for a shower?

✓ Ask a family member to time you when you take a shower.

My Shower took 7.5 minutes.

✓ Now, time a family member when they take a shower.

His/Her Shower took 9 minutes.

Brushing Teeth

Do you turn off the water when you brush your teeth?

Yes 132 90% No 12 8% Not sure 3 2%

Does everyone in your house turn off the water when they brush their teeth?

Yes 94 66% No 23 16% Not sure 25 18%

Flushing the Toilet

Is the toilet in your home a Low-Flow Toilet?

(Look between the tank and the seat. If it tells the number of gallons, like 1.6gpf, it is a Low-Flow Toilet.)

Yes 64 45% No 39 27% Not sure 40 28%

Drip, Drip, Drip

Look around the house for dripping faucets. Did you find a drip?

Yes 22 15% No 117 81% Not sure 5 4%

Washing clothes and dishes

Does everyone in your family make sure the dishwasher and washing machine are full before running them?

Yes 118 84% No 9 6% Not sure 14 10%

Outdoors

In the Yard

Have you talked with your family about adding grass to your lawn since the Water Festival?

Yes 20 16% No 99 81% Not sure 3 3%

Have you talked with your family about removing grass from your lawn since the Water Festival?

Yes 19 19% No 102 77% Not sure 12 9%

What time of day is your lawn watered?

Morning 46 39% Midday 28 25% Night 40 36%

Do you have native plants in your yard?

Yes 60 47% No 47 37% Not sure 20 16%

Do you have a rain barrel in your yard?

Yes 18 14% No 98 74% Not sure 15 12%

Car Washing

When your family washes the car at home, does the hose run all the time or do you use a bucket of water?

Hose 27 21% Bucket 84 64% Not sure 21 16%

Classroom Visits

Total Number of Classrooms Visited: 25

Elementary Schools Visited: 8 (Apache, Corrales, Edward Gonzalez, Eugene Field, Montessori on the Rio Grande, Montezuma, Painted Sky, Stapleton)

Classrooms were visited during the first three weeks of November. A minimum of two evaluators were present in each classroom, one to take notes, and the other to lead the discussion with the students. During the visit, presenters would reinforce the information available at the water festival. Each visit lasted about 45 minutes. If there was time at the end, a game of water questions was played.

Think back to the day you went to the Water Festival! Who had a great time? Who learned something new? Share what you learned that was new.

Almost all of the children indicated that they had a great time. The children's responses ranged from general statements about the importance of water to very specific statements that revealed which activities the children attended at the water festival.

- Turn off the water when brushing teeth
- Some bugs need special water environments
- Conserve water
- The forest by the river is named the Bosque
- Plants stay cool by changing color
- Everything needs water
- Take a 5 minute shower
- Water comes from aquifer
- Water is underground
- Don't pull out plants next to river
- Some places have less water than we do
- Factories pollute the water to make the river brown
- They trap bugs to tell how clean the water is
- Coral is polluted and dying
- Water is precious and we can't waste it
- Our bodies are made of 2/3 water
- Water is in cactus
- Fish are dying because we waste water, put toxins in water
- You can't live without water
- We use a lot of water every day
- It takes thousands of years for water to get into our aquifer
- It's bad to pollute water
- Our drinking water comes from the aquifer
- Don't waste water
- Water can be like a magnet
- If we continue using water like this, we'll run out in 30 years

Why is water so important to life?

Life's dependence on water was nearly universally understood by the children in all the classes.

- You will die without water
- Water helps plants to grow
- Plants give us oxygen
- Water helps animals and we eat animals
- Water helps us to be clean
- Water is home to fish and sharks
- Water helps food to grow
- Water is in our food
- Trees make shade
- Not that much water
- Nature would die without water
- Most of our bodies are made of water
- You would dehydrate

What is the water cycle and why is it so important?

Some students understood the evaporation, condensation, and precipitation components of the water cycle, even if they couldn't remember the "big" words.

A few understood runoff (and related it to erosion) but did not know the term. All presenters explained transpiration and percolation.

- Water sinks into the ground
- Rain, hail and snow are precipitation
- Evaporates up to clouds
- Plants suck up water to grow
- Rain from mountains goes down and goes back up to clouds
- Water sinks into ground for the aquifer

What is a watershed and how does it function?

Very few students had an understanding of the term "watershed." Most knew the location of the headwaters of the Rio Grande, its course, and where the river emptied into the ocean.

- A thing that holds water
- Goes to the Rio Grande, Starts in Colorado
- Water stored in big container underground
- Rio Grande ends in Gulf of Mexico
- Not everyone lives in a watershed
- Everybody lives in a watershed
- Water coming together
- Where we store water
- Underground – almost like the water table
- River and land around it
- East mountains live in a different watershed

How do plants, animals, people, soil, and water depend on each other?

The relationships between life forms and what supports life was well understood. Most of the students had studied the "life cycle" in their classrooms.

- Plants need soil to grow
- Animals need water
- We need plants
- We love animals
- Plants can be homes for animals
- Trees grow with water
- Soil sucks up water
- Animals drink water and eat plants
- Some plants have medicine
- Cow drinks water, eats plants, makes milk and then it goes to Walmart
- Animals give off carbon dioxide
- Animals need trees for their homes and shade
- Animals fertilize the soil
- Bees get pollen from flowers

How do our actions affect water quality?

Students mentioned throwing trash in the water most often. We discussed other actions like: leaving pet poop on the ground, letting car oil or dirt wash into the river, farmers using too much fertilizer or pesticide and other actions people might take.

What makes it dirty?

- **Littering**
- Mud runoff
- Oil
- Poisons
- Dead animals
- Tires
- Poop
- Factories – chemicals
- Construction
- Exhaust
- Tankers spill oil

What can we do to keep it clean?

- Throw away trash
- Scoop the poop
- Companies don't pollute
- Don't pollute
- Don't throw stuff in river
- Recycle oil
- Check car
- Plant trees
- Don't use as much water
- Water treatment plants
- Don't pour chemicals down sink

How much water does my family use?

Students did not have a realistic grasp of volume of usage. The range of guesses was from 5-2000 gallons. Most guesses were very low. They were generally surprised to learn how much water an average family uses. The presenters used toilet flushing as a way to show a more realistic number.

- Ways water is used every day: Wash dishes, drink, brush teeth, wash clothes, wash car, water plants, wash dogs, water grass, flush toilet, showers, pools, pets, wash hands.

What are you doing differently, concerning water, which you did not do before the Children's Water Festival?

The answers to this question were very anecdotal, related to their own families' experiences. Almost everyone suggested shorter showers and turning off water when brushing teeth.

- Turn off water when brushing teeth
- Shorter showers
- Wash car with bucket and sponge
- No sprinklers when raining
- Wash dog in swimming pool
- Change to rock instead of grass
- Filling bath ½ way
- Fewer showers
- Less grass in yards
- Water in morning before sun is out
- Water at night
- Wash clothes with full load
- Fix toilet when it "runs"
- Turn off water when shaving
- Change toilet to low flow
- Water plants with "extra" water
- Use bucket to wash dishes
- Repair drips
- Have full dishwasher

Have you talked to your family about conserving water and protecting water quality?

Anywhere from two to almost all students had shared what they learned with others. We emphasized how much water was estimated to be saved from 2004 Water Festival, and that they are water experts and can each make a big difference.

Summary of student participation

Approximately 74% of the students participated in the discussion and responded to the questions.

School	Number of Students	Frequent Participation	Occasional Participation	No Participation
Apache – Ray Davis	24	6	8	10
Apache – Reina Davis	21	6	7	8
Apache – B. Venegas	25	8	12	5
Corrales – J. Bahrmann	23	7	16	0
Corrales – N. Kimball	23	5	10	8
Corrales – T. Kominiak				
Corrales – L. Lockhart	22	8	2	12
Edward Gonzalez – K. Bales	22	4	14	4
Edward Gonzalez – K. Chick	23	7	6	10
Edward Gonzalez – K. Dunivan	22	6	4	12
Edward Gonzalez – J. Lawler	17	7	4	6
Edward Gonzalez – E. Pacheco	21	8	8	5
Edward Gonzalez – L. Witz	19	7	8	4
Eugene Field – T. McDougal	19	10	5	4
Montessori of the Rio Grande – R. Gibson	23	18	2	3
Montezuma – F. Blueher	26	8	18	0
Montezuma – C. Martinez	17	7	4	6
Montezuma – D. Potter	26	10	13	3
Montezuma – M. Rendon	19	6	8	5
Painted Sky – S. Apodaca	20	5	7	8
Painted Sky – M. Olsen	19	9	3	7
Painted Sky – B. Johnston	22	8	14	0
Painted Sky – J. Wells	20	6	5	9
Stapleton – D. Cordero	20	8	12	0
Stapleton – C. Erben	23	10	5	8
Stapleton – T. Lutt				
Totals	400	152	142	106

Student Evaluations

Number of Schools: 13 Number of Classes: 45

Number of Students: 1040

Schools and number of students returning evaluations: 5 schools (38%) and 8 classes (18%), with 116 returned student evaluations (11%). Also, one class wrote individual thank you notes.

School, Class, Number of Evaluations Returned, Activities Attended:

- Apache Elementary, Ms. Venegas (18 evals.) – attended: BioVan, Dividing the Water, Don't Use It All Up, Edible Aquifer, Water Jeopardy
- Arroyo del Sol, Ms. Anderson (14 evals.) – attended: Swimmin' in the Rio Grande, Thrifty Plants Thirsty Land, Water and Life, Water Jeopardy, Every Drop Counts
- Arroyo del Sol, Ms. Mortley (19 evals.) – attended: Perfect Little River, Rolling River, Swimmin' in the Rio Grande, Thrifty Plants Thirsty Land, Water and Life, Perfect Little River
- Arroyo del Oso, Ms. Simpson (15 evals.) – attended: Meet Water Bugs Up Close, Mission Impossible, Our Cottonwood Forest, Perfect Little River, Rolling River
- Los Ranchos Elementary, Ms. Long (19 evals.) – attended: Thrifty Plant Thirsty Land, Water Jeopardy, Weather or Not, Incredible Journey, Edible Aquifer
- Montezuma Elementary, Ms. Blueher (19 evals.) – attended: Exploring Coral Reefs, Insectopia, Why the River Runs Brown, Our Cottonwood Forest, RG Bosque Water Cycle
- Montezuma Elementary, Ms. Potter (3 evals.) – attended: Edible Aquifer, Exploring Coral Reefs, Insectopia, Weather or Not, Our Cottonwood Forest
- Montessori on the Rio Grande, Ms. Gibson (19 evals.) – attended: Water Jeopardy, Why the River Runs Brown, Water Olympics, Weather or Not, Meet Water Bugs Up Close

What were your favorite activities at the Children's Water Festival and why?

This was a challenging evaluation to compile, as deciphering the children's handwriting was often difficult. When unable to understand which activity they were referring to (e.g. "where we wrote in the book") there was no score given. Two activities, Incredible Journey and Long Haul, were not attended by any of the classes responding.

- Edible Aquifer received the most votes for favorite (23), with Water Jeopardy (15) and "I liked them all" (13) next. Other scores were: Rolling River (12), Why the River Runs Brown (10), Meet Water Bugs Up Close (9), Perfect Little River (9), Swimmin' in the Rio Grande, Water Olympics (8), Insectopia (3), Weather or Not (3), Water and Life (2), BioVan (1), and Dividing the Water (1).
- The most common reasons students gave for all favorite activities were that it was fun and hands-on.
 - "I learned a lot."
 - "I got to eat ice cream."
 - "We shared water with mother Nature."
 - "We did an experiment."
 - "I learned how water got polluted."
 - "I learned how to make a cloud."
 - "We got to use little pumps."

What were your least favorite activities and why?

- The highest score in this category was None (33). Other scores: Exploring Coral Reefs (13), Perfect Little River (11), Why the River Runs Brown (6), Thrifty Plant Thirsty Land (5), Dividing Up the Water (4), Don't Use It All Up (4), Meet Water Bugs Up Close (4), Water Jeopardy (3), Insectopia (2), Swimmin' In the Rio Grande (2), Our Cottonwood Forest (1), Rolling River (1), Water Olympics (1)
- The most common reason students gave for all least favorite activities was that the activity was boring or they didn't learn much.
 - “When we had to take a quiz.”
 - “Working on the book because it was boring.”
 - “...the plants because I didn't learn much.”
 - “I don't like poop.”
 - “I loved all of them.”

What did you learn at the Festival that you did not know before?

- There were numerous answers from each class. Most referred in general to water conservation or specific facts presented in an activity.
 - “How many gallons you use in your shower”
 - “To use less water and we use a lot of water in a day”
 - “That we can run out of water easily”
 - “How to conserve water”
 - “The aquifer is sucked up fast and fills up slow”
 - “That everywhere is a watershed”
 - “49 gallons makes one cup of milk”
 - “Poop from animals ends up in the river”
 - “Different insects live in different pollution levels”
 - “That the aquifer has layers”
 - “How plants stop flooding”

Why do you think learning about water is important?

- The overriding reason students think learning about water is important relates to water conservation, but water quality was also important:
 - “We should not use too much water and if we don't Albuquerque will be in a drought”
 - “People should know how much water to use”
 - “Our water could be polluted and would be poisoned and we would be drinking poisonous water”
 - “People don't have enough water and we need to conserve water”
 - “So when we grow up we can have enough water”

What are you doing that is different, concerning water, that you did not do before the Children's Water Festival?

- Almost every student has changed a habit. The change most often cited was taking shorter showers:
 - “I am taking shorter showers” (43)
 - “Conserving water/using less” (17)
 - “Turning off the water when I brush my teeth” (8)
 - “Not watering garden too much” (3)
 - “Flushing less” (2)
 - “Using the pasta water to water the plants”(1)
- Thirteen students boldly stated that they had done nothing to change their water habits.

Have you talked to your family and friends about conserving water and protecting water quality?

- Of the 116 respondents to this question, 82 (71%) said “Yes”, 31 (27%) said “No” and the rest (2%) did not answer.
 - “Yes I have talked to family and friends”
 - “Yes I have spoken to my family”
 - “Yes I have talked to my family about conserving water and the quality of water”
 - “No because they already know how to conserve water”

Teacher Evaluations

Number of Schools: 13

Number of Teachers: 44

Number of Teachers Returning Evaluations: 10 (23%)

Schools Represented: Apache Elementary (2 of 3), Arroyo Del Oso Elementary (3 of 3), Eugene Field Elementary (1 of 1), Los Ranchos Elementary (1 of 1), Montessori on the Rio Grande (1 of 1), Montezuma Elementary School (2 of 4)

Which activities were most effective in teaching your students about water? Why?

“Water Olympics” – very hands on and fun

“Weather or Not” – generated questions on our weather

“Water Jeopardy” really tested their knowledge and my students enjoyed the physical setting of speaking and participating for their class/team.

“Rolling River” – great way to see the bigger picture. Very Realistic.

“Swimming in the Rio Grande” – good insight into animal life in relation to water and how we use it. Also conservation.

“Weather station and aquifer” were effective hands on activities.

Which were not effective and why?

They were all engaging.

“Don’t Use it All Up” – I think the presenters’ babies were a distraction.

“Perfect River” – nice ideas but too broad (the two different topics) and too rushed.

“Water and Life” – students were passive learners. Had a hard time seeing how his topics were related.

All were very good.

“Water Jeopardy” – competitive plus needed lots of prior knowledge to participate.

Frustrating for students, not much learning.

“Roots Station” – the kids did not respond well to an informative lecture format.

“Coral Show” – hard for kids to relate to these fascinating creatures.

“Exploring Coral Reefs” – presenters were not very sure of themselves and very timid.

Room next door was very loud making it hard to hear timid presenters.

Do you have any suggestions for new activities?

No – they were all great.

More games (Bingo, etc.)

The importance of grey water. Collection, distribution, theory.

The importance of bugs, insects in the Bosque ecosystem. Life cycle, behavior of insects, etc!

Was the Teacher Workshop useful? If yes, how so? If no, how could it be improved?

Yes. It gave me vocabulary and ideas to target to prepare my students.

Yes – it prepared me and gave me materials to prep students.

Yes, but if we have already attended one, I think we could send one rep. per school to pick up material.

Yes!!! Absolutely! Got the kids very excited about going to the Festival.

Yes. Great materials.

Do you plan to use the materials in the Resource Kit during the rest of the school year?

Yes. Posters are up and we refer to them often.

If I get time (many “state standards” to fulfill).

Used them before festival, will use some again when studying “environments” in science.

Yes. We are trying to write a PNM grant for rain barrels.

Perhaps in the spring (some were a little young for us).

No... but plan on asking a couple of speakers from Festival to come to our class.

Will you be able to utilize and extend on what your students learned during the Festival in your curriculum? If so, how?

Yes. Our upcoming trip to the Sandia' and lessons about habitats and ecosystems will use information we learned at the festival.

I have a science/art book that I will draw lessons from.

Yes! We are exploring the state of New Mexico and our resources. We are constantly referring back to water in our state.

Yes – we are studying NM, and the info on water (how it's used) and plant life were great for helping my students make connections.

Yes – continued environmental lessons on conservation and anti pollutants. Keeping our world a better place for future generations.

Yes- we have a "environments & living things" unit in science with APS science kit (at end of year) but this will well with tat unit.

The water cycle comes up in every science unit. A clear understanding of the process and impact helps me teach on a deeper level.

Definitely – watershed is a big component of our curriculum.

Yes – in science, social studies, math.

Yes, in science when we do environment and off and on through the year as it is relevant.

What are you doing that is different concerning water, that you did not do before the Children's Water Festival?

Shorter showers, taking out some of my grass and putting in rocks and plants that require very little watering.

Scooping more poop!

Looking for rain barrels for my house!

Grey water collection.

Being less wasteful.

Putting water in refrigerator to drink. Use rain water to water plants.

What suggestions do you have for improving the Children's Water Festival next year?

The kids wanted to hit more stations, but I'm not sure how that could be done?

Keep exhibits away from each other to control noise and distractions.

Please extend this festival to include all 4th grade classes that wish to attend. Money well spent!

I realize presenters are not teachers, but they need to set up ground rules before starting ie. Raise your hand, no talking out, etc.

Have potential presenters come to the Festival to check out successful activities.

More area to store lunches and personal items.

Overall Rating:

- 9 - Wonderful
- 1 - Good

Additional comments and suggestions:

It was wonderful! Thank you for inviting us!

So enjoyable and educational. Very organized.

It has always been the best organized, fun, and educational field trip we have ever taken.

Very well organized, volunteer treated us with respect and the free buses took the pressure off the PTO.

Can't wait 'til next year!

Presenter Evaluations

Activities Presented - 22

Presenter Evaluations Returned – 22 for 17 activities

2-BioPark's BioVan
1-Dividing the Water
1-Don't Use It All Up
1-Edible Aquifer
2-Every Drop Counts
3-Exploring Coral Reefs
1-Incredible Journey
0-Insectopia
0-Long Haul
0-Meet Water Bugs Up Close
1-Mission Impossible
1-Our Cottonwood Forest
0-Perfect Little River

1-Rio Grande Bosque Water Cycle
1-Rolling River
1- Swimmin' in the Rio Grande
1-Thrifty Plants in a Thirsty Land
1-Water and Life
0-Water Jeopardy
1-Water Olympics
1-Weather or Not
2-Why the River Runs Brown

Evaluate your activity. Was it appropriate for the age group? Did it work effectively in the time frame? Did it involve student participation, and if so, did they engage in the activity?

All respondents (22) thought their activities were appropriate for the age group, and that the students were engaged in the activity. Some respondents (5) noted that they felt rushed in the 25 minute time frame.

What could you do to improve activity for next year?

One third of the presenters did not feel changes were needed. Two-thirds responded with one or two changes for themselves such as better visuals, props, more supplies or different room set up.

- "Arrange the table so kids can get on both sides of it. Tweak some."
- "Have teacher handout ready with info on equipment and web site."
- "Develop a watershed map that is locally specific."

What could Festival organizers to do make your job easier? Were you satisfied with the room set-up? Did you have everything you requested?

Almost all presenters (17) said everything was great. The room arrangement was not adequate for some presenters (5).

- "Make sure student assistants stay all day."
- "Did not have easel requested."
- "The area was perfect. We had plenty of room. Lunch was great. All of the Festival organizers were extremely helpful and friendly."

What general comments about the Festival did you hear from teachers, students, parents?

All respondents (19) said that the comments were consistently positive.

- "They liked it." "Great!" "Applause!" "Enthusiastic." "Parents had fun." "Fun, creative, informative, interesting." "Engaged, entertained."
- "Some parents were just as interested (or more) in the activities than the children. They liked suggestions of easy ways they can do science at school or home."
- "One child said he "saw the world" in our model."

What did you enjoy most about the CWF?

Almost all presenters (18) noted that they enjoyed interacting with the children. Some presenters (4) enjoyed the teaching aspect. Other answers included lunch (3), t-shirts, networking with other water professionals, and small class sizes.

- “Spending the day with the kids and watching as they really learn something about water.”

Do you have any suggestions for improving the Festival as a whole?

Most (13) said “No,” but there were six ideas noted:

- “Don’t schedule similar activities back-to-back (i.e., my aquifer presentation and Edible Aquifer were consecutive).”
- “Wish the sessions were a little longer.”
- “It was exhausting. Having one time slot with nothing in it.”
- “Opening speaker.”
- “We never have 8 minutes between activities and we really need 3-5 minutes to re-group.”
- “Maybe a chance to see the other stations as the day went on.”

Do you have any ideas for new activities?

Most did not answer this question, probably indicating that they have no ideas. Several (3) said they need to think about it.

- “I didn’t get to see any activities, so I can’t say.”
- “Something on how seeds germinate in the desert climates, coatings, timing...”

Would you be interested in presenting at the 2005 MRG Children’s Water Festival?

All respondents (except one) said “Yes.”

Overall rating:

- 11-Wonderful
- 1-Really good/wonderful (5.5)
- 10-Really good

Additional Comments and suggestions:

Four respondents mentioned great sandwiches and three mentioned good overall festival organization.

- “This year’s festival was the best yet. It flowed very smoothly. All 10 classes showed up, and even were all on time. The student groups we had seemed better prepared and better attended to by their teachers and parent chaperones than some past groups (I realize this may just be luck of the draw, but I suspect it could be attributable to better prep for the teachers by CWF organizers).”
- “Volunteer coordinator did a great job.”
- “Good job overall, kept to the schedule, nice lunch.”

Volunteer Evaluations

Number of Volunteers: 37 on Oct. 13; 37 on Oct. 14; 62 total.

Number of Returned Evaluations: 29

Organizations represented: PNM, Intel, Sandia National Labs, City of Rio Rancho, Valley HS, Albuquerque Academy, Manzano HS, Master Gardeners, Albuquerque/Bernalillo County Water Utility Dept., City of Albuquerque

How did your volunteer assignment help the Children's Water Festival?

- In 22 cases, volunteers served as general guides and in five cases they were bilingual guides; in five cases a classroom assistant; in one case a welcome/greeter; and in two cases a photographer.
 - “I took pictures of most of the exhibits.”
 - “I added stability to the group movement.”
 - “Keep order and time.”
 - “I educated the students about the watershed and the things that pollute the rivers, oceans, lakes.”

How were you affected by the experience?

- Volunteers were extremely positive in their responses. Twenty one specifically commented on how much they enjoyed the experience, and fifteen pointed out their surprise that they learned too.
 - “It was fun!”
 - “I learned how important education is for the next generation of leaders.”
 - “I feel this is a vital learning experience for the children.”
 - “I learned more about water and enjoyed seeing the children learn.”

What could Festival organizers do to help make your volunteer job easier?

- Volunteers overwhelmingly thought that the event was well. There were seven suggestions concerning the event, and the first suggestion about adding the times to the volunteer guide session card was mentioned three different times.
 - “Put the times of the sessions on the volunteer guide session card.”
 - “Map out individual teacher schedules.”
 - “...just that the lunch was too short and fast.”
 - “Email info to the guides ahead of time. Give each guide a different colored umbrella, or hat, or whatever, so their class can easily follow them.”
 - “Give parking passes ahead of time.”
 - “Send a form to the schools for permission to take photographs of the kids so that photographers know if it will be a problem ahead.”

Do you think teachers and students benefited from their day at the Festival? If yes, what made it a valuable experience? If no, what could be done to improve their experiences?

- All volunteers answered “yes,” yet a few improvements were mentioned.
 - “This event coincided with Yom Kippur. Any observant Jewish children wouldn't be able to attend. Some private schools – e.g. Manzano Day School- were not even open. Next year's event should be scheduled to not conflict with High Holy Days.”
 - “One class had two sessions on aquifer back to back- Edible Aquifer and Every Drop Counts. Same material.”
 - “Dividing the Waters could have provided more real info/ideas to teach new ideas, rather than just leaving the kids to think of ways to reduce use and share water.”
 - “Don't Use It All Up could offer additional real ideas to conserve- beyond the typical student ideas. They could let the kids know about low flow toilets, xeriscape plants, if not mentioned by the kids, i.e. ideas to share with their parents. Perhaps give the kids handouts to share at home.”

Do you think the Children's Water Festival would be valuable for next year?

- All but one volunteer who answered the question said "yes." (28) One did not answer the question.

Would you like to volunteer again for the 2006 Children's Water Festival?

- All but two volunteers who answered the question said yes. (26) One said maybe. Two volunteers did not answer the question.

Overall rating:

- 1- Rated a 7 (tops the scale)
- 17-Wonderful (6)
- 1- Rated a 5 ½
- 20-Really Good (5)

Additional comments and suggestions:

- There were eleven additional comments and suggestions, with five concerning the experience.
 - "Thanks for inviting me."
 - "I really enjoyed the experiments. Also, the students were great."
 - 'Keep doing it – invaluable hands on, fun learning for children – they loved it."
- Additional suggestions were made. Three separate volunteers suggested expanding the festival to reach more children.
 - "I hope that maybe all of the schools could come... I think maybe if it was for a week more schools could come. "(3)
 - "Lunch time should be 10 minutes longer. The Coral class should not do a slide show. It was too boring for the kids. They like more hands on. It also went way over the time limit."
 - "Spread out tables with lunches, coats so that traffic flow is not so hectic - realizing you want them close together for security."
 - "Give school buses signs for arrival for faster identification for guides."
 - "The class next to ours was noisy. The activity was Bosque Water Cycle. Our class was Exploring Coral Reefs which was quieter and hard to hear the presenter's quiet voice. Need to think of less sugary items to build the Edible Aquifer- maybe broccoli (kidding)."
 - "I think this festival would be wonderful for older students – middle and high school. High school students need a wonderful hands on event like this - especially one that introduces the various academic and working opportunities."
 - "Having my class wear all the same color shirts was helpful."
 - "The Wizard is cool (nice costume)."

Activity Evaluations

There were 22 unique activities presented. Most of these activities were presented five times in a single day. Twenty activities were presented on both days, and two activities were presented on one day only. Each activity was observed at least once per day by an Activity Evaluator, but most activities were observed more than once on a single day. In summary, 24 evaluations were performed on 10/13, and 27 were performed on 10/14 for a total of 51 evaluations. Activity Evaluators were from the Middle Rio Grande Steering Committee and PioneerWest Staff. Key points of the Activity Evaluations include:

- All activities except one were presented in a hands-on or a combination of lecture and hands-on style (Mission Impossible was lecture only).
- Children were observed to be interested, involved and attentive. In five observations, children were seen as restless or bored.
- In all but three observations, presenters spoke to children on their level (Dividing the Water (1) and Mission Impossible (2)).
- The quality of the activities was very high, with all activities receiving ratings of “high” (5) or “extremely high” (6) on how relevant the presentation was to the topic of water.
- Ratings were slightly lower for how well the children seemed to understand the concepts offered. Ratings were predominantly “5s” and “6s” with very few “4s.
- All activities had visuals, with hands-on and larger visuals being the most effective.
- All activities were recommended for future Children’s Water Festivals.

Activity	# of Evaluators	Relevance	Comprehension	Comments
BioPark’s BioVan	2	5	5.5	Displays in van very good, hard to hear due to background noise, could move more quickly to water relationships
Dividing the Water	2	6	4	Set up room differently, kids restless and some info over kids’ heads
Don’t Use It All Up	3	6	5.3	Set up room differently, no time to write so many things on board or could write ideas on paper and give to teacher
Edible Aquifer	3	5.7	5.3	Kids didn’t know the word “confining”
Every Drop Counts	4	5.5	5	Simplify terms on how rain gets into the aquifer and how water fills in the gaps between rocks, good water conservation concepts, good demo
Exploring Coral Reefs	1	6	5	Room too dark, increase voice projection, class next door too loud (request quiet room), some kids in back restless/bored
Incredible Journey	2	6	6	Larger room, Gary good with kids, the conclusions are very important
Insectopia	1	6	6	Need one adult per table, good use of “mystery” (kids must discover/guess)
Long Haul	3	6	5.5	Great student helpers, good control of kids
Meet Water Bugs	4	5.8	6	Need one helper per table, bug viewer gift is great, working in teams went well, not all groups could finish

Mission Impossible	4	6	4.3	Bank account idea not understood, charts over their heads, room set up could be u-shaped, no hands-on feature for kids
Our Cottonwood Forest	2	5.5	5	Very good hands-on items, find way to separate kids so they can see
A Perfect Little River	4	5.5	5.5	Tim very good with kids, need chairs for adults, could have emphasized impact on river a bit more
Rio Grande Bosque Water Cycle	1	6	4	Not sure how well they understand the concepts
Rolling River	2	6	5.5	Trailer is super visual, a little hard to engage all kids at both ends, try to give kids something to do or have presenter move around
Swimmin' in the Rio Grande	2	6	5.5	Takes a while to explain the game, game board excellent, well explained examples
Thrifty Plants in a Thirsty Land	2	6	5.5	Could move tables more apart
Water and Life	1	6	6	Good with examples of subject, good books, kids knew a lot regarding items
Water Jeopardy	2	6	5	Board is hard to read from back, great combination of Spanish and English and involving everyone, even parents, kids excited and knew answers, great game board
Water Olympics	1	6	5	Need adult supervision
Weather or Not	2	5.5	6	Good idea how to select helpers, good interactions with kids, kids had trouble telling pink from purple on chairs, maybe a large photo of how the inflated balloon works
Why the River Runs Brown	2	6	5.5	Adult presenters at each table good idea, three tables work well, chairs were in the way and few kids sat in them.