Santa Fe
Children's Water Festival 2005

Report on Outcomes

The organizers of the Santa Fe 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 do we verify that the performance targets were reached? Three 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 7 classrooms, to ask what everyone learned at the Water Festival and discuss the Big Water Questions. We used the Enviroscape to demonstrate how water pollution happens and what we can do about it.

The analysis of the results of these three verification methods are 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 home a water use survey before the Water Festival, and to send home another survey after the Water Festival. The survey requires each student to enlist the help of an adult to complete the responses, which, in itself, emphasizes to families the importance of water conservation and actions that they can take to conserve water.

Conclusions
Based on the survey results that follow, water savings of at least 5 gallons per person per day can be estimated from shorter showers and turning off the water while 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
600	3,000	12,000	1,095,000	4,380,000

*Family of 4, assuming conservation of 5 gal/day/family member

These numbers do not include additional savings from future decisions about landscaping or other household water conservation efforts that the students may influence. Even where the survey does not show demonstrable water savings on some questions, the numbers clearly show that many families are conserving water, both before and after the Water Festival.

Analysis
The survey instruments, presented below, have 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 (approx. 266), compared to the number of respondents for the “After” survey (approx. 139).

Indoor Water Use
The survey begins with questions about shower habits. First we asked whether the student’s home has a low-flow or regular shower head. Then we asked students to time their own and a family member’s shower. The times are computed according to the water flow for the shower head (2.5 gpm for low flow, 5.0 gpm for regular) to assess the water usage for showers.

Students were given shower timers before they completed either of the surveys. These timers seem to be responsible for more accurate times than were reported by Middle Rio Grande students who did not have timers. It is also interesting to note that Santa Fe shower times were lower both before and after than Middle Rio Grande shower times. This suggests that students in Santa Fe are more aware of water conservation. In Santa Fe, shower times decreased in all cases after the Water Festival. For the student respondent, usage with a low-flow shower head was 21.2 gallons before and 17.1 gallons after, and with a regular shower head 54.8 gal per shower before and 41.2 gallons after; for the respondents family member usage with a low-flow shower head was 23.0 gallons before and 21.2 gallons after, and with a regular shower head 46.5 gal per shower before and 39.5 gallons after the Water Festival.

Next we asked students about turning off the water when brushing teeth. There was a slight decrease for students (93% - 90%) and increase for family members (72% - 75%) turning off the

water when they brushed their teeth. Still the total numbers of people turning off the water is very high, as it is one of the easiest concepts to understand and take action.

There was a small increase in number of low-flow toilets. The number of drippy faucets was slightly lower after the Water Festival.

We continued with a question about whether the dishwasher or washing machine is full when run. The data show a small decrease, which was equivalent to the number of “don’t know” answers after the festival. Again, the total percentages of positive responses show a strong awareness of water conservation in using these appliances.

Outdoor Water Use

We asked about adding or removing grass from the family’s landscape but due to the timing, this question was not realistic. Changes to landscaping may occur in the spring as a result of the student’s learning experience at the Water Festival. We will modify this question to, “Have you spoken to your family about removing grass or planting native plants in your yard?”

More than 70% of families of those students responding (only about half of the students answered this question, probably due to outdoor watering prohibitions) are watering their lawns or outdoor plants in the morning or evening, with almost a third of those responding still watering midday.

Native plants in the student’s yard are reported to have decreased after the festival, although more than half of the families report having some native species planted. Rain barrel use remained about the same, at 31%.

Lessons We Learned

Some of the survey questions will be modified, as noted above, for future evaluations in order to be more certain that the students understand the question. We also observed that the students in some of the classes did not take the surveys home. Rather, the survey was administered in class by the teacher. There were a greater proportion of “After” surveys not taken home than “Before” surveys. (We noted that these surveys are not creased or crinkled - too neat to have been taken home!) The effect of this is that the proportion of definitive answers (yes or no) is relatively smaller and the proportion of “don’t know” answers is relatively larger, making comparisons before and after the Festival less clear. We decided to retain these surveys’ results in the totals. In fuuture evaluations, we will be more clear that teachersshould send the surveys home with the students in order to have more accurate results. Overall, the survey experience is a learning experience for students and teachers as well as tool for verifying the outcomes of the Water Festival.

Before the Water Festival
How Much Water Does My Family Use?

Indoors

Shower Time

Does your shower have a Low-Flow shower head?

Yes 145 55% No 67 25% Not sure 54 20%

How many minutes does it take for a shower?

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

My Shower took 8.49 minutes with a low-flow shower head.

My Shower took 10.95 minutes without a low-flow shower head.

My Shower took 10.29 minutes with an unknown shower head.

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

His/Her Shower took 9.18 minutes with a low-flow shower head.

His/Her Shower took 9.29 minutes without a low-flow shower head.

His/Her Shower took 15.47 minutes with an unknown shower head.

Brushing Teeth

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

Yes 247 93% No 17 6% Not sure 2 1%

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

Yes 192 72% No 54 20% Not sure 8 8%

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 158 60% No 66 25% Not sure 41 15%

Drip, Drip, Drip

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

Yes 55 20% No 211 78% Not sure 6 2%

Washing clothes and dishes

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

Yes 220 83% No 18 7% Not sure 27 10%

Outdoors

In the yard

Do you have a lawn?

Yes 74 30% No 164 67% Not sure 8 3%

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

Morning 44 36% Midday 36 29% Night 43 35% 30%

Do you have native plants in your yard?

Yes 143 58% No 89 36% Not sure 13 5%

Do you have a rain barrel in your yard?

Yes 77 31% No 160 65% Not sure 4 10%

After the Water Festival
How Much Water Does My Family Use?

Indoors

Shower Time
Does your shower have a Low-Flow shower head?
Yes 70 50% No 38 27% Not sure 31 22%
How many minutes does it take for a shower?
✓ Ask a family member to time you when you take a shower.
My Shower took 6.82 minutes with a low-flow shower head.
My Shower took 8.23 minutes without a low-flow shower head.
My Shower took 7.56 minutes with an unknown shower head.

✓ Now, time a family member when they take a shower.
His/Her Shower took 8.48 minutes with a low-flow shower head.
His/Her Shower took 7.83 minutes without a low-flow shower head.
His/Her Shower took 11.82 minutes with an unknown shower head.

Brushing Teeth
Do you turn off the water when you brush your teeth?
Yes 125 90% No 12 9% Not sure 2 1%
Does everyone in your house turn off the water when they brush their teeth?
Yes 104 75% No 25 18% Not sure 9 7%

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 1.6 gpf, it is a Low-Flow Toilet.)
Yes 88 64% No 23 17% Not sure 26 19%

Drip, Drip, Drip
Look around the house for dripping faucets. Did you find a drip?
Yes 26 18% No 108 76% Not sure 8 6%

Washing clothes and dishes

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

Yes 108 77% No 10 7% Not sure 22 16%

Outdoors

In the Yard

Have you added grass to your lawn since the Water Festival?

Yes 7 6% No 95 86% Not sure 8 7%

Have you removed grass from your lawn since the Water Festival?

Yes 10 9% No 93 87% Not sure 4 4%

What time of day is your lawn watered?

Morning 25 31% Midday 25 31% Night 31 38%

Do you have native plants in your yard?

Yes 66 51% No 51 40% Not sure 12 9%

Do you have a rain barrel in your yard?

Yes 38 32% No 69 59% Not sure 10 9%

Student Evaluations

Number of Attending Schools: 12 **Schools returning evaluations: 8 (66.7%)**
Number of Attending Classes: 28 **Classes returning evaluations: 17 (60.7%)**
Number of Attending Students: 598 **Students returning evaluations: 253 (42.3%)**

- *Some students listed more than one Favorite and Least Favorite activity.*
- *Of those classes returning evaluations, it was evident that some activities were attended more than others. For example, 12 classes attended Water Jeopardy while only four attended Swimmin' in the Rio Grande. For fairness, weighting was applied when determining the Favorite and Least Favorite activities.*

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

- Overall, Meet Water Bugs up Close, Water Jeopardy and Swimmin' in the Rio Grande had the highest percentages (85.7%, 75.0% and 75.0%, respectively).
- The top two favorite activities (receiving at least two votes) with the number of responses for each class were as follows.

  Kaune (Martinez): Water Jeopardy (9) and There Otter be Otters (4)/Long Haul (4)
  Nava (Mayo-Rodriguez): Water Jeopardy (10) and Dams, Reservoirs and Our Watershed (3)
  Nava (Wasser): Meet Water Bugs Up Close (6) and Long Haul (2)/Dams, Reservoirs and Our Watershed (2)
  Sweeney (Martinez): Stories Need Water Too (6) and Meet Water Bugs Up Close (5)
  Sweeney (Baca): Incredible Journey (15) and Meet Water Bugs Up Close (2)
  Turquoise Trail (Grimes): Rolling River (9) and Meet Water Bugs Up Close (5)
  Turquoise Trail (Trachta): Incredible Journey (7) and Rolling River (7)
  Turquoise Trail (Nass): Water Jeopardy (6) and Shorebirds of NM Waterways (4)/Rolling River (4)
  Turquoise Trail (Davis): Rolling River (10) and Water Jeopardy (6)
  Acequia Madre (Falk): Water Jeopardy (13)
  Agua Fria (Lucero): Swimmin' in the Rio Grande (6) and Weather or Not (4)
  Agua Fria (Ross): Swimmin' in the Rio Grande (11) and Shorebirds of NM Waterways (7)
  Agua Fria (Gorman): Swimmin' in the Rio Grande (6) and Water Jeopardy (3)
  E.J. Martinez (Palmer): Water Jeopardy (12) and Long Haul (10)
  E.J. Martinez (Berlin): Water Jeopardy (10)
  Piñon (Muñoz): Meet Water Bugs Up Close (11) and Incredible Journey (4)
  Piñon (Aagaard): Meet Water Bugs Up Close (9) and Water Jeopardy (8)
- The most common reasons students gave for all favorite activities were that they learned a lot, it was challenging, and it was fun/cool.

  "With those hard questions you could learn a lot."
  "…because we learned new words. And it would make you think back to what you learned in class."
  "I learned a lot more than I was planning to."

What were your least favorite activities and why?

- Overall, "None" ranks highest because it was unprompted and still shows up frequently. Three activities tied as least favorite activities with weighted averages of 57.1%. They include Water to Watermelon, Stories Need Water Too, and Dams, Reservoirs and Our Watershed.
- The top two least favorite activities (receiving at least two votes) with the number of responses for each class were as follows.

  Kaune (Martinez): None (7) and Weather or Not (3)
  Nava (Mayo-Rodriguez): None (5) and Dams, Reservoirs and Our Watershed (5)
  Nava (Wasser): Stories Need Water Too (3); Long Haul (2)/There Otter be Otters (2)

Sweeney (Martinez): Meet Water Bugs Up Close (6) and Stories Need Water Too (4)
Sweeney (Baca): Meet Water Bugs Up Close (11) and Dams, Reservoirs and Our Watershed (4)
Turquoise Trail (Grimes): Dams, Reservoirs and Our Watershed (5) and Down by the River's Edge (5)
Turquoise Trail (Trachta): Meet Water Bugs Up Close (7) and Water Jeopardy (5)
Turquoise Trail (Nass): Down by the River's Edge (3) and Water Jeopardy (3)
Turquoise Trail (Davis): No responses
Acequia Madre (Falk): Water to Watermelon (8) and Rolling River (3)
Agua Fria (Lucero): Water to Watermelon (7) and Water Jeopardy (4)
Agua Fria (Ross): Water Jeopardy (12) and Water to Watermelon (7)
Agua Fria (Gorman): Water to Watermelon (10)
E.J. Martinez (Palmer): Weather or Not (8) and Stories Need Water Too (7)
E.J. Martinez (Berlin): Stories Need Water Too (5) and None (4)
Piñon (Muñoz): None (7) and Dams, Rivers and Our Watershed (5)
Piñon (Aagaard): No responses

- The most common reasons students gave for all least favorite activities were that the activity was boring, not fun, and I don't like bugs.
  "The other ones tested my mind."
  "There was more talking than story telling."
  "It needed to be more scientific."
  "Somebody was teaching us, and field trips are suppose to be fun! Not boring!"

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

- There were numerous answers from each class that were grouped into themes. By far, the most common answer was specifically about daily water use.
  "Each person uses 119 gallons per day."
- Other somewhat common answers related to otters, fish, insects and water safety.
  "That an adult can be swept off his feet in 6 inches of water."
  "What a water bug looks like."
  "About the state fish."

Why do you think learning about water is important?

- The overriding reason students think learning about water is important is to know how to conserve water:
  "Because we live in a dry place where water is like a treasure."
  "So you don't waste water."
  "I think learning about water is important because it is really valuable to every living thing."
- Another reason was to know about water safety.
  "I think learning about water is important because sometimes in floods people don't know what to do."

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 at least one habit. Of the 231 respondents to this question, only 16 students (6.9%) answered "Nothing." The three changes most often cited were shorter showers (39.8%), saving more water (19.5%), and turning off the water when brushing the teeth (15.6%).

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

- Of the 231 respondents to this question, 71.4% of students said “Yes,” 8.8% said “Not Yet” and 19.9% said “No.”

  “Yes…all the time. My sister says that is so cool and easy.”

  “I did a water survey about how much water we use for a weekend.”

  “Yes, and they agreed to save water and not waste water.”

  “Yes, I told them that if you don’t save water it can be gone because we’re in a drought.”

Teacher Evaluations

Number of Attending Schools: 11 **Schools returning evaluations: 8 (72.7%)**
Number of Attending Teachers: 30 **Teachers returning evaluations: 18 (60.0%)**
Schools returning evaluations: **Kaune (1), Nava (2), Sweeney (3), Turquoise Trail (3), Acequia Madre (1), Agua Fria (3), E.J. Martinez (3), Piñon (2)**

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

- Teachers listed two or three favorites.
  - Water Jeopardy (7)
  - Long Haul (5)
  - Dams, Reservoirs and Watershed (4)
  - Incredible Journey (4)
  - Rolling River. (3)
  - Waterfowl and Shorebirds (3)
  - Meet Water Bugs (3)
  - Swimmin' in the Rio Grande (2)
  - Weather or Not (2)
  - All (2)
  - There Otter be Otters (1)

- Teachers specifically noted that the most effective were hands-on.
  - "Doing was key: touching, interacting…models made the abstract real."
  - "…were very effective because they were "hands-on," engaging and visual."
  - "It was visually exciting and had children moving around in an interactive activity."
  - "All students participated in an active way."

Which were not effective and why?

- Teachers listed one or two least favorites.
  - None (6)
  - Water to Watermelon (4)
  - Stories Need Water, too (3)
  - There Otter be Otters (3)
  - Water Jeopardy (2)
  - Down by the River's Edge (1)
  - Dams, Reservoirs and Watersheds (1)
- Lecture format, passive activities produced most criticisms.
  - "Lecture format did not appear to work with my students."
  - "The game created bad feelings…not fair."
  - "Stories were more appropriate for younger children."
  - "Children did not understand their part."
  - "It was a little dry."

Do you have any suggestions for new activities?

- More hands-on activities (5).
- More water experiments that show water molecule in action.
- Something to do with xeriscape plants, making rain barrels, etc.
- The human body and water.
- If the response to an activity is positive, have it offered at two stations.
- A hands-on activity involving groundwater pollution.
- What the weather service does and how it protects us.
- I liked the puzzle (cards in a line) from a few years ago. Who uses water game.

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

- Of the eleven teachers who attended, eight really liked it and thought it was useful. Two mentioned the workshop length was a bit long, and one that it wasn't really necessary.
  - "Yes, because I received equipment to get the kids thinking and doing beforehand."
  - "Not really. Just sending me the info would have been as useful but then we couldn't get the freebies."
  - "We did water lessons before so kids really felt involved and informed."

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

- Seventeen teachers said "Yes" and one said "Maybe."
  - "Students used materials for instruction about the water cycle."
  - "Yes, I have the kids making water books, and doing water experiments."
  - "Yes, but the game page in the Conserve Water brochure is confusing."

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

- Sixteen teachers said "Yes" and one said "Not sure."
  - "Yes, we will investigate the properties of water, erosion and conservation in future science lessons."
  - "We are trying very hard to express our thoughts and learning. I will use this learning to stimulate written expression."
  - "Human Body" unit and 75% of our body is made up of water. We will also be studying water safety and droughts."
  - "Yes. Guided reading (non-fiction) in literacy, they used it in science, and the water cycle was addressed in the standards based assessment (CRT)."

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

- Fourteen teachers are doing something different, either personally or in the classroom.
  - "We've been doing a fair amount on water already; that said, I learned some great activities."
  - "Measuring water use at home and how to conserve."
  - "I'll probably extend conservation into units about tools and machine, more on ecology, and more on health and nutrition."
  - "Time my showers."
  - "Encouraging my own family's conserving of water."

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

- Five teachers suggested that activities be more hands-on, less lecture. Other individual comments included:
  - "Water Jeopardy – get rid of chairs, have teams sit on floor in two circles."
  - "More activities than five because there was down time with waiting. Maybe standing exhibits or experiments that could fill up time."
  - "Extend the [festival] time so classes could go to one or two more activities."
  - "Re-think Water Jeopardy game." [referring to fairness issue].
  - "Addressing everyone before or after."
  - "All classes should be able to do Water Bugs. Both times this was my group's favorite."
  - "Try and rotate activities for classrooms each year."

Overall rating:

- 8--Wonderful
- 7--Really Good
- 2--Good
- 1--No answer

Additional comments and suggestions:

"Timers and water checkers were awesome…80% of kids said their parents and siblings use it now. They claim that everyone in the family is taking shorter showers and saving lots of water."

"Well organized! Bravo! Kids loved the shower timers. I hope to use them and get serious about conservation of water."

"In Water Jeopardy, if a Spanish and English class are in together, cover the question until after Spanish version is read. The English kids read it ahead and had unfair advantage."

"My students really enjoyed it, so did the adults. Our guide was nice and had a good sense of humor. It was a terrific learning experience for all and a wonderful change of pace for teacher and student."

Presenter Evaluations

Activities Presented: 14 **Evaluations returned: 11 (78.6%)**

0-Incredible Journey
1-Rolling River
0-Down by the River's Edge
1-Swimmin' in the Rio Grande
1-Weather or Not
1-Meet Water Bugs Up Close
1-From Water to Watermelon
1-Stories Need Water, Too!
0-There Otter Be Otters
1-Dams, Reservoirs and Our Watershed
1-Waterfowl and Shorebirds of NM Waterways
1-Water Jeopardy
1-The Long Haul
1-Water Wizard

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

- In all cases, activities were considered appropriate for the age group and the presenters felt that the students were engaged in the activities. The time frame was too short for one, too long for another, and just right for most presenters.

  "More time would be useful. Activity was age appropriate and involved students constantly."

  "Definitely age appropriate. The time frame was just a couple minutes too long; I'll have to come up with ways to make it about 3-4 minutes longer next year."

  "For a rather static, hands-off presentation, we seem to get a fair amount of interaction and good to great levels of interest. The variance from class to class is high."

What could you do to improve activity for next year?

- Almost all presenters had one idea that could improve their activities.

  "…We made the slides bilingual this year. Any new material or activity would also be bilingual."

  "Bring actual pictures rather than rely on artistic ability."

  "Include rivers along flyways for migration."

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

- Presenters noted that everything was well organized. A few suggestions were made.

  "…not pairing up classes."

  "…room was noisy by its nature."

  "…it was a little loud in that main room and the kids spoke softly."

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

- Comments about the Festival from teachers, students and parents to the presenters were extremely positive. There were no negative comments.

  "I didn't hear any comments, but I asked each class about things they had learned in other presentations, and it was clear that they had learned things that were interesting. Everybody remembered and was amazed by the idea that people use 119 gallons water/day."

  "One teacher said it [the Water Festival] improves every year. She is concerned that it is becoming well known and popular, and her class may not always be able to attend."

What did you enjoy most about the CWF?

- Presenters most often cited that they enjoyed the direct involvement with the kids and adults, but there were a few other comments.

  "It's a chance to contact students in a positive and energetic setting."

  "Hands-on activity."

  "Opportunity for my students to work as a team; use leadership skills; see other students; student getting to attend some of festival."

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

- There were four suggestions.

  "Parking permits for presenters." (mentioned twice)

  "When my students [Water Jeopardy] attended the festival, they said you need more hands-on activities."

  "Could the activities in the main area be moved out to the front or back hallways?"

  "Maybe having all the presenters submit a copy of their activity, and then compiling all of the activities to offer to teachers for free and to presenters at cost of production."

Do you have any ideas for new activities?

- There were three ideas.

  "Yes, we are looking at a game called the Great Water Grab."

  "I could give you the Watershed on a Wall game."

  "I never got a chance to walk around and see what everyone else was doing."

Would you be interested in presenting at the 2005 MRG or 2006 Santa Fe Children's Water Festivals?

- All but two presenters are interested in returning.

  "I doubt I will have older students next year." [Water Jeopardy]

  "I probably can't, but would you contact me just in case?" [Stories Need Water, Too]

Overall rating:

- 7-Wonderful
- 3-Really good
- 1-No answer

Additional Comments and suggestions:

- In addition to "Great!" and "Thank you!" there were two comments/suggestions.

  "Next year I would do all we can to get the bags to the workshop ahead of time."

  "When I asked questions after several activities, the kids were using water vocabulary (aquifer, arid, watershed) which they had not used at the beginning)."

Volunteer Evaluations

Number of Volunteers: 27 (16 each day)
Number returning evaluations: 19 (70.4%)
Organizations represented: PNM, City of Santa Fe, City of Gallup, Office of State Engineer, McKinley SWCD Gallup, NM Environmental Dept., State Land Office, Earth Care

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

- In all cases the volunteers served as general guides. When needed, some helped with the activity.
  - "I helped keep the children on time and in an orderly fashion."
  - "Quickly access rooms and help with wiggle control."
  - "I was able to help the children better understand the activity."

How were you affected by the experience?

- Volunteers were extremely positive in their responses. Being with kids and learning something new were the two themes.
  - "I learned a great deal from the presenters and the kids. I know that I will apply what I learned at home."
  - "I learned about the importance of vegetation in rivers."
  - "Enjoyed the interaction with kids and the different presentations."

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

- Volunteers overwhelmingly thought that the event was well organized; however, there were several suggestions.
  - "I didn't receive any info prior to event, i.e., directions."
  - "Set the time schedule on the hour and half hour to make the time change easier."
  - "Remind me to bring a watch and give us a copy of the schedule."
  - "Give guides individual time schedule copies."

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.
  - "Yes, presenters [should] allow for questions and open interaction."
  - "Yes, I think the interactive sessions had a better reaction than the lectures."
  - "Yes, they enjoyed the hands-on activities the most but participated a lot in all activities."

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

- All volunteers said "yes."

Would you like to volunteer again for the 2005 Children's Water Festival?

- All volunteers said "yes."

Overall rating:

- 15-Wonderful
- 4-Really Good

Additional comments and suggestions:

- There were eight additional comments and suggestions. Five were comments about the great experience the volunteer had.
  - "Thank you, and especially the presenters who were patient, kind and glad to be doing what they were doing."
- There were two other suggestions.; "Longer lunch." "Put time schedule on classes."

Activity Evaluations

There were 13 unique activities presented. These activities were presented five times on both festival days. Twelve activities were observed at least once per day by an Activity Evaluator, but most activities were observed more than once on a single day. In summary, 20 evaluations were performed on 2/9, and 19 were performed on 2/10 for a total of 39 evaluations. The Rolling River was not formally evaluated because it has been evaluated many times over the years and always received excellent feedback. Activity Evaluators were from the Santa Fe Steering Committee and PioneerWest Staff. Key points of the Activity Evaluations include:

- Nine activities were hands-on or a combination of lecture and hands-on. Three activities were lecture style.
- Hands-on or combination activities were more effective than lecture style in helping children understand the concepts and stay interested, involved and attentive.
- In 34 out of 39 observations, presenters spoke to children on their level.
- The quality of the activities was high, with most activities receiving ratings of "high" (5) or "extremely high" (6) on how relevant the presentation was to the topic of water. Evaluators rated three activities lower than five because the activities did not make a direct connection to the topic of water.
- Ratings were slightly lower for how well the children seemed to understand the concepts offered. The reasons were varied (see comments in table below).
- Most activities had visuals, with hands-on and larger visuals being the most effective. In some activities it was difficult for all children to see what was going on.
- Evaluators noted the need for presenters to create a role for adults/chaperones.

Activity	# of Evaluators	Relevance	Comprehension	Comments
Incredible Journey	4	6	6	Good command of group and excellent presentation skills; effective intro about what to do and not to do.
The Rolling River	0	--	--	--
Down by the River's Edge	3	6	5.33	Use more pictures, define terms, more explanation; good enthusiasm, voice projection and rapport with kids; snowball example was confusing.
Swimmin' in the Rio Grande	3	6	5	Use one adult to work with each table to make sure kids read information; when kids are restless, move to board game more quickly.
Weather or Not	3	4.67	4.33	Great job of using comparisons students can understand; nice Spanish translations; consider using pictures of SF River and effect of things like pavement on flooding; use of military time was confusing; too much text on slides; in at least one presentation, kids did not grasp central messages of water quality or conservation.
Meet Water Bugs Up Close	3	6	5	Stuffed fish, bugs and microscopes great; shorten talk at beginning or enliven it with movement or more visuals; kids not making connections to insects and water quality or habitat; great tape recorded sounds; kids needed more

				help identifying the bugs.
From Water to Watermelon	4	6	3.5	Kids were very restless; add hands-on element for majority of activity; too much material to cover; flip chart sketches sometimes difficult to understand.
Stories Need Water, Too!	2	2	4.5	Add visuals; story should be much more water-related.
There Otter be Otters	3	5	5.67	Add photos of habitat in NM and/or Colorado; maybe not good idea to encourage otters as pets; mention difference between river otters and beavers; good interaction with kids; slides would be better if taken closer.
Dams, Reservoirs and Our Watershed	4	6	5.5	Fun, active, interesting; might want to produce a more durable map; hard concepts were put in an easy, hands-on presentation; good to use kids often so they stay engaged.
Waterfowl and Shorebirds of NM Waterways	4	4.25	5.5	Need to speak louder; very good visuals; great idea at end where kids write on lists what they can do to help birds or why birds are important; shorten the reading if possible; need to make point of mentioning or demonstrating water/river importance to flyway; assistant needed during migration exercise; add more focus on water resources.
Water Jeopardy	3	6	4.33	Print too small for children to read; difficult for all to hear questions; may help to ask questions in simpler way; use examples of solid, liquid and gas (ice cube, etc.).
The Long Haul	3	6	6	Pie chart would be helpful showing household water usage; hard to hear presenter and kids reading; question and answer period was effective; consider splitting group in half with one presenter each.

Report on Classroom Visits

Classroom Visits
Total Number of Classrooms: 7
Elementary Schools Visited: Turquoise Trail, Kearny

Each classroom was visited by two evaluators about two weeks after the Children's Water Festival. One evaluator took notes and one asked the questions below. During the discussions, the presenter reinforced the lessons taught at the water festival and touched on the major ideas of conservation and water quality. The visits lasted between 30 and 45 minutes. If there was time at the end, the Enviroscape watershed model was presented, and the students helped place homes, cars, animals and other small items and discussed the impacts of those environmental factors on the community.

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.
The students all reported that they had a great time and they were able to provide plenty of information about what they learned, often revealing which activities they attended.

- I'd never seen those bugs before
- The Santa Fe River is important
- We shouldn't waste water
- Plants help keep water in the river
- Some bugs only like clean water
- How the river flows with and without plants
- In Water Jeopardy - we won!
- Rivers meander
- Water can travel to the soil and the clouds
- Water goes up into clouds and comes back down
- How to conserve water when I brush my teeth
- If you put trees along the river and make curves in the river it's good
- Otters are extinct in New Mexico
- Plants bend down when it floods
- Water Bugs are larva
- The last otter was killed in 1950
- We use 119 gallons per person per day
- The watershed goes from Colorado to Texas
- Dragonfly's larva is in water

Why is water so important to life?
Life's dependence on water was nearly universally understood by the children in all the classes.

- We need it to drink, for showers, to cook and wash the dog
- We would get dehydrated and die
- We couldn't last 3 days without water
- All living things need water
- Plants can grow and give us oxygen
- Plants need water - without water no salad
- Animals need water, too
- My dad traveled 7 days without water and didn't die
- Fish can't live without it

What is the water cycle and why is it so important?
Most students understood the evaporation, condensation, and precipitation components of the water cycle. Some understood runoff and one or two told us about transpiration. Infiltration to the aquifer was never mentioned without prompting.

- Water evaporates
- The sun heats up water and makes steam and forms clouds
- Precipitation is rain and sleet
- Transpiration is when water comes out of trees
- Runoff is when water runs downhill
- Runoff is when rain goes to the river
- Water we drink today - dinosaurs drank it!
- Evaporation is water going to clouds
- Leaves spray out mist
- Moisture goes to clouds and makes a rainbow

What is a watershed and how does it function?
Only one or two students had an understanding of the term "watershed." The term evokes an image of a little shed where water is stored. We followed up with questions about the Rio Grande - where it starts and ends. Finally we asked , "Do you live in a watershed?" Most students said "No."

- When water spreads around from the highest point to the lowest point
- It is kind of like a reservoir
- Where they keep water for the town
- The Rio Grande starts in Colorado and ends in the Gulf of Mexico
- A watershed cleans the water so it is safe to drink
- The Santa Fe River goes to the Rio Grande

How do plants, animals, people, soil, and water depend on each other?
Students could describe relationships if we asked questions like "How do plants and animals depend on each other?".

- Trees and plants give oxygen
- People give CO_2 for plants and trees
- Plants get food from soil
- People eat animals and vegetables
- Animals eat plants
- Nutrients from soil dissolve in water so plants can take it up
- Trees are places for animals to live
- Animals become part of the soil when they die
- Plants need people to water them
- Some animals live in soil
- Everything depends on water
- Trees need soil to grow
- Plants need soil and water to survive
- People use sheep's wool
- Some plants need the shade of trees
- Squirrels live in trees and eat acorns
- Birds live in trees, too
- Fish live in water and eat bugs

How do our actions affect water quality? What makes water dirty or polluted?
Students mentioned throwing trash in the water most often. We discussed other actions like using pesticide to kill bugs in the yard before a rain, 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. Most classes played with the interactive Enviroscape model, which allowed the students to demonstrate these concepts.

- Dirt and mud, soda, beer, cans, garbage, oil, gas, trash, chemicals, bleach
- Trash in the ocean kills fish
- Hobos in the water
- Factories

What can we do to keep water clean?
Students offered plenty of suggestions

- Don't thrown trash or garbage in the water
- Don't dump things in water
- Don't smoke
- Make an invention to suck up water and clean it
- Recycle
- Make sure the car is not leaking
- Pick up pet poop
- Plant trees
- Clean up trash
- Put up signs
- Use pesticides carefully

How much water does my family use? Name some ways to use less water.
Most students guessed from 5 to 100 gallons. Students in one class who had attended The Long Haul knew that the average use in Santa Fe is 119 gallons per person per day. They did know the main ways we use water at home and how to conserve.

- Use plastic plates
- Take shorter showers
- Turn of the water when you brush your teeth
- Finish all the water you put in a cup
- Flush less often
- Wash dishes in a pan of water
- Girls get 5 minutes, boys get 2 minutes (showers)
- Turn off the water when sudsing up

What are you doing differently, concerning water, that you did not do before the Children's Water Festival?
Many students reported taking shorter showers. The shower timers made everyone aware or the time a shower takes. One student said, "I used to not care about trash - now I pick it up."

Have you talked to your family about conserving water and protecting water quality?
In each class, several students said they had.

Summary of student participation

Approximately 60% of the students participated in the discussion and responded to the questions.

School	Number of Students	Frequent Participation	Occasional Participation	No Participation
Turquoise Trail	23	3	8	12
Turquoise Trail	15	3	4	8
Turquoise Trail	20	7	6	7
Turquoise Trail	22	5	8	9
Kearny	20	2	5	13
Kearny	18	10	5	3
Kearny	22	12	6	4

Total = 140
Frequent = 42
Occasional = 42
None = 56