

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com

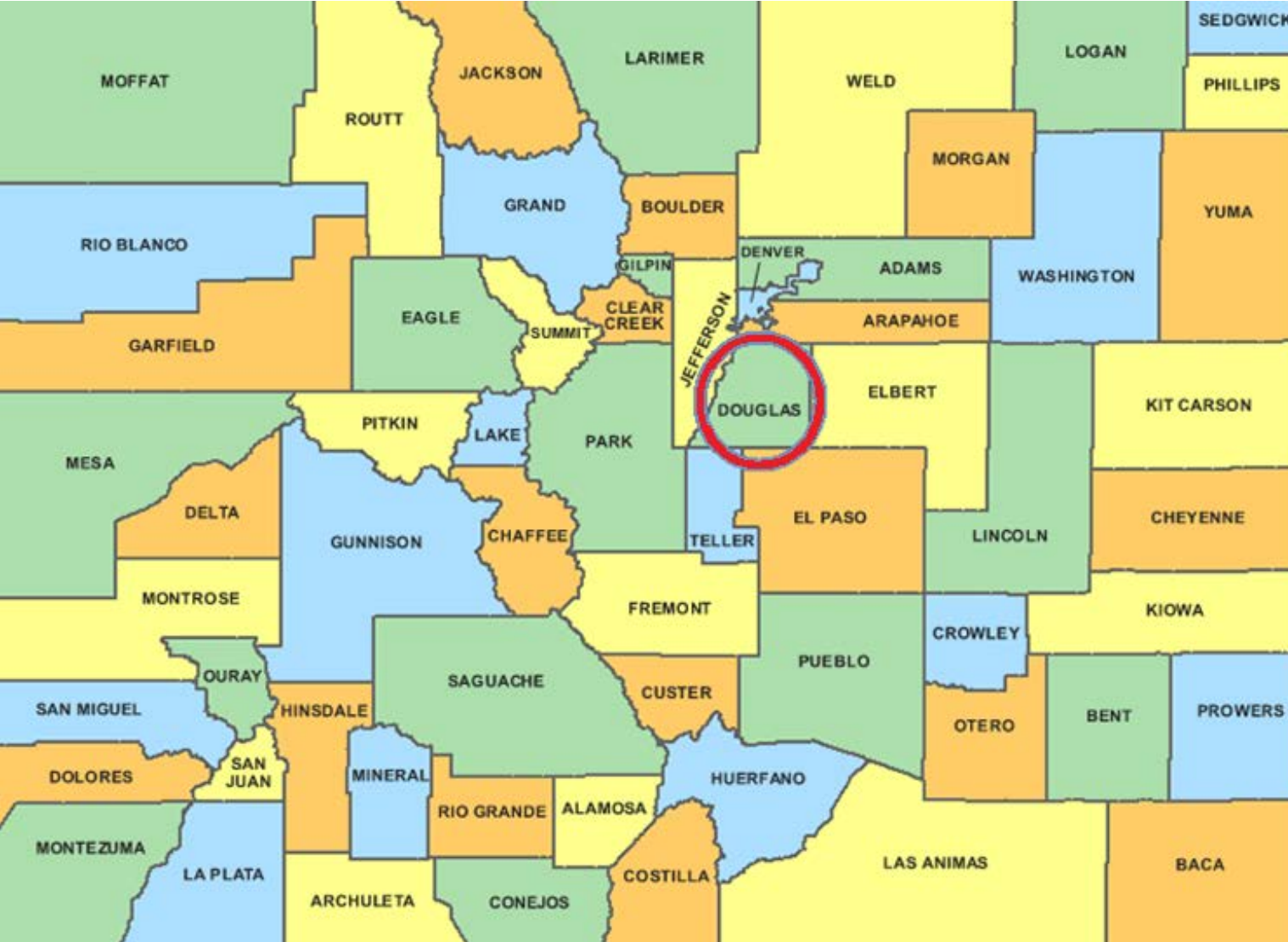




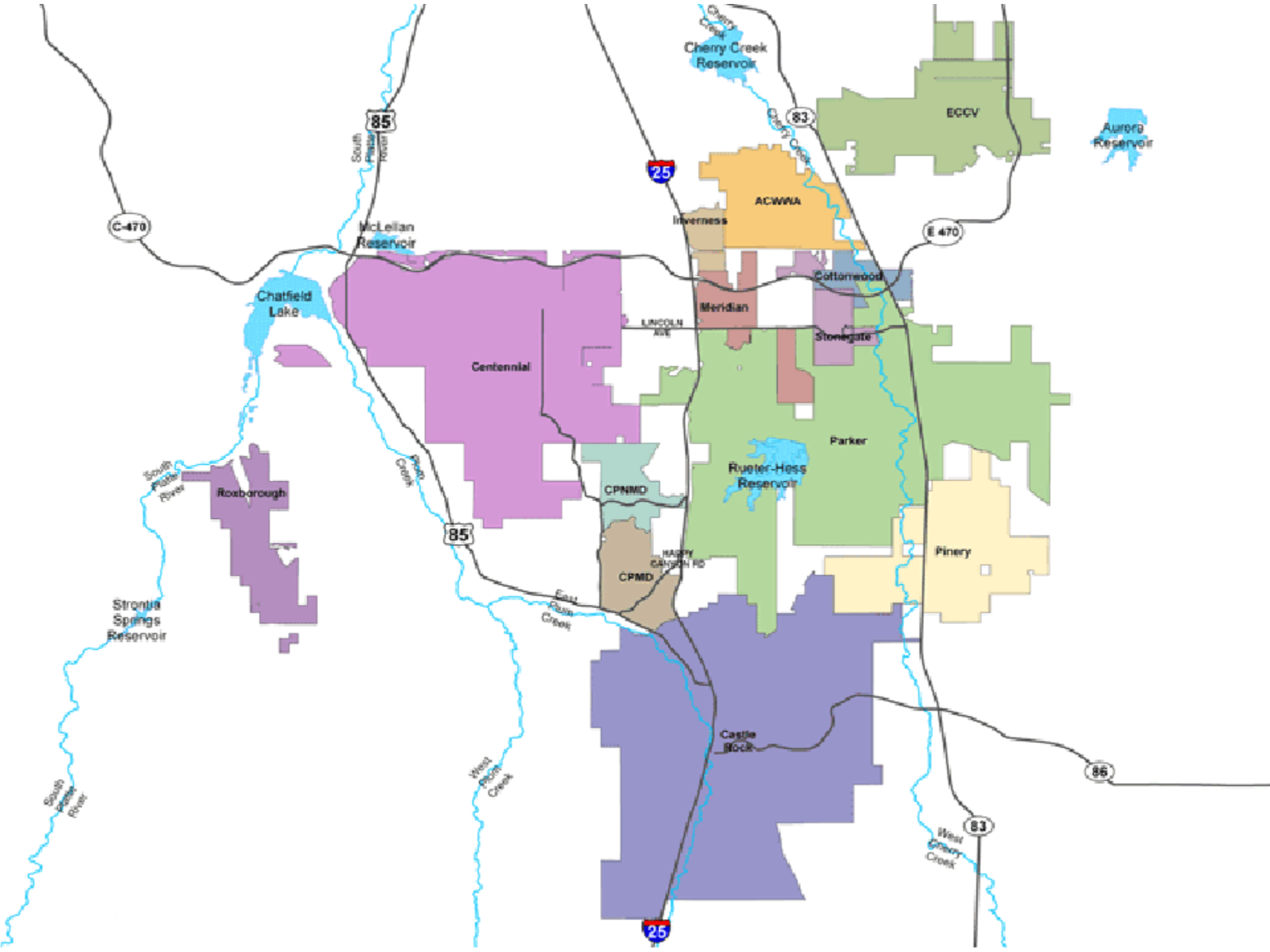
Engaging Communities with Water Education



Douglas County
Water Resource Authority
Water Resource Conservation, Education and Public Policy



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Water Resource Authority
Water Resource Conservation, Education and Public Policy





60% growth since 2000

280,000 people in 2010

3rd largest school
district in Colorado

7th wealthiest county in
the US in 2010

In a 2008 survey, over 80% of Douglas County citizens indicated that an adequate water supply that meets the long-term needs of the county is of the highest priority



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Nonrenewable groundwater



Aquifers sustaining Denver's South Metro region are dwindling at rates of up to 40 feet per year

Action needs to be taken now to diversify the region's water supply assets

To engage the community in water conservation through K-12 education



"We need a body of evidence to work from for water education. We usually work from national textbooks, but water sustainability is a local issue and this program provides the perfect solution to educate our youth about how Douglas County water affects their lives and the world around them."

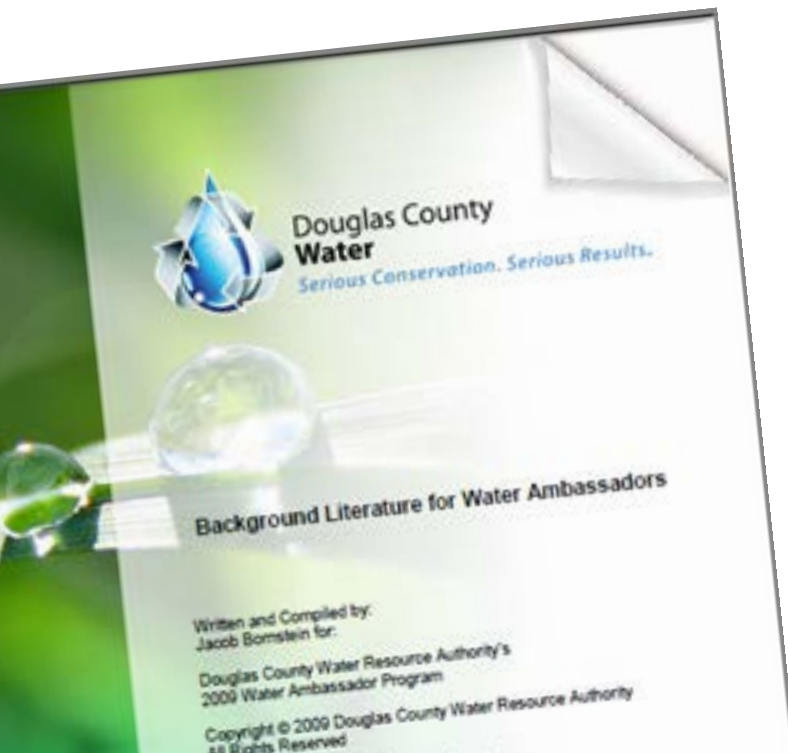
– Jim Christensen, Former DCSD Superintendent

The program teaches a generation of students that:

Water is precious

We must each do
our part to use it
wisely

We should
support solutions
for the future



80% of the material could apply to
all of Colorado
20% is unique to our region



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How do you get high school students excited about water conservation?



Community



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Training Water Ambassadors



- Why is Water Important
- Water Cycle
- Weather Patterns
- History
- Politics
- Water Rights
- Water Projects
- Population
- Water Use
- Conservation
- Groundwater Use

High School Field Trips



How do you get elementary students excited about water conservation?



How do you get elementary students excited about water conservation?



Or use high school students!



Visit #1: A Pep Assembly for Water



Visit #2: Hands on with water in the classroom





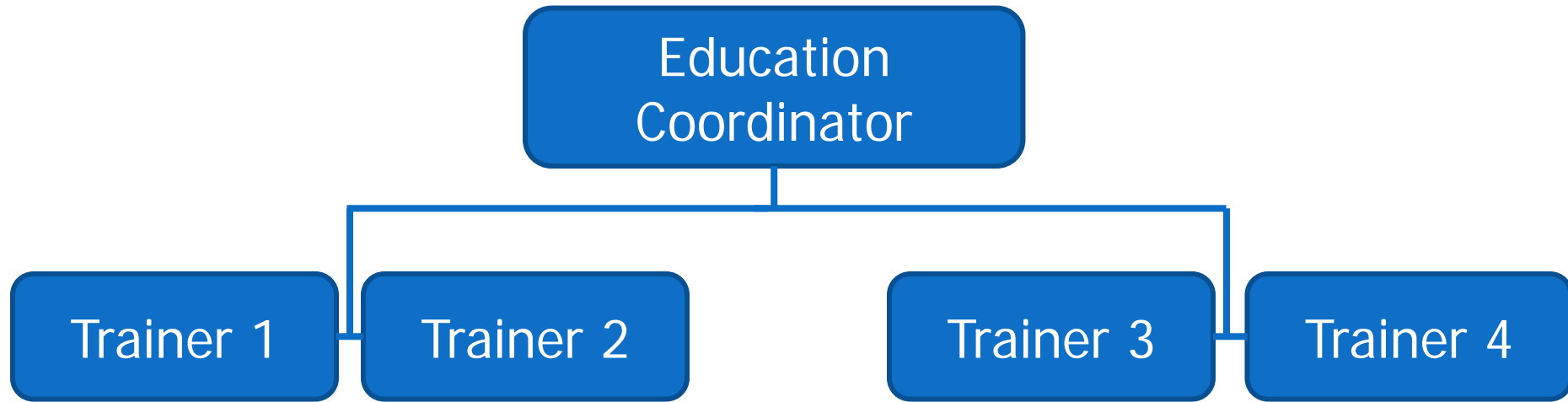
In 2008, program was started at 1 high school and 2 elementary schools

In 2009, program expanded to 5 high schools

In 2010, program was further scaled to 11 high schools with significant cost savings

In 2011, the program achieved additional efficiencies

Program implementation



Education Coordinator is responsible for program administration (e.g., scheduling all school visits, promotion of program, updating materials)

Trainers conduct all high school training sessions and supervise elementary school visits

Program costs



Over \$26,000 in savings realized since 2009, a 30% decrease

Cost per student decreased from over \$41 to \$12 in 2011, a 70% decrease

The program teaches a generation of students that:

Water is precious

We must each do
our part to use it
wisely

We should
support solutions
for the future

High school students also learn and develop leadership and public speaking skills

Students are asked to engage their families and neighbors with what they learned

The 4th graders we taught in 2009 are now 7th graders and will hear the message again from their middle school teachers. In three more years they will be our new Water Ambassadors



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Students learn there are two sides to every water story



What are the effects on the basin of origin?

- Stream flows
- Agricultural production
- Economic development
- Recreation
Environmental

What are the effects on the other side?

- Water for communities
- Economic development
- Recreation
- Public health
Environmental

2009

2,160 students
taught

5 high schools, 19
elementary schools

407 leaks identified
(no repairs
reported)

2010

6,500 students
taught

11 high schools, 44
elementary schools

1,750 toilets
tested, 153 leaks
repaired

2011

5,300 students
taught

11 high schools, 49
elementary schools

2,029 toilets
tested, 240 leaks
repaired

*Over 14,000 students taught
Millions of gallons of water saved*

Quiz Results

Circle the correct answer

1. How much of the water on Earth is freshwater?
a. 97% b. 70% c. 55% d. 10% e. 3%
2. What percentage of water consumed in Colorado is consumed by agriculture?
a. 28% b. 40% c. 66% d. 86% e. 5%
3. How many years does it take to plan and develop a major water project?
a. 1-2 years b. 3-5 years c. 6-10 years d. 25-30 years
4. When was the first water right claimed in Colorado?
a. 1720's b. 1820's c. 1850's d. 1900's e. 1950's
5. How many gallons of water does the average household use each year?
a. 80k b. 135k c. 500k d. 325k e. 800k
6. What is the annual precipitation on the Front Range?
a. 2-4 inches b. 50-60 inches c. 25 inches d. 12-15 inches
7. What percentage of the water in the state of Colorado is on the Western Slope?
a. 5% b. 15% c. 29% d. 64% e. 87%
8. What percentage of Colorado's population lives on the Front Range?
a. 99% b. 81% c. 50% d. 43% e. 18%
9. How is the majority of water used by the average household?
a. Showers b. Landscaping c. Toilets d. Laundry e. Leaks
10. What is being done in the South-Metro area to address water supply challenges?
a. Conservation b. Reuse c. Securing additional supplies d. All of the above

2010

High School Results:

33% correct on pre-test 71% correct on post-test

Elementary School Results:

77% correct

2011

High School Results:

45% correct on pre-test 73% correct on post-test

Elementary School Results:

85% correct





Family Water Commitment

Out of this World Water Conservation Program

In space, conservation and recycling of water are a must! Only the bare minimum can be taken to the space station, the Moon, Mars and beyond! But saving water is also important here on Earth! Thousands, even MILLIONS, of gallons of water can be saved by you! **Start today!**

What will YOU and YOUR FAMILY commit to do at home?

We commit to:

- | | |
|--|---|
| <input type="checkbox"/> Replace sprinkler heads with rotary sprinkler nozzles | <input type="checkbox"/> Turn off the water while you brush your teeth |
| <input type="checkbox"/> Make sure sprinklers are properly set | <input type="checkbox"/> Replace areas of lawn with drought tolerant plants |
| <input type="checkbox"/> Test & fix leaky toilets | <input type="checkbox"/> Replace existing toilets with low flow toilets |
| <input type="checkbox"/> Only run the dishwasher when it's full | <input type="checkbox"/> Only wash full loads of clothes |
| <input type="checkbox"/> Use a broom to clean the driveway – not the hose! | <input type="checkbox"/> Take shorter showers – 5 minutes or less! |

Name: _____ Email: _____

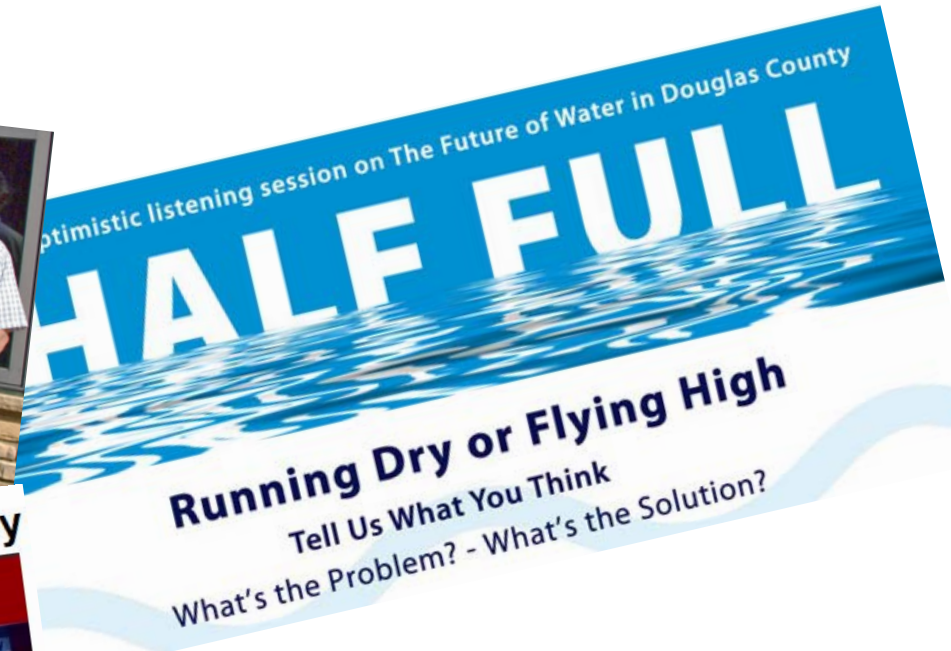
Address: _____ City: _____

- ☐ Yes, you may send us coupons and information on water saving products.

Signatures:

_____	_____	_____
_____	_____	_____

From education to community engagement



Conserving water helps students make money





- Girl Scout Troops, including large event at DC Events Center – over 150 students
- Family Science Night in Castle Rock – over 100 families
- Fourth graders at Flagstone Elementary shared information with the entire school – 750 students
- Charity Water Festival at ThunderRidge High School – over 100 families



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Car Washes





107,000 Xeriscape DVDs
mailed to citizens



Retrofit of 1,000 yards
with Rotary Sprinkler
Nozzles



Appraisal Study approved
by Bureau of
Reclamation
under Rural Water



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Rotary sprinkler nozzles



- Preliminary results show 93% of respondents were satisfied with the installation*
- Final results to be reported in Q4 2012

"I am happy with the water conservation and the reduction in water cost"

"We were using too much water before the retrofit."

"I learned that more water does not necessarily help grass/plants and can actually be detrimental."

"Having the nozzles installed for free was a great benefit and saved me money."

"Very good! Helps save water and money."

"We appreciate the education, advice and opportunities DCWater provides."



**19% response rate*



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Middle School Teacher Training



8 hour training targeted to Middle School teachers

Focus on how to teach water from a local perspective

CE credit through Colorado School of Mines

"This made a huge impact on my thinking and I would like to change the behavior of my students and their families."

Awards & Recognition



Douglas
County
Community
Foundation

\$5,000 Philip S. Miller grant
to expand program to at-
risk students



RESPONSIBLE BY NATURE®

\$7,500 Xcel Energy
Foundation grant

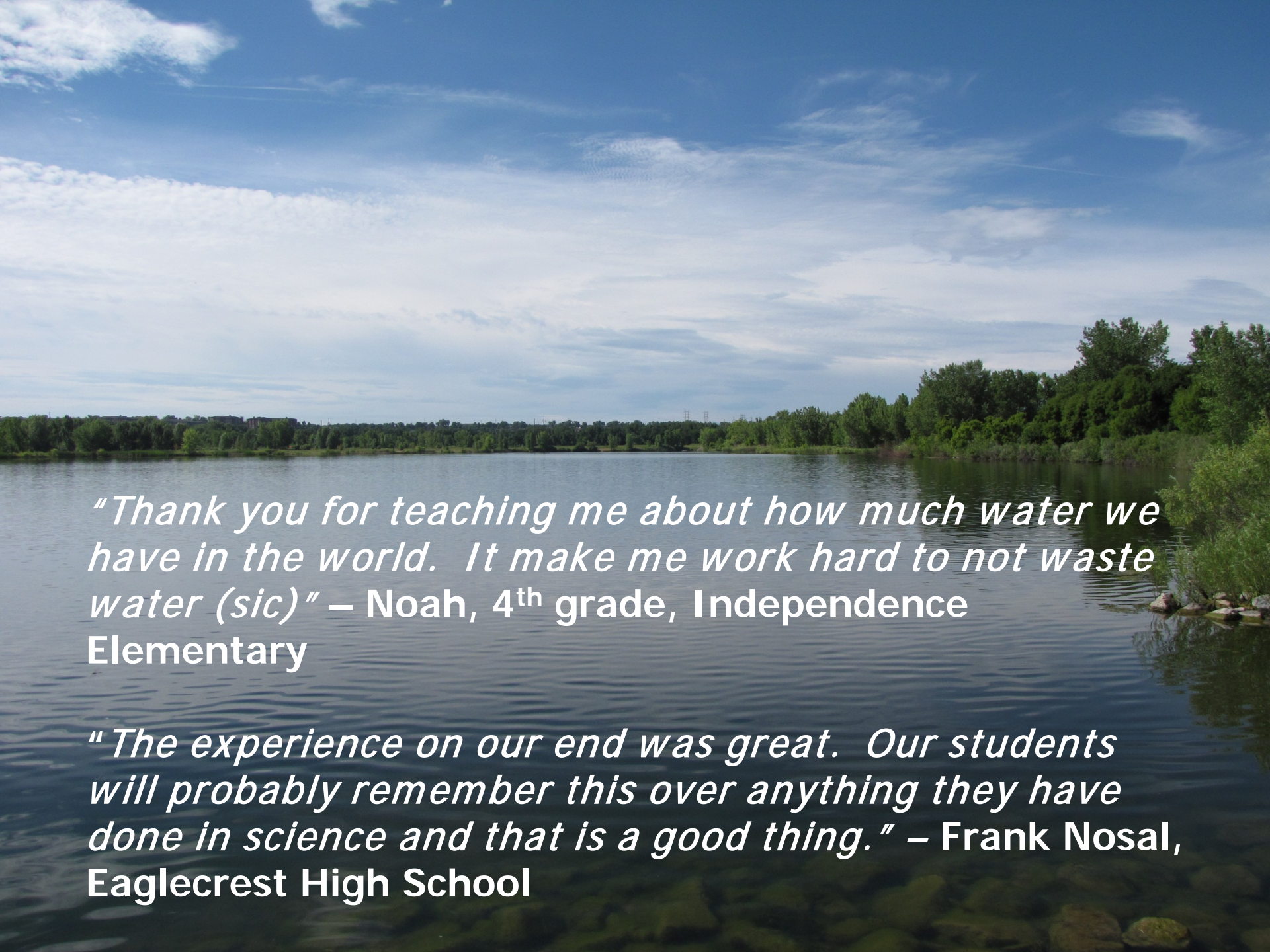


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Universities Council
on Water Resources



2012 Education &
Public Service Award



"Thank you for teaching me about how much water we have in the world. It make me work hard to not waste water (sic)" – Noah, 4th grade, Independence Elementary

"The experience on our end was great. Our students will probably remember this over anything they have done in science and that is a good thing." – Frank Nosal, Eaglecrest High School