

Title: Oklahoma 4-H2O: Youth Water Education

Authors' Names:

Cheryl Newberry
District Program Specialist—4-H Youth Development
Oklahoma Cooperative Extension

Start Date: July 1, 2015

End Date: June 30, 2017

Descriptors: water, 4-H, youth development, environmental education, conservation of water

Students:

Student's Current Status	#	Department	Was the student working for experience or towards a degree?
Undergraduate			
M.S.			
Ph.D.			
Total			

My grant did not involve college students. I do not work on campus but I work for Oklahoma Cooperative Extension Service with county Extension educators who were trained to deliver the program.

Problem and Research Objectives:

Water has and will continue to be a major issue for all Oklahomans. With the 4-H program, we have the foundation of our history of teaching youth new skills and technologies to become better stewards of their environment as we did with corn production when 4-H began over 100 years ago. With the issue of water, it is important to provide education and opportunities for youth to learn about how to protect and conserve water in a variety of ways so that the water source will continue to be safe and plentiful for years to come.

The program developed was adapted from a water fair model developed in Texas by county Extension agents.

Oklahoma 4H2O is designed in the format of a Water Fair. The Water fair is a 2-3 hour educational program, usually delivered at a school. Classrooms rotate through 6-8 learning centers to experience activities related to various aspects of water conservation. Topics may include but are not limited to: aquifers, indoor water conservation, outdoor water conservation, rainfall simulation, the water cycle, bodies of water, xeriscape, water in the body, the stream trailer, ground water model, and nonpoint source pollution. This program can also be used for day camps, overnight camps, 4-H project groups, and more. County Extension Educators are encouraged to involve other volunteers to help teach the sessions. Master Gardeners, 4-H teen leaders, 4-H volunteers, or other community leaders can be trained to teach these 20 minute lessons.

The objectives of the program include:

- Develop the curriculum and resources for the Oklahoma 4H2O program.
- Provide training in all four Extension Districts to empower educators to deliver the program through School Enrichment, day camps, overnight camps or club meetings.
- Develop a website to house lessons and resources.
- Utilize funding to purchase resource kits for each District to use in programming.
- Gather evaluation data through a pre- and post-test to determine if youth who participate in the program are improving their knowledge of water conservation.

Importance of Project and Findings:

Growth of the program has been slow but counties continue to join in and are looking to offer the program locally. Accomplishments and successes of the program are provided in the attached highlight report. Also attached is an evaluation summary for data submitted so far.

Changes to the Project since Implementation:

There haven't been any changes to the project since implementation.

Methodology: The methodology used for implementing this program is a "train the trainer" format where educators were trained on the curriculum, experienced many of the activities in the curriculum, and were provided the resources in their district to be able to replicate the program.

Principal Findings and Significance:

My goal and expectation was that we would have evaluation data from at least 1000 youth in the two year period. I have tried to make it as simple as I can with two options – paper evaluations that can be sent in to have data entered, or Qualtrics evaluation website links where youth can complete evaluations online. There were challenges with both. To date, there are 920 pre-tests and 727 post-tests completed. The difference in numbers is attributed to some sites only doing the pre-test and not the post-test and/or

not all youth who completed the pre-test completed the post-test. However, the results do show evidence that on some topics, youth are increasing their knowledge. Areas of greatest increase in knowledge were:

- How much water is in the body – increase of 44%
- Identifying and understanding what an aquifer is – increase of 41%
- How much water should you drink each day – increase of 34%
- What are things that pollute water through runoff – increase of 15%
- What is xeriscaping – increase of 12%
- Washing clothes use the most water in the home – increase of 10%

Next Steps (if applicable):

Oklahoma 4-H will continue to promote and support educators in implementing Oklahoma 4H2O in their county programming. I will continue to provide support to counties with answering questions, maintaining website, and adding new lessons and resources when they become available.

Attachments:

- Oklahoma 4H2O Highlight Report (3 pages)
- Carter County Highlight Report for Plainview Middle School – developed this infographic for the educator to use to share program successes with school administrators and stakeholders



Oklahoma 4H₂O

Youth Water Education Program



ACCOMPLISHMENTS

July 2015-June 2017

- In-services conducted in all four OCES Districts reaching 100 educators
- Presented a workshop at the National Association of Extension 4-H Agents Annual Conference on the program in October 2016 reaching 50 educators across the nation
- Each District has been provided the following supplies to use in conducting youth water education programming:
 - Three resource tubs with supplies for most lessons
 - Three sets of two retractable exhibits (see photo top right)
 - An Enviroscape Model
- A website was created to house all resource materials including marketing materials, lessons, evaluations, teacher resources, and links to many other educational resources available from other states. (link provided on back)
- Partnered with SunUp to film and photograph the water fair at Sangre Ridge Elementary in Stillwater. Segment aired in January 2016 on SunUp and is posted on the website.
- During the course of this grant, 920 pre-tests and 727 post-tests have been entered into Qualtrics. Evaluation data is sorted shared back with counties.





- Evaluation results reveal that youth are increasing their knowledge on water conservation skills they can practice in and around their home. Examples include: turning off the faucet when brushing teeth, filling sinks to wash and rinse dishes, wash only full loads of clothes, taking short showers instead of baths, refilling a bottle or glass to drink water instead of drinking bottled water, avoid pouring chemicals on sidewalks and streets to reduce runoff into water sources and the best time of day to water plants and lawns.
- Website Link: <http://oces.okstate.edu/sedistrict/youth-water-education/oklahoma-4h20-youth-water-education-resources>
- Check out the SunUp Segment here: https://www.youtube.com/watch?v=3jO_dwIOOGc



Thank You

To Mr. and Mrs. Fischer for supporting the Thomas E. Berry Fellows Program! I am grateful for the opportunity to bring youth water education to the youth of Oklahoma.

Cheryl A. Newberry

**District Program Specialist—4-H Youth Development
Oklahoma Cooperative Extension Service
cheryl.newberry@okstate.edu**



The Oklahoma State University Cooperative Extension Service offers its programs to all eligible persons regardless of age, race, color, religion, sex, sexual orientation, genetic information, gender identity, national origin, disability, marital or veteran status, or any other legally protected status. OCES provides equal opportunities in programs and employment.





Oklahoma 4H₂O

Youth Water Education Program



Below is an evaluation summary of the knowledge change in youth who participated in the Oklahoma 4H₂O program. A total of 14 counties submitted evaluations in Qualtrics which provides a good sampling of participants. There were other counties who completed the program but have not submitted evaluation data yet. The exact number of counties who participated is unknown.

As the chart below shows, youth are increasing knowledge in many ways. There are areas which need more education, but all in all, the results demonstrate that the program can make a difference in teaching youth how to better conserve and protect the water.

This program is appropriate for youth in 3-8th grade. The 4-6th grade was the largest audience participating in the program. Approximately 21% were 4th grade, 23% were 5th grade and 44% were 6th grade. All races participated with the majority being white (60%) and Native American (22%).

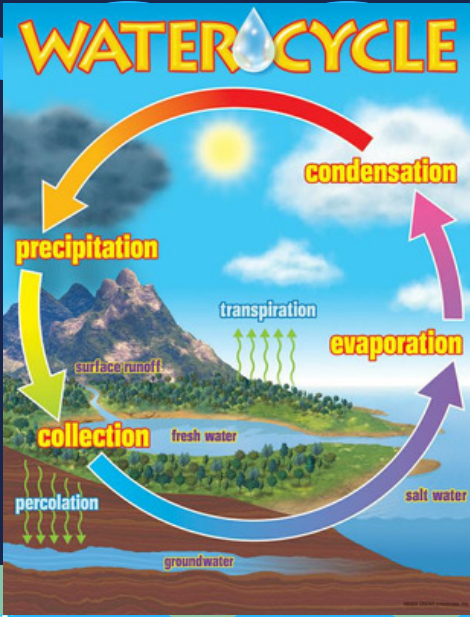
Question	Pre-Test	Post-Test	Change
Conserving water is using as little water as possible (True or False)	88%	92%	+4%
Xeriscaping is using plants in the landscape that require less water to survive. (True or False)	49%	61%	+12%
Removal of soil by water, wind or other factors is called erosion. (True or False)	83%	85%	+3%
Most of the Earth's surface is land. (True or False)	83%	90%	+7%
Water only comes from rain. (True or False)	86%	84%	(-2%)
Water conservation should be practiced by... (Homeowners, Farmers, Companies, Everyone)	80%	85%	+5%
Over 50% of the water used in the home is for... (Drinking & Cooking, Washing Clothes , Brushing Teeth, Watering Plants)	36%	46%	+10%
The worst time of day to water the landscape is... (Lunchtime, Early Morning, Afternoon , Late Evening)	25%	34%	+9%
Water returns to the clouds through... (Rain, Humidity, Evaporation , Flooding)	83%	86%	+4%
Precipitation is... (A Game, Rain , Running Water, A Lake)	75%	79%	+4%
An aquifer is... (A Beach, Water Tower, Underground Lake , River)	46%	87%	+41%
How much of our body is made of water? (60%, 75% , 90%, 100%)	51%	90%	+44%
How much water should you drink each day? (4-5 Cups, 8-12 Cups , 12-15 Cups, 18-20 Cups)	54%	88%	+34%
Pollutants can runoff into the water supply from... (Homes and Cars, Industry, Farms and Ranches, All of the Above)	68%	76%	+8%
Which of these are pollutants when they runoff into water? (Soil, Oil, Chemicals, All of the Above)	47%	62%	+15%



Oklahoma 4H₂O
Youth Water Education
Program



**CARTER COUNTY:
PLAINVIEW MIDDLE
SCHOOL**



TOPICS

Water Cycle
Beverage of Life
Water Wise
Web of Conservation

Awesome Aquifers
Water Tension
Move It!

PARTICIPANTS

- 6th Grade Students
- 92 attended water fair
- 64 completed pre-post test

YOUTH INCREASED KNOWLEDGE IN...

- General facts on water conservation
- Using xeriscaping to conserve water
- Erosion and aquifers
- Ways everyone can practice water conservation
- Ways to conserve water in the home
 - Tips for conserving water in landscaping
- The steps in the water cycle
- The importance of water in the body
- The pollutants that can contaminate the water

For more information, contact:

Gerri Ballard at gerri.a.ballard@okstate.edu



OKLAHOMA COOPERATIVE
EXTENSION SERVICE

4-H Youth
Development