This presentation premiered at WaterSmart Innovations

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Measuring the Immeasurable: Are we Investing in Smarter Future Consumers

Tracking the Impact of Education Programs

4th Grade Series

Water Cycle, Filtering Water and Drought

- 4th Grade has several water related standards
- Kids are old enough to grasp concepts
- Series utilized grade appropriate lessons that had already been developed and popular
- Packaged them together

Incredible Journey

A Trip around the Water Cycle

- Lesson adapted from Project WET
- Using dice, station signs, and beads students become water molecules
- Learn the complexity of the water cycle
- Understand that different things interact with water all of the time
- Understand the role of this natural process in determining the amount of water we have to use.

Filtration Station

Using STEM to Engage Students

- Students learn about water treatment
- The STEM Design Process
- How they get water at home
- Use the STEM process to design and test filters

Georgia Species Adapt

Using Standards to Discuss Drought

- Curriculum standards to discuss Georgia Species
- Curriculum standard cover adaptation
- Utilize these to discuss the effects of drought in Georgia
- Discuss how drought is a change that requires adaptation

What Do We Want Them to Know?

4 Questions

1. From what two sources does Cobb County get their drinking water?
2. What happens to water before it comes to your house?
3. Why is it important for us to make sure we don't waste water?
4. Name some things you can do to make sure you don't waste water

4th Grade Series Process

- Limited to 4 schools the first year, 5 schools last year, and expanded to 6 for 2018/19
- The schools fill out a contract:
  - Agreeing to lesson requirements
  - To administer pre and post-tests
  - To complete the series
- The lessons are scheduled as soon as the schools are confirmed
- Incredible Journey happens early in the school year
- Filtration Station mid-year
- Georgia Species Adapt in the Spring
- Tests are evaluated using a specifically created rubric.

Rubric

Question:	0 point answer	1 point answer	2 point answer	3 point answer
1. Cobb County gets drinking water from two sources. What are they?	• Blank • I don't know/not sure • Incorrect answer	• Some idea • Lake and/or river • water system / water plant • Water tower	• Can name either Chattahoochee or Allatoona	• Can name both Chattahoochee and Allatoona
2. What happens to our water before it comes to our house?	• Blank • I don't know / not sure • Incorrect answer e.g.	• Some idea • It gets cleaned / tested • It goes to the water system • It goes through pipes	• It gets cleaned at the water treatment plant/water system • Goes through several steps to get cleaned	• More detailed description of the steps of the water treatment process (e.g. chlorine is added, filtered with sand, dirt and germs are removed, etc)
3. Why is it important for us to make sure we don't waste water?	• Blank • I don't know / not sure • Incorrect answer	• Can give one reason, e.g.: • We pay for it • So we don't run out • We need it to survive • Animals, plants, other people need water • We need it to be healthy	• Gives more than one or a more in-depth reason, e.g.: • Many people on earth don't have clean water • Sometimes we have droughts • Only a small percentage of Earth's water is fresh	• Gives two or more specific reasons and/or an in-depth explanation
4. Name some things that you can do to make sure you don't waste water	• Blank • I don't know / not sure • Incorrect answer	• Some idea • Try to use less	• Gives a specific action that can save water	• Gives two or more specific actions that can save water

2016/17 vs. 2017/18

Added an additional school, kept geographic and economic diversity

2016/17

- Average improvement of 17 points on the test
- Biggest improvement Questions 1 and 4
- All Schools had improvements
- One low-income and one high income school showed the largest improvement
- The economically disadvantaged schools started with the lowest base score.

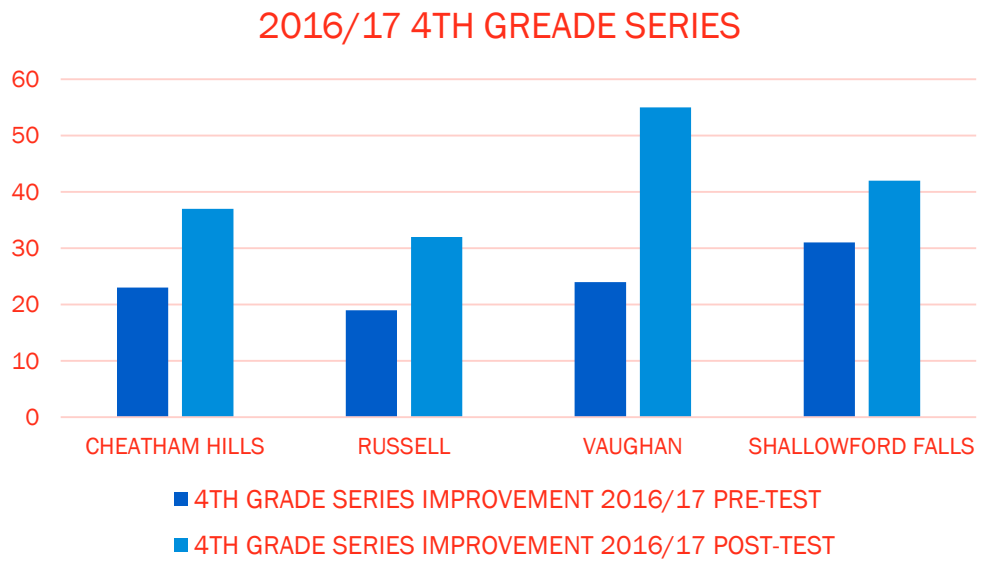
2017/18

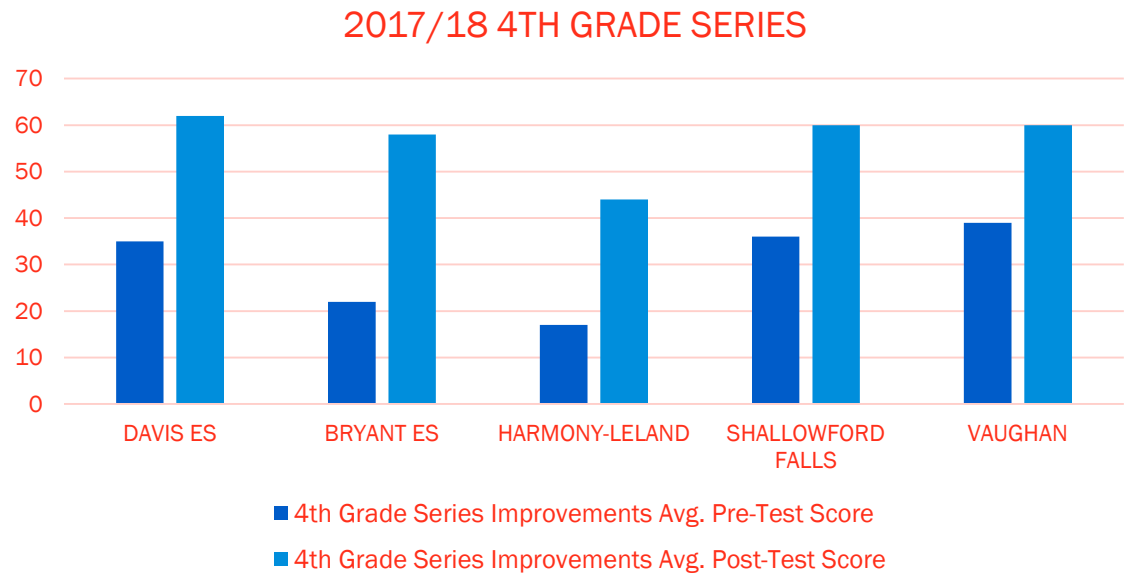
- Average Point improvement of 27 points
- Biggest improvement Questions 1 and 4.
- All Schools improved
- Total scores were higher.
- Lowest income schools had the largest improvement
- Economically disadvantaged schools started with the lowest base score

Getting Better as We Go

Smarter Water Users

Across the Board Statistically Significant Improvements





What Did We Change?

Ongoing Improvements

- Provided the pre-test in advance to teachers
- Administered before we got there instead of before we started
- Left Post-Test with teachers to administer after we left and mail back to us
- Utilize names to more easily correlate pre and post-tests

What Did We Learn?

- The first year we did not set any requirements about the lessons (logistically)
- It was important to start each visit with a recap of previous visits
- That we needed to embed these concepts throughout the lesson in different ways
- The consistent exposure to water concepts resulted in increased retention
- Need to make tracking the tests easier (added names this year to tracking but deleted them after the tests were graded)
- Had to spend time assuring teachers you were not evaluating them or the students but rather your teaching (Important not to assist kids)
- Make it almost effortless for the teachers to complete the necessary steps
- Communicate clearly and often

Thank You!

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