

The Ripple Effect

Grade 8, Trimester 1, 2016



At Exploris, Expeditions are long term, in-depth studies centered around global issues and focused on how they impact our local community. Expeditions integrate ELA, math, science, social studies, technology, and Global Arts.

"Thousands have lived without love, not one without water." - W.H. Auden



Water creates landscapes, transports goods, fosters human connections, builds and changes societies, brings opportunities, power, and ultimately sustains life. In order to understand this unique earthly substance, we will investigate the properties of water, explore global water issues and disparities, take a closer look at the water that comes into and out of our homes, and examine the delicate nature of our local and global water supply.

Driving Question: How can we secure the right to safe, clean, accessible, and affordable water for all humans?

Essential Questions

- What is clean water?
- Do we have a right to clean water?
- Who is responsible for protecting water quality?
- What is the real cost of water usage in the past, present, and future?
- [Students' questions at the launch.](#)



Case Study 1: Water: The Universal Solvent (Aug/Sept)

Through multiple investigations, students will better understand the many properties that are unique to water and the chemistry of water at a molecular level. Students will apply this knowledge to both the human-made and natural water systems of the Neuse River Basin and their communities to form a better understanding of local water issues.

Case Study 2: The Hydrosphere (Aug/Sept)

Students will explore the hydrosphere as a reservoir of minerals, nutrients, and biodiversity. This includes a study of the Water Cycle, the ocean as a natural resource, and all natural water systems (oceans, river basins, water vapor, and aquifers). Students will assess two urban, Neuse River tributaries - Little Rock Creek and Crabtree Creek. Student groups will conduct seven physical, chemical, and biological tests to measure stream water quality; analyze the data; draw conclusions; and provide suggestions for future study.



hydrosphere



Case Study 3: Human-Made Systems (Sept/Oct)

The students will learn about their local water system, wastewater, and water treatment centers, and how these intricate systems work within the natural system. The students will canoe the Neuse River, design and build a water filter, and construct a personal watershed map that incorporates aspects of both of these systems.

Culminating Event: Resolving Water Issues (Oct/Nov) Students will study democracy and current government policies as they investigate the recent deregulation of Falls Lake. Through this case study, students will analyze the monetary, environmental, and societal costs of water.



Students will examine how scarcity and unequal distribution of water impact us locally and globally, and ultimately answer the question, "How can we secure the right to safe, clean, accessible, and affordable water for all humans?" The students use the process created by **Design for Change** to uncover various aspects of an issue including stakeholders, history, uses, policies, and environment. They will imagine possible futures, design a solution, and execute a change of their own design.

Community Connections

- Stacie Hagwood, Walnut Creek Wetland Center
- Lory Willard, City of Raleigh Stormwater Management System
- Carmela Teichman, Stormwater Education Specialist for City of Raleigh
- Adam Loughman, Assistant Utility Manager, Private Water Investment Firm
- Evan Kane, Wake County Hydrogeologist
- NC Museum of Natural Science, Coastal Carolina Exhibit and SAS APP
- Frog Hollow Canoe Company
- Matt Starr, Upper Neuse Riverkeeper, SoundRivers.org
- Andy Specht, News and Observer Writer
- Sue Googe, U.S. Congressional Candidate
- Mark McIntyre, Duke Energy, Director of Environmental Policy and Affairs
- Joe Hargett, KINGS, Kinston, NC
- Russell Rhodes, Neuse Sports, Kinston, NC
- Ranger Ferrell, U.S. Army Corp of Engineers at Falls Lake
- Dr. Jeff Warren, Science Policy adviser to NC Sen. Trudy Wade
- Jay Zimmerman, NC Geohydrologist NC Department of Environmental Quality
- Jan Parsons, Kinston Chamber of Commerce
- Karin Higgins, NC Department of Environmental Quality
- Meredith Fowler, Operations Manager, Geoptic
- David Hursey, NCSU Chapter Engineers Without Borders, USA
- Charles Tuck, NDUSTRIAL.IO, RCDD, LEED AP, Co-founder, Director of Engineering Services
- Robert Whitehead, Green Arrow Labs, CEO
- Shannon Smith, Dynamic Water, Manager of Software Development
- Edward Buchan, City of Raleigh Public Utilities, Environmental Coordinator
- Donielle Dockery, Vishay Precision Group, Senior Field Design Engineer
- NC Senator Louis Pate, 7th District Lenoir, Pitt, and Wayne Counties

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