Kids in the Creek

Focused, hands-on, fun learning that supports the
North Carolina Science Curriculum Standards

The program has been offered by LJEA since 2011.
Received Governor's Award for Volunteer Service in 2015.
We currently involve over 500 students annually,
most with both an in-school and in-the-creek session.
Driven by volunteers - for teachers and students.
Let's work together to expand this outreach.

KIDS IN THE CREEK

*The most amazing thing about the Kids in the Creek program is not that **over 530** students from McDowell and Burke Counties participate each year, but the enthusiasm the students bring to it.*

- West Mcdowell – 207 Students
- East Mcdowell – 132 Students
- FCS – 104 Students
- Freedom High – 93 Students

The KITC program supports and enhances North Carolina Education Standards

Public Schools of North Carolina
State Board of Education | Department of Public Instruction

North Carolina Essential Standards
6-8 Science

Note on Numbering:
Physical Science (P) Earth Science (E) Life Science (L)

The North Carolina Science Essential Standards maintain the respect for local control of each Local Education Authority (LEA) to design the specific curricular and instructional strategies that best deliver the content to their students. Nonetheless, engaging students in inquiry-based instruction is a critical way of developing conceptual understanding of the science content that is vital for success in the twenty-first century. The process of scientific inquiry, experimentation and technological design should not be taught nor tested in isolation of the core concepts drawn from physical science, earth science and life science. A seamless integration of science content, scientific inquiry, experimentation and technological design will reinforce in students the notion that "what" is known is inextricably tied to "how" it is known. A well-planned science curriculum provides opportunities for inquiry, experimentation and technological design. Teachers, when teaching science, should provide opportunities for students to engage in "hands-on/minds-on" activities that are exemplars of scientific inquiry, experimentation and technological design.

Earth Systems, Structures and Processes

	Essential Standard	Clarifying Objectives	
8.E.1	**Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.**	8.E.1.1	Explain the structure of the hydrosphere including: • Water distribution on earth • Local river basins and water availability
		8.E.1.2	Summarize evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms: • Estuaries • Marine ecosystems • Upwelling • Behavior of gases in the marine environment • Value and sustainability of marine resources • Deep ocean technology and understandings gained
		8.E.1.3	Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including: • Temperature • Dissolved oxygen • pH • Nitrates and phosphates • Turbidity • Bio-indicators
		8.E.1.4	Conclude that the good health of humans requires: • Monitoring of the hydrosphere • Water quality standards • Methods of water treatment • Maintaining safe water quality • Stewardship

Earth Systems, Structures and Processes

	Essential Standard	Clarifying Objectives	
7.E.1	**Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth's atmosphere, weather and climate and the effects of the atmosphere on humans.**	7.E.1.1	Compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers.
		7.E.1.2	Explain how the cycling of water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on Earth.
		7.E.1.3	Explain the relationship between the movement of air masses, high and low pressure systems, and frontal boundaries to storms (including thunderstorms, hurricanes, and tornadoes) and other weather conditions that may result.
		7.E.1.4	Predict weather conditions and patterns based on information obtained from: • Weather data collected from direct observations and measurement (wind speed and direction, air temperature, humidity and air pressure) • Weather maps, satellites and radar • Cloud shapes and types and associated elevation
		7.E.1.5	Explain the influence of convection, global winds and the jet stream on weather and climatic conditions.
		7.E.1.6	Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality and stewardship.

Structures and Functions of Living Organisms

	Essential Standard	Clarifying Objectives	
7.L.1	**Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.**	7.L.1.1	Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life including: • Euglena • Amoeba • Paramecium • Volvox
		7.L.1.2	Compare the structures and functions of plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).
		7.L.1.3	Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.
		7.L.1.4	Summarize the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.

Structures and Functions of Living Organisms

	Essential Standard	Clarifying Objectives	
8.L.1	**Understand the hazards caused by agents of diseases that effect living organisms.**	8.L.1.1	Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.
		8.L.1.2	Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.
8.L.2	**Understand how biotechnology is used to affect living organisms.**	8.L.2.1	Summarize aspects of biotechnology including: • Specific genetic information available • Careers • Economic benefits to North Carolina • Ethical issues • Implications for agriculture

Ecosystems

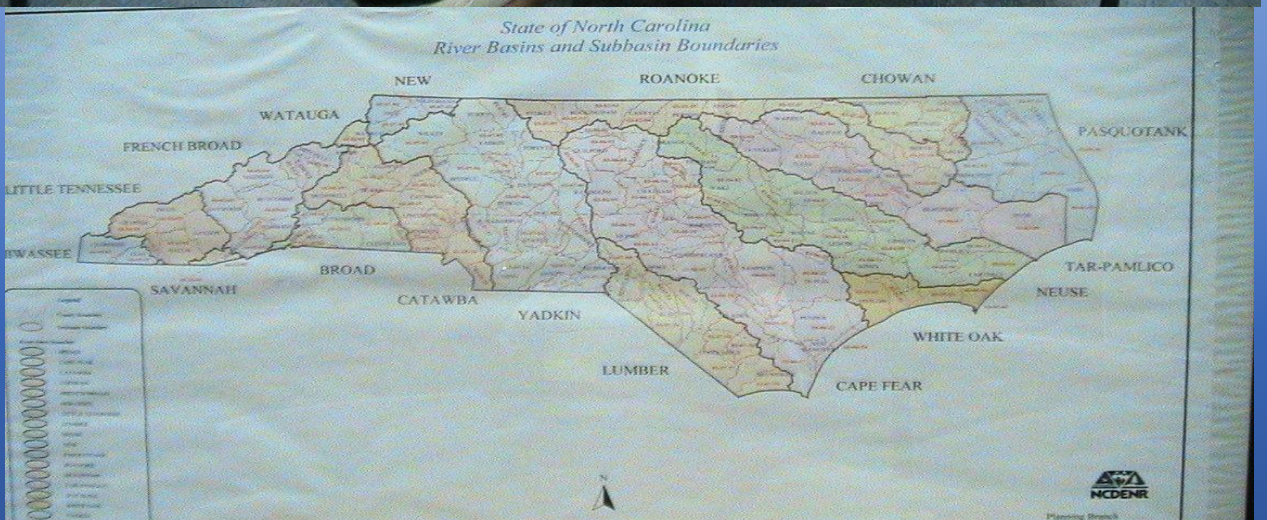
	Essential Standard	Clarifying Objectives	
8.L.3	**Understand how organisms interact with and respond to the biotic and abiotic components of their environment.**	8.L.3.1	Explain how factors such as food, water, shelter and space affect populations in an ecosystem.
		8.L.3.2	Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions including: • Coexistence and cooperation • Competition (predator/prey) • Parasitism • Mutualism
		8.L.3.3	Explain how the flow of energy within food webs is interconnected with the cycling of matter (including water, nitrogen, carbon dioxide and oxygen).

Understanding watersheds, runoff, erosion, pollution and prevention.

Typically, a 20-minute session that can be facilitated by volunteers of all ages. It can be adapted to specific learning objectives.

Understanding: Surface water and ground water interaction, well safety, ground water pollution and remediation.

This model can be used for grade levels from 3rd through college. It helps students "see" ground water flow.



A poster session emphasizes: fact-finding, data discovery, and interpretation. Recording citations and creative writing can be woven into this session.

Examining aquatic life helps students understand the link between water quality and a healthy ecosystem.

Volunteer opportunities include working in the stream or on the banks. You can start at any level and build your understanding of aquatic life and how we measure stream health.

Profiling the stream and estimating velocities allows the students to estimate discharge. They apply their geometry and math skills and we learn about: experimental design, field measurement error, data integration. Yep, we often get wet.

TEAM	m/sec Velocity	M^2 Area	Q (discharge) Cubic Meters/second
Red	.416	0.66	Ø.27
Green	~~Ø.39~~	1.49	Ø.58
Blue	0.68	3.17	2.16
Yellow	Ø.65	1.38	Ø.87
AVG	Ø.53	Σ 6.7	3.53 M^3/sec
			x 264
			937 gallons/sec

Examining water's physical and chemical properties, in the stream, enhances students' interests and appreciation for laboratory procedures.

LJEA wants to sustain and expand the Kids-in-the-Creek program in 2020. To do so, we need to:

- Increase our stock of volunteers
- Identify additional interested teachers
- Prepare stream stations

Will (not can) you help?

What LJEA will do:

- Train you and integrate you into a team
- Link you to resources
- Provide equipment and supplies
- Support your activities

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