**Essential Standards: 8.E.1**

**8.E.1** Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.

**8.E.1.3:** 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.

**Essential Understanding**:  The student will understand:

* That the health of a water system in determined by the balance between physical, chemical and biological variables
* That the temperature of water in rivers and lakes determines the kinds of organisms that can survive there.
* That measuring dissolved oxygen is an important factor in determining water quality
* That pH is a measure of how acidic or basic water is
* That nitrogen and phosphorous are essential plant nutrients
* That turbidity is a measure of how clear water is.
* That the water quality of a body of water can also be assessed by using bio indicators (macro invertebrates)

**Essential Questions**:

* How safe and drinkable is the water around North Carolina?
* How are physical and biological factors used to determine the quality of water?

**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

**Essential Understandings**:  The students will understand:

* That water quality is a term used to describe the chemical, physical, and biological characteristics of water
* That water quality standards outline the water quality pollution control program that is mandated and regulated by local, regional and federal agencies
* Clear water many contain odorless, tasteless, and colorless harmful contaminants.
* That water is essential to life

**Essential Questions**:

* What can we do to protect our water supply?

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