“What’s that smell?” A lesson on Water Quality.

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2019 Extern at Johnson County Conservation

Part I: Overview of Workplace

F.W. Kent Park was established in 1967 in honor of Fred Wallace Kent. Kent, although a photography by trade, also had a love for nature and spent many hours in the park photographing the parks landscape. The park is located 3 miles east of Tiffin, IA and consists of 1,082 acres. The park is open to visitors and has many activities for folks to partake in. They have a family campground, lake recreation, beach, education center and countless trails. The park contains prairies, wetlands, and forests. Since 1970, 250,000 trees have been planted.

Part II: Workplace Focus

-Weekly Water Quality Testing focusing on Phosphates, Ammonia, Nitrates, Nitrites, pH, Dissolved Oxygen, Water temperature and E Coli.
-Sorting and Planting approximately 17,000 aquatic plants.
-A focus on controlling invasive plant species within the park.
-Measuring Marsh Water Levels

Part III: Introduce the Problem

“ What’s that smell?” A problem-based learning opportunity that will investigate the water quality of our bodies of water.

- Teams of 4 students will find a locally troubled body of water and investigate the reason for the pollution.
- Students will be given a water sampling kit and will gather data from their designated site over a certain period of time.
- Student teams will need to survey the area in order to get a feel for the watershed and where the problem may be originating from.
- Students will analyze and interpret their data and devise a plan to end the pollution and how prevent it from happening in the future.
- Students will set up an informative community presentation for the residents and stakeholders surrounding the water.

Part IV: Background

Student Skills or Content Knowledge:

- Identify the nutrient pollutants and their role in the health of the lake.
- Understand the watershed for the body of water under investigation.
- Clear understanding of the scientific tools to measure the focused analytes.
- Analyze and interpret the data after organizing it with either google docs or excel.
- A Will to contact water quality professionals in order to gather more knowledge.

Workplace new skills or techniques:

- Phosphorus levels were so low, scientists needed a more sensitive device to pick up the low readings.
- More efficient method of sorting plants.

Teacher Links:

- https://www.epa.gov/nutrientpollution
- https://www.epa.gov/ground-water-and-drinking-water

Part V: Workplace Solution

-Lake drained and empty for 2 years and then dredged. Weeds allowed to grow and absorb nutrients from lake bottom.
-Catch Basins Established and Improved.
-Specific Aquatic Plants were planted to sequester the nutrient pollutants in catch basins and lake.
-Continuous Weekly Water Quality Monitoring of Protected Lake and Catch Basins.

Part VI: Educational Pathways

-**Director of Park**: Extensive experience with parks, graduated with a B.S. in Fisheries and Wildlife.
-**Naturalist**: Graduated with a Environmental Science Degree
-**Natural Resource Manager**: Graduated with a degree in Conservation Management and Biology
-**Natural Resource Management Specialist**: Graduated with a degree in Biological Research and the other Specialist earned a AAS degree in Parks & Natural Resources from a local community college