Watershed Role Playing Game Overview and Instructions

Time: ~30 minutes **Ages**: 5th-8th grade

1. **Materials Needed**: Pool or tub to act as watershed, watershed choice cards (given), instructor answer sheet (given), watershed fake money (given), dirt, dish soap, green food coloring, black food coloring (can be made by mixing 3 parts red, 2.5 parts green, and 2.5 parts blue)
2. **Introduction**: What is a watershed?
    a. Briefly introduce the idea of a watershed and how different stakeholders (farmers, family, politicians, industrialists) make decisions that can affect water quality in a shared watershed
3. **Game Overview**
    a. In this watershed role playing game groups of students will be given several watershed-pollution relevant decisions to make. Each decision has two choices, one of which will keep the watershed (in this case a kiddie pool filled with water) clean while the other decision pollutes the watershed. It is up to the student group to determine which option will not result in their watershed being polluted.
        i. If students are struggling to decide on an option, have them vote!
    b. After students decide on one of the two choices the instructor/teacher will adjust the watershed based on if their decision was environmentally sound. Example: If the farmers choose to fertilize before the rain rather than after the instructor will add green food coloring to the watershed to mimic fertilizer entering the watershed.
    c. Some of the students' decisions cost money (just like real life). Each student group has a set budget that they will be given at the beginning of the game. Notes about each group budget can be found below each group's answer sheet.
        i. Farmers: $500
        ii. Family: $200
        iii. Industry: $1000
        iv. Politicians: $1000
4. **Conclusion**: What did we learn?
    a. Prompt your students to consider how their decisions affect the watershed as a whole. How might pollutants and reduced water quality affect the wildlife living in the watershed?
5. **NGSS Standards**
    a. MS-ESS3-3 — Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
    b. MS-LS2-5 — Evaluate competing design solutions for maintaining biodiversity and ecosystem services considering the sustainability of natural resources, including water quality.
    c. MS-LS2-4 — Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.