**Gravity-Fed Water Systems for Developing Communities Activity—Gravity Fed Water System Design Worksheet —**

**Answer Key**

**Directions**

**This answer key is only for Part 1, as students answers will vary for the remaining parts of the worksheet.**

**Part 1: Conceptual (Day 1)**

1. Name the four system parameters that dictate water velocity and flow and must be considered when designing a gravity-fed water system.
   1. **Difference In Elevation: For a gravity-fed water system to function, there must be a difference in elevation from where the water is captured to where the water is distributed.**
   2. **Amount of Water that Needs to be Distributed: This would be based on the number of people in the town, and the amount water required for each person.**
   3. **Pipe diameter**
   4. **Pipe length**
2. What typical problems do you think could result by not correctly addressing each of the design parameters in question #1?
   1. **If there is no difference (high to low) in elevation from source water to the town, water will not flow.**
   2. **If the design of the system does not consider the full demand of the town, well into the future even, the water system will not provide enough water.**
   3. **A small diameter will only let a certain amount of water flow per second, and affect friction (i.e., small diameter, more friction, and vice versa). Therefore, if the diameter of the pipe is too small, *insufficient* (if any) water will flow.**
   4. **The longer the pipe, the more friction will be present to slow down the flow. More fiction = less flow.**
3. What is sedimentation?

**The process of removing sediments out of water by allowing gravity and time to pull the particles to the bottom of a tank.**

1. What is turbidity?

**The cloudiness or darkness of a fluid caused by a large number of individual particles in the water that are generally invisible to the naked eye, similar to smoke in air.**