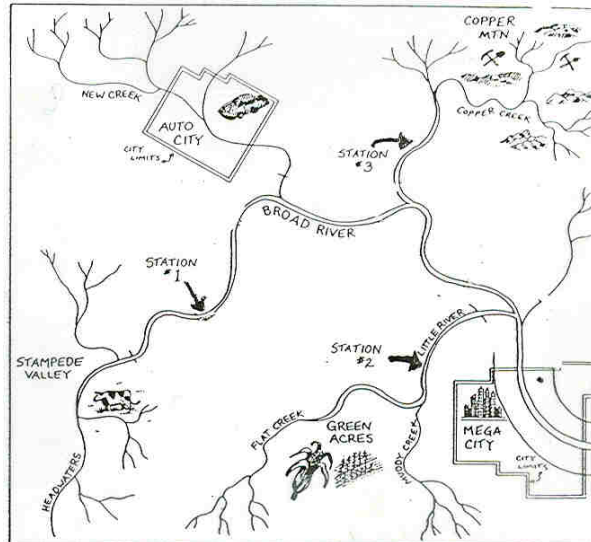

Water Microorganism and Illness Worksheet

1. After drinking from a groundwater well at a county fair, approximately 100 people had the following symptoms: diarrhea, abdominal cramps/stomach pains, nausea, and fever. List all possible microorganisms that may have been in the water supply.

2. a: A sample of water tested positive for *Giardia lamblia*, however the sample labels got mixed up. Of the three sites on the map where samples were collected, which is most likely to have *Giardia lamblia* in the water? Why?



b: If some *Giardia lamblia* was found in the stream draining out of Auto City, what might have caused the *Giardia lamblia* to enter the water from this location?

3. Testing Station #1 always has higher bacteria counts than other sites. What about this site makes it a prime candidate for bacteria and other microorganisms? What could be done to prevent the bacteria from entering the waterway that would also make the stream healthier?

4. One week after Hurricane Carl dumped 8 inches of rain on a community, the residents began showing up at the hospital with general weakness and discomfort, fever, nausea, no appetite, and even some skin discoloration. What microorganism did these residents come in contact with? What might have caused the outbreak?

5. A poultry processing plant was fined for contaminating a local stream that they were illegally dumping into. What microorganism did the environmental agency most likely find in the water sample?

6. a: A large group of campers staying in a forest began suffering from diarrhea, abdominal cramps, weakness, and gas. They got their water from a clear mountain stream and did not think to treat it. What microorganism may have caused them to become ill? What might have been the source of this microorganism? How should they have treated their water from the stream?

7. At what point during typical surface water treatment would *Vibrio cholerae* bacteria be eliminated? How about *Entamoeba histolytica*?

8. After returning from Latin America, a couple began feeling ill. They suffered from high fever, diarrhea, no appetite, aches, and a tender abdomen. What condition might they have? What microorganism caused the condition?

9. A fishing charter captain on Lake Erie received a phone call that a man he took fishing became ill. The client believes the fish he caught, cooked, and ate on the fishing trip caused his illness. He reported he had gas, diarrhea, cramping, and his abdomen was distended. What should the captain tell the client is the cause of the illness? Was the illness the charter captain's fault? Why or why not?

10. Why is *Cryptosporidium parvum* and *Cyclospora cayentanensis* a concern for private well owners that drink groundwater from shallow wells?

11. Many of the bacteria and microorganisms that cause humans harm, do so by causing digestive track problems. These symptoms include diarrhea, cramps, gas, and nausea. Why do you think these microorganisms attack the digestive tract? What other effects on the body will these organisms have if the digestive tract is impaired?