Student Handout Answer Guide: Groundwater Contamination
(source point)

Please note: Answers should be approximate, but do not need to be exact.

Q 1. The green dye in the storage tank represents a pollutant such as industrial chemicals, a landfill, septic systems, manure storage areas, etc.

Q 2. The green dye leaks out of the tank into the surrounding soil.

Q 3. The green dye slowly spreads into the soil moving mostly downward and toward the right (toward the outlet).

Q 4. The water that is pumped from the well is greenish.

Q 5. Water pumped from the well draws pollutants from the leaky storage tank along with the water. Well water can be contaminated from human activity close by or far away.

Q 6. Pollutants enter ground water, but they do not all flow at the same rate. Factors such as solubility and soil content may make some contaminants travel faster than others.

Q 7. The water in the lake is tinted red/pink.

Q 8. The water filling the lake is from an artesian well drawn from the artesian aquifer at the bottom of the model.

Q 9. Baseflow is the groundwater that enters rivers and lakes where the water table comes in contact with the surface of the land. We call these places springs.

Q 10. Surface water is naturally treated better than groundwater because sunlight, aeration, and turbulence help break down contaminants. They are not available in groundwater.

Q 11. Pollutants from groundwater can cause algae blooms in surface water, weed problems from “fertilizing” weeds, and turbidity.

Q 12. Capillary action is the upward movement of water resulting from the attraction of water molecules to soil particles, and the ability of water molecules to adhere to each other. Water is pulled up into the pore spaces between soil particles by the force of these attractions.

Q 13. The downward movement of dye in the upper aquifer seems to indicate that the confining layer is not totally impermeable. It leaks.

Q 14. As water flows out of the artesian aquifer, the water in the overlying aquifer will move from an area of higher pressure into the artesian aquifer because it has lower pressure. The contaminants in the soil will be drawn down, along with the water.