

Short Essay: Groundwater Pollution

Directions: Write an answer to each of the questions below.

Questions

1. Explain the difference between carcinogens, teratogens, and mutagens. Describe one way these substances could end up in your drinking water.
2. Why are groundwater pollutants costly and difficult to remove? How long can they persist in the same location?
3. How is natural arsenic contamination brought about?
4. How can landfills and hazardous waste dumpsites be sources of groundwater pollution? What do you think could be done to prevent this type of pollution?

Answers

1. Carcinogens cause cancer. Teratogens cause birth defects. Mutagens cause genetic damage. If these chemicals are buried in the soil, they may leak out of their containers and make their way to groundwater. If you use groundwater for drinking water, you will consume these substances.
2. Groundwater is hard to clean up because the pollutants get inside small pores in rocks and soils. These pollutants can persist for hundreds or thousands of years.
3. Aquifer sediment that contains high amounts of organic matter is especially prone to arsenic contamination. The organic matter decays and brings about anaerobic conditions. Under anaerobic conditions, arsenic is removed from the minerals in the rocks and gets dissolved in the groundwater.
4. Landfill and dump sites can be sources of pollution if they allow water to migrate through them or if they leak toxic wastes. This is common when storage tanks leak hazardous materials to the groundwater. There are several things that can be done about this, including lining landfills and dumpsites with impermeable soil layers, such as thick clay; and designing chemical storage tanks to make sure that they do not leak. Also, restricting the substances that can be dumped in landfills is a good way to prevent this kind of pollution. For example, do not allow electronic waste and old paint in landfills.