

## FCAT PASSAGES AND QUESTIONS - BIOREMEDIATION GRADE LEVELS 6-8

Benchmark SC.G 1.2.2

1. Phytoremediation is the process of using plants to clean up contaminants or pollutants in soil. Scientists planted Brake Ferns in containers with soil containing equal amounts of the metals lead, iron, arsenic, and copper. After 2 months of growth, scientists measured the amount of each metal that the plants had taken up from the soil. The results indicated Brake Ferns absorbed more arsenic from the soil than any of the other contaminants.

What is the variable in the above research?

- A. the Brake Fern
- B. the container
- C. the soil
- D. the metal

2. Scientists have been developing new ways to clean up pollution using living organisms. One of these new processes is called bioremediation. Bioremediation is a process that uses microorganisms, fungi, or green plants to remove dangerous substances from a polluted place. Bioremediation can be used to reduce levels of specific contaminants. For example, fern plants have been used to clean up soil containing the metal arsenic. When bioremediation has been successful at cleaning up a site contaminated with a particular compound, it will likely be successful at cleaning up other sites contaminated with the same compound. Compared with physical or chemical methods, bioremediation is not always the quickest or the most cost effective method for removing contaminants from some environments. However, bioremediation may have less of a destructive effect on the location.

Why might bioremediation be selected for cleaning up a particular contaminated site?

- A. Bioremediation is useful for cleaning up any kind of contaminant.
- B. Bioremediation is less destructive than some other methods.
- C. Using living things is the quickest method of cleanup.
- D. Using living things is preferred by all local citizens.



3. The map above shows the extent of groundwater contamination at a site before and after a clean up was done. After two months of treatment the contamination was reduced to a small area. Scientists took samples at the site each week during the two month period of time and recorded the findings. The samples allowed the scientists to determine the amount of pollution in the contaminated area over time. Most of the affected area was clean enough that local citizens were allowed to drink the water without purification after the two month period.

It is important for scientists to collect accurate measurements. What did the measurements tell the scientists in this case?

- A. Who caused the contamination.
- B. When the water was clean enough to drink.
- C. When more contaminants might be released.
- D. How the contaminants were released.

4. The United States has thousands of storage tanks containing gasoline, oil, chemicals, or other types of potential contaminants in above ground or below ground areas. Over time these tanks can corrode, develop cracks and begin to leak out into the ground. Landfills have been the dumping ground for these kinds of tanks for many years, contaminating the ground. New housing developments have sometimes been built close to these sites. Once a contamination site has been identified in a populated area, the EPA (Environmental Protection Agency) establishes a plan to clean up the area.

What could be done to prevent contamination from storage tanks near homes?

- A. Have builders test for soil pollution at sites before building.
- B. Stop building new homes.
- C. Remove leaking storage tanks and dispose of them safely.
- D. Move houses to safer locations.