2010 Current Environmental Issue: Protection of Groundwater through Urban, Agricultural and Environmental Planning

Learning Objectives for MARYLAND

HYDROLOGY AND CLIMATOLOGY
1. Explain the hydrologic relationship between groundwater and surface water.
2. How does climate change affect water supplies? Explain how this effect on water supplies impacts both groundwater and energy supplies.

WATER QUALITY AND QUANTITY
1. Know the two greatest uses of fresh water in North America and explain why conjunctive use of groundwater and surface water is important to ground water management and optimizing supply.
2. Appraise the value of groundwater as a component to an integrated regional water management plan, and propose strategies to ensure the sustainability of groundwater supplies.
3. Describe the sources of pollution to groundwater and evaluate strategies for cleanup or improving groundwater quality.

The WATER/ENERGY NEXUS
1. Outline a management policy that will protect and manage groundwater resources for the needs of humans, the environment, the economy and energy production. Differentiate the different roles that government agencies will have in protecting and managing groundwater resources as well as how water use is regulated at the state/province and federal level.

LAND USE PLANNING AND ITS EFFECTS ON GROUNDWATER
1. Describe where groundwater depletion is occurring in Maryland the areas at risk in the future and explain how groundwater depletion is directly related to energy use and water demand.
2. Analyze the impact of over pumping of groundwater and justify reasons why land use planning is necessary for groundwater management. Students should design, propose and justify management practices to achieve water conservation and water use efficiency as part of a groundwater management plan in both an urban and rural/agricultural watershed.