Ground Water Flow Model Presentation

1. Introduce ground water as a very important resource to citizens in the state of Ohio. It is often considered a mystery because we can't see it in the ground, but it is really all part of the **water cycle**. Depending on grade level, have students act out or illustrate the water cycle, share what they know about the water cycle within a small group, or give a presentation on the water cycle to the class.

2. Share information on Ohio's **hydrologic budget**, including average amount of rainfall, amount lost to runoff, and amount that becomes ground water.

3. Show model, point out special features, and define terms or have students research **definitions** of confined and unconfined aquifer, water table, saturated zone, recharge and discharge areas, piezometer, pumping, injection, and artesian wells.

4. Depending on the grade level, introduce the following concepts and facilitate discussion with the students:

    a. Ground water is usually recharged by precipitation and snowmelt.
    b. It is contained in spaces between soil particles or cracks in rocks.
    c. It flows from upland areas to low areas or from areas of high hydraulic head to areas of low hydraulic head.
    d. It is withdrawn from the ground through wells for use in homes, farms, and industries.
    e. It is related to surface water and other forms of water through water cycle.
    f. Differences in types of aquifers and the separating layers.
    g. Saturated and unsaturated zones, water table, and monitoring wells.
    h. Water movement in artesian aquifers.
    i. Potentiometric surface in a well penetrating a confined aquifer.
    j. Texture of materials in an aquifer affects the rate of ground water flow.
    k. Pumping wells draw water toward them from all directions (cone of depression).
    l. Human activities at or near the land surface can contaminate ground water and wells.
    m. Contaminated ground water may pollute surface water, and vice versa.
    n. Capillary action can cause upward movement of water.
    o. Once ground water becomes contaminated, the contamination may persist for long periods and extend over long distances.
    p. Ground water flow lines have curved paths.

5. As you begin cleaning up the model, discuss the difficulty of cleaning up contaminated ground water resources.