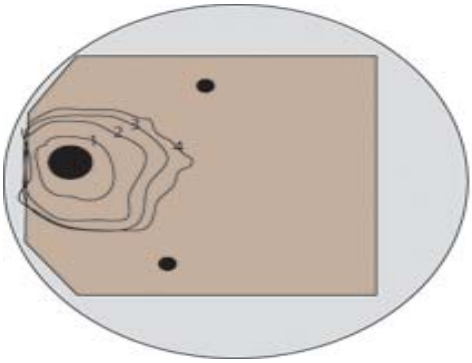
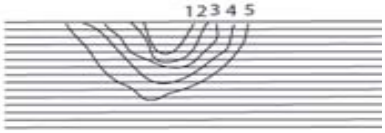
Map a Contaminant Plume

Materials: Paper towels, pie tins, food coloring, water droppers, index cards

1. Fold a length of paper towels into 15 layers and cut to fit into a pie tin. Do not use highly absorbent towels like Bounty, but less absorbent towels like those you find in a restroom (brown?).
2. The paper towels represent a county. Name your country, mark the locations of two towns in your county, and outline a landfill.

3. Divide students into four categories:
    a. Control group
    b. Slope group – place your pie tin on the edge of a book to create a slope
    c. Permeable layer – place index card under your landfill 7 layers down.
    d. Semi-permeable layer – place an index card that has holes punched into under your landfill 7 layers down.
4. Place two drops of food coloring on your landfill.
5. Map the contaminant plume from above and from the side. Make sure to label the plume as Year 1.
6. Simulate a water year by dropping 10 drops of rain on your contaminated landfill.
7. Map the plume from above and from the side, labeling each year.
8. Repeat for 10 years, waiting awhile between rain years.





9. Ask the students "What did we find?"
10. Ask the students "Why did we find it"
11. Combine the responses into a full sentence describing what happened during the experiment. For example: Pollutants move slowly through layers and can be stopped and spread out by different soil types.