Responsible Land Use

Purpose: Design a community based on three common land uses, agriculture-residential-commercial, that maintains an acceptable amount water pollution in the groundwater/aquifer below.

Research: A. How does soil type and useage affect inflitration?
B. How does forest management affect communty development and tax revenues?
C. How does one plan a community, meeting the needs of all citizens?
D. What types of pollution are currently in your community and how can they be address?

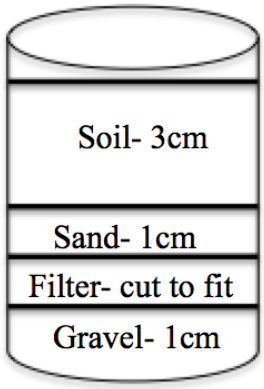
Materials: paper cups, sand, soil, gravel, filters, clay, catchment container, push pins, colored water, beaker, disposal bucket, pollution color chart

Procedure:

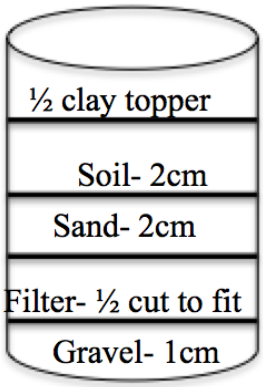
Part A

1. Take paper cups and carefully poke holes in them as follows:
   agriculture- 12 holes in the bottom
   residential- 4 holes ½ cmcm down from top edge and 8 holes in the bottom
   commerical- 10 holes ½ cm down from top edge and 2 holes in the bottom
2. Fill each cup as described, packing the materials down lightly so that there are not large air spaces. *Measurements are estimates but need to be as close as possible and should not be filled more than ½ cm from the top edge.*

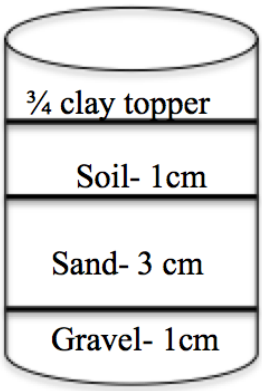
agriculture



residential



commerical



3. Measure out 50ml of colored water and pour into an agriculture cup while it is resting in the catchment container. Record observations of color and inflitration/drainage time.
4. Repeat step 3 with an residential cup and then a commercial cup.

Data/Observations:

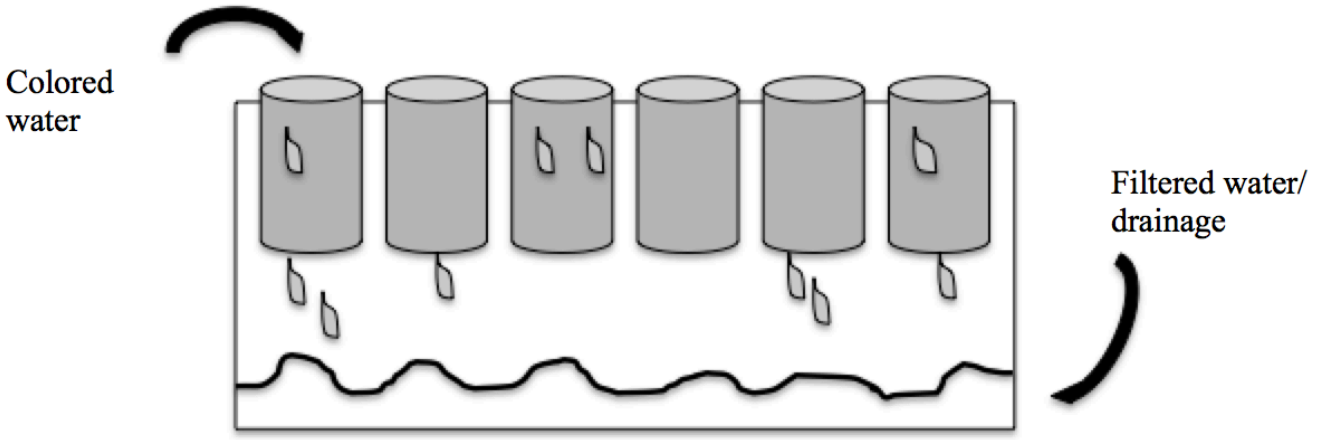
agriculture	residential	commerical

Conclusion: What inferences can you make based on your data/observations about the pollution (colored water) transmitted through each cup type? Explain.

Procedure:

Part B-

1. Using your conclusions from Part A, create a communtiy incorperating combinations of the three land uses. Your goal is to create groundwater that is as close to clear as possible when compared to the colored water. Reuse your cups as much as possible and all water should be discared into the disposal bucket.



2. Determine the best combination of land uses for the optimal level of pollution in the groundwater. Your community must include at least 20% of each land use.

Data/Observations:

Record general notes and observations of your trial and errors.

Conclusion: What was the best combination of land uses for optimal level of pollution in the groundwater? Explain.