Ground Water Contamination

Objective:

* To observe the effect that many common pollutants have on groundwater.
* To observe the effectiveness of soil as a filter for water contaminants.

Materials

* (8) plastic cups
* Permanent marker
* Water
* Spoons
* 100 mL Graduated cylinder
* Vegetable oil
* Vinegar
* Liquid laundry detergent
* Funnel
* 100 mL Beaker
* Cheesecloth
* Soil

Procedure:

1. Begin by labeling the cups 1 to 8
2. Set cups 5-8 aside. Fill each of cups 1-4 with 100 mL of water using your 100 mL graduated cylinder.
3. Record your observations of the water in cup 1 in Table 1. Remember to use a safe wafting technique to smell the solutions.

4) Add some of the vegetable oil to cup 2. Mix thoroughly with a plastic spoon. Record

your observations of the water in cup 2 in Table 1. (Don’t forget to wash the graduated cylinder between use!)

1. Add some of the vinegar to cup 3. Mix thoroughly with a plastic spoon.
2. Add some of the liquid laundry detergent to cup 4. Mix thoroughly with a plastic spoon.
3. Place the cheese cloth inside the funnel so that it is lining it.
4. Pour one cup of soil and place it into the cheesecloth-lined funnel.
5. Place the funnel inside cup 5.

10) Pour the contents of cup 1 (water) through the funnel so that it filters into cup 5 for one minute. Record your observations of the filtered water in the beaker in Table 1. Discard the contents of cup 5 into the sink.

1. Discard the cheesecloth and soil from the funnel in the trash can.

12) Repeat steps 8-12 for cups 2, 3, and 4. (Filter the contents of cup 2 into cup 6, the contents of cup 3 into cup 7, and the contents of cup 4 into cup 8).

Observations: Record any changes in smell, color, etc.

Beaker Observations

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |

Analysis

**Directions:** Answer the following questions on a separate sheet of paper in COMPLETE SENTENCES.

1. What affects did each of the contaminants have on the water in the experiment? Which contaminant seemed to have the most potent *(strongest)* affect on the water? Use evidence from your observations to support your answer.
2. For which pollutants was soil an effective filter? Use evidence from your observations to support your answer.
3. On a larger scale, what type of affects would these contaminants have on a town’s water source and the people who drank the water?
4. What other items within your house do you believe could contaminant the water supply if

you were to dump them into the ground?