

Sec.: _____ Name: _____

Experiment: Water Purification & And Hard Water Detection (E. Science 9-21-1b)

Purpose: To purify water by using a simple distillation process and then to discuss how this process could be used in an emergency situation. To determine which water sample has hard water.

Materials: 100 ml beakers 500 ml beaker
plastic wrap (clear) marbles soil elastic bands
sunlamp water 4 test tubes liquid soap
for more info: www.epa.gov/ebtpages/water.html

Methods: **Part A: Fresh Water Separation**

1. Place 50 ml of water and some soil in the 500 ml beaker.
2. Place the empty 100 ml beaker inside the large beaker.
3. Place the plastic wrap loosely over the top of the larger beaker. Place a couple of marbles on the plastic wrap so that the central portion sinks downward.
4. Place the elastic band to hold the plastic wrap on the larger beaker and place in the sunlight, or under the sunlamp for a number of hours.
5. Record the initial conditions and then your observations after several hours.

Part B: Hard Water Detection

1. Use the four baby food jars to collect water samples from four different locations, the tap, a stream, a pond, and a well.
2. Add one drop of liquid soap to each jar.
3. Cap each container tightly and shake it rapidly.
4. Observe & record how much soap suds are produced in each container.

Results:

Part A: Fresh Water Separation

Large beaker before: _____ small beaker before: _____

Large beaker after: _____ small beaker after: _____

Part B: Hard Water Detection

tap: _____ stream: _____ purified water: _____ well: _____

Conclusions:

1. What happened to the water level in the large beaker?
2. Why did water form on the inside of the plastic wrap?
3. What two hydrologic cycle processes are involved in part A of this activity?
4. What is the energy source for these processes?

Discussion: