Mr. Gunstenson
Science 7

**Demonstration - What is distillation?**

**Problem:** How can the parts of a salt water solution be separated?

**Materials:**

- 250 mL beaker
- 500 mL flask
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**Procedure:**

1. 100 mL of tap water into 250 mL beaker.
2. Add 10 mL of salt, stir until dissolved.
3. Save ~ 5 mL and pour the rest into a 500 mL flask.
4. Using the distilling apparatus, boil away about half of the liquid. Use a second beaker to collect any drops from the tubing.
5. To test for presence of salt allow three different samples of liquid to evaporate.
6. Divide the glass plate into three parts (A, B, and C)
7. Drop 2 drops of:
    a) distilled water on part A
    b) liquid collected from tube on part B
    c) left over liquid you saved on part C
8. Set glass aside and do not disturb until all liquid has evaporated.
9. In your observations, describe what was left on the plate after evaporation.

**Analysis Questions:**

1. What did you see in the top half of the flask after the water began to boil?
2. What change of state must have occurred inside the flask? How do you know?
3. Describe what you saw at the end of the rubber tubing in the beaker.
4. What change of state must have occurred inside the tubing? How do you know?
5. What substance was collected in the beaker?
6. What happened to the substance that you did not collect in the beaker?
7. Using the particle theory, come up with an explanation as to how the water ?particles were taken apart from the salt particles.
8. In your opinion, could we use this method of distillation to produce all of our ?household water? Give a few reasons why or why not.