



# Boiling H<sub>2</sub>O at 60 Degrees Celcius

## Boiling Water at 60 Degrees Celcius

### MATERIALS

- 25mL syringe
- Overhead projector
- Hot plate
- 400mL beaker
- Thermometer

### PRESENTATION

1. Before the beginning of class fill the 400ml beaker with about 100mL of D.I. water
2. Place it on the hot plate and turn it on low heat
  1. Measure the temperature of the D.I. water and show the class that it is not even close to boiling (it should be around 60<sup>0</sup>C)
  2. Draw about 15mL of D.I. water into the syringe and expel it back into the beaker at least 3 times (or have the syringe in the beaker for a minute or two)
  3. Draw 5mL of D.I. water into the syringe and cap it
  4. Place the syringe horizontally on the overhead projector
  5. Begin drawing a vacuum inside of the syringe by pulling the plunger out
  6. The D.I. water will begin to boil after the plunger is about at the 20mL graduation

## DISCUSSION

- $PV=nRT$
- Van der Waals equation
- Phase diagrams
- Intermolecular attraction/repulsion
- Triple points

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**Links:**

[1] <http://www.chem.arizona.edu/taxonomy/term/11>