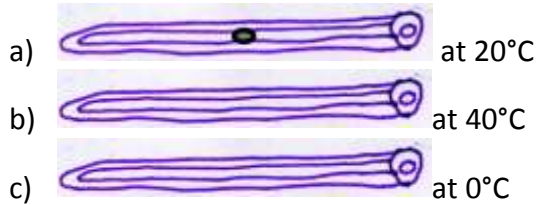


# Pre-Lab

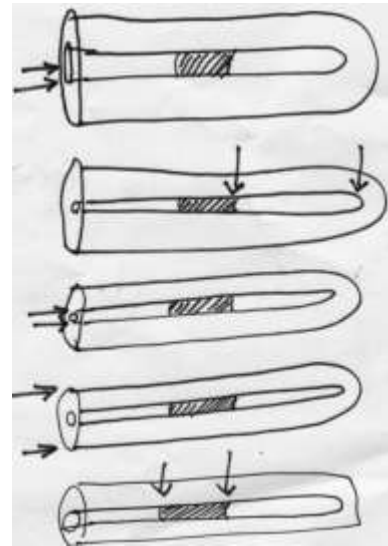
1) The dot shows a drop of oil stuck in a tiny test tube.

In Tube (A), below, draw particles to represent the air trapped inside the tube by the drop of oil.

2) Draw your prediction for where the bubble should be in the other two



3) Some students were trying to measure the radius and the length of trapped gas. Write a happy face next to each correct measurement and a sad face next to each useless measurement.



4)

5) Get a ruler. While looking at Tube A, above,

- use the ruler to measure the radius of the trapped gas \_\_\_\_\_
- Measure the length of the trapped gas \_\_\_\_\_
- Using the formula for volume of a cylinder, calculate to correct significant figures the volume of gas trapped in (A). \_\_\_\_\_

6) The volume of gas should double if the temperature doubles in ( °C / °F / K / all of these )

Stop. Get a stamp from the teacher before continuing

7) Grab your equipment:

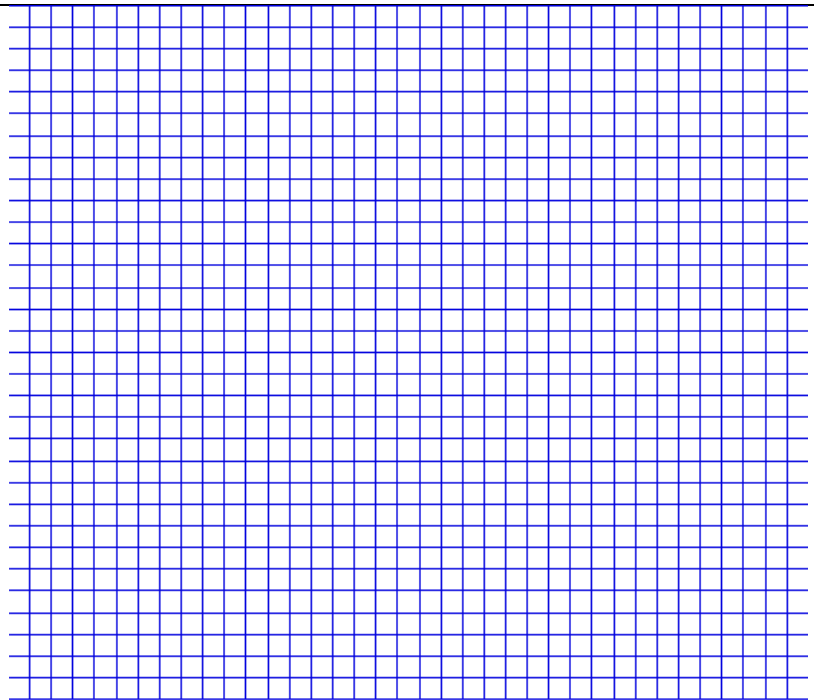
one Roseyear tube, one pair of tweezers, one ruler  
at the end of the lab, please put all of this away

8) Data table

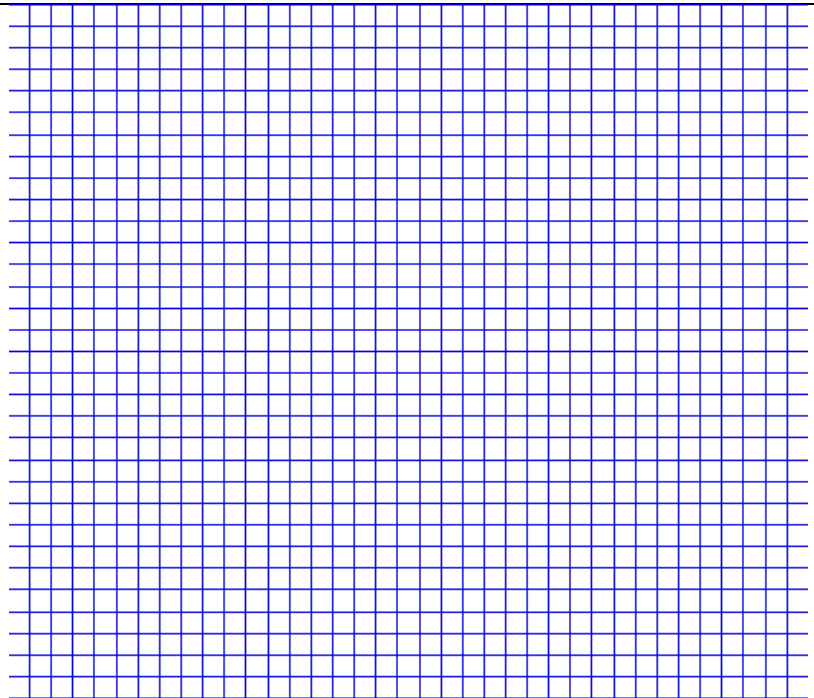
Name \_\_\_\_\_

# Homework

1. Make a graph of volume( $\text{cm}^3$ ) vs temperature(kelvins):
- label your axes, including units
  - choose your scale so your graph is not too scrunched up
  - Put a title at the top that tells someone what this is a graph of
  - plot your four or five points by drawing a dot with a square, circle, or triangle around the dot.
  - draw a best fit line that is straight. Your line should **not** 'connect-the-dots'
  - Do NOT include the point 0,0 as a data point. We did not collect any data for this temperature.



2. Make a graph of  $V/T$  versus Temperature(K)
- label your axes, including units
  - choose your scale so your graph is not too scrunched up
  - Put a title at the top that tells someone what this is a graph of
  - plot your four or five points by drawing a dot with a square, circle, or triangle around the dot.
  - draw a best fit line



3. Find the temperature of absolute zero: (1) On your first graph, find the point where your line would have zero volume. (2) Write down that temperature. That is Absolute Zero.