Here is the set up number I used:
Temperature sensor : # 03 EQ2970
Stage: #01 EQ 4741-1
Power supply: EQ4755 #4
PASCO: EQ3828 Set# 04

Hello, everyone, today we will do the experiment of measuring the latent heat of vapourization of water.
In the theory section of the manual, we can learn that the latent heat of vapourization is independent of temperature, the relation of pressure, temperature is $P = P_0 \cdot e^{\frac{-L}{RT}}$ at equilibrium. So we can measure the latent heat of vapourization by measuring the boiling temperature at different pressures, and fit the linear function to measure the latent heat of vapourization.
Procedure:

1. Wire up the set up. Based on the graph here. First I connect the 3-pin wire of the heater to the power supply, and then set the thermostat dial of the heater to 60% of maximum position, which is around 160. Secondly, I connect the red and black wire to the power supply on PASCO and the yellow and black wire to the multimeter. Then I connect the multimeter to the analogue input A of PASCO interface.

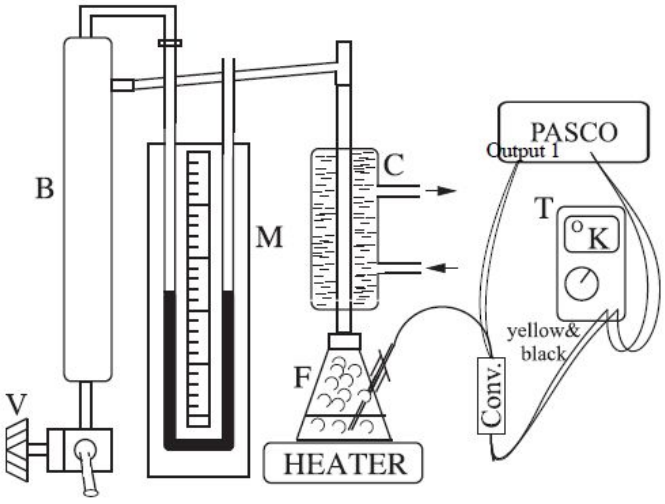

Figure 5: Vapour Pressure of Water Apparatus.

2. Check the room pressure on the website www.weather.gc.ca, the pressure is 76.28 cmHg.
3. In the PASCO interface, go to Calculator tool, input the P_0 as room pressure.
4. In the PASCO interface, go to Signal Generator tool, Choose “output1” in PASCO, set the DC Voltage and Voltage limit to 15 V and click “on”, we should be able to see the temperature reading.
5. Check the cooling water is turned on, and then turn on the power supply of the heater. Start to heat the water until the water is starting boiling and the temperature reading on PASCO is stable. The temperature goes up and down around 329.1 K and 329.2 K for 2 mins.
6. Read the liquid levels at right hand side and left hand side of the manometer. When I am reading the data, I try to line my eyesight with the liquid level. The reading on the left is 80.65 cm, the reading on the right is 17.4 cm.

7. Input the reading to the PASCO and click “keep sample”.
8. Rotate the knob V, and let a little air in to change the pressure of the system, stop when the liquid levels change 1-2 cm, and wait the water boiling again. Then read the liquid levels and keep samples.
9. For the 2nd data point, the temperature is fluctuating between 339.45 K and 339.50 K for 2 mins, and the reading on the left is 76.65 cm, on the right is 20.9 cm.
10. For the 3rd data point, the temperature is fluctuating between 344.10 K and 344.15 K for 2 mins, and the reading on the left is 74.20 cm, on the right is 23.00 cm.
11. For the 4th data point, the temperature is fluctuating between 346.95 K and 347.05 K for 2 mins, and the reading on the left is 72.50 cm, on the right is 24.60 cm.
12. For the 5th data point, the temperature is fluctuating between 350.75 K and 350.82 K for 2 mins, and the reading on the left is 69.90 cm, on the right is 26.80 cm.
13. For the 6th data point, the temperature is fluctuating between 353.50 K and 353.57 K for 2 mins, and the reading on the left is 67.90 cm, on the right is 28.55 cm.
14. For the 7th data point, the temperature is fluctuating between 355.65 K and 355.75 K for 2 mins, and the reading on the left is 66.20 cm, on the right is 30.05 cm.
15. For the 8th data point, the temperature is fluctuating between 360.38 K and 360.45 K for 2 mins, and the reading on the left is 61.90 cm, on the right is 33.85 cm.
16. For the 9th data point, the temperature is fluctuating between 362.33 K and 362.42 K for 1 mins, and the reading on the left is 59.90 cm, on the right is 35.60 cm.
17. For the 10th data point, the temperature is fluctuating between 364.85 K and 364.94 K for 1 mins, and the reading on the left is 57.10 cm, on the right is 38.05 cm.
18. For the 11th data point, the temperature is fluctuating between 366.60 K and 366.66 K for 1.5 mins, and the reading on the left is 55.10 cm, on the right is 39.80 cm.
19. For the 12th data point, the temperature is fluctuating between 369.00 K and 369.07 K for 1 mins, and the reading on the left is 52.20 cm, on the right is 42.35 cm.
20. For the 13th data point, the temperature is fluctuating between 371.80 K and 371.88 K for 2 mins, and the reading on the left is 48.55 cm, on the right is 45.5 cm.
21. For the 14th data point, the temperature is fluctuating between 372.90 K and 372.95 K for 1 mins, and the reading on the left is 46.9cm, on the right is 46.9 cm.
22. Output the data and save.
23. Turn off all the equipments and unplug all the wires.