6.1.a Student Instructions for Day 6

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6.1.a Student Instructions for Day 6
Task 1  Review experimental work from Thursday

A) Assign a Manager, Recorder, Spokesperson, Reflector
   Decide so that the person with least experience with that role takes it on.
   There is a role reminder sheet at table
   Recorder should keep track of important responses starting at C.
   If Question arise, write those down on back of Recorder Report.
   The Reflector will have a specific task – I will give that to them privately.

B) Once organized:
   • Describe what you did for experiments A and B (remember you split that work up)
   • Share your results.
   • Review your results for expt C (which you all did).

C) Review of class data handouts for all the experiments.
   Expt A: volume of syringe vs temperature
   1) Review results from all 6 groups on front side of page.
      What data seems to be OK? What data seems not OK? Speculate as to why
      the problematic data may be problematic.
   2) Look on the reverse.
      What did I do to the data? What are the lines I’ve drawn?
      Is this behavior consistent with:
      a) the simulation results
      b) when you played with liquid nitrogen – what was the liquid nitrogen doing?
   3) For your data (or for mine if you data is not shown), calculate what the temperature is
      when the gas volume goes to zero. When you have a number, Spokesperson should
      write in on the board.

   Expt B: sublimation of dry ice in syringe
   1) What does sublimation mean?
   2) What is dry ice? Why is it called that?
   3) Look at the class data to see whether your results are consistent.
   4) Sketch a rough to-scale picture of the size of the dry ice relative to the volume of gas.
   5) Convert your picture into a molecular level picture (what would before and after look
      like if this were a simulation like the PhET)

   Expt C: compressibility of substances in syringe
   1) What types of substances are compressible?
   2) Sketch a molecular level picture of a solid, a liquid, and a gas, such that the picture helps
      you explain the results.
   3) Is what you conclude here consistent with your experimental results in Expt B? How so?
   4) In the gas phase, what is in between the particles?
Task 2 Discussion of Readings

You may address these in any order you wish. If Questions occur, please make note of them on the Recorder Report form (use a new one).

a. Hauksbee:
   • What was he studying?
   • What was his explanation for the behavior he found?
   • What alternative explanation can you propose that is related to what we’ve recently considered?

b. Rumsford
   • What was he studying?
   • What did he conclude? How related to Hauksbee’s model?
   • What did he do that makes his conclusion perhaps more compelling?
   • What fun facts did you learn about Count Rumsford?