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## 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?