

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Seat#: \_\_\_\_\_

**Directions:** Any worksheet that is labeled with an \* means it is suggested extra practice. We do not always have time to assign every possible worksheet that would be good practice for you to do. You can do this worksheet when you have extra time, when you finish something early, or to help you study for a quiz or a test. If and when you choose to do this Extra Practice worksheet, please do the work on binder paper. You will include this paper stapled into your Rainbow Packet when you turn it in, even if you didn't do any of this. We want to make sure we keep it where it belongs so you can do it later if you want to (or need to). If you did the work on binder paper you can include that in your Rainbow Packet after this worksheet. If we end up with extra class time then portions of this may turn into required work. If that happens you will be told which problems are turned into required. Remember there is tons of other extra practice on the class website...and the entire internet! See me if you need help finding practice on a topic you are struggling with.

- 1) Define: kinetic energy, potential energy, endothermic, exothermic, activation energy, heat of rxn, enthalpy, specific heat, heat capacity, 1<sup>st</sup> Law of thermodynamics.
  - 2) If you are performing a calorimetry reaction and the temperature on your thermometer goes up, was the reaction endothermic or exothermic?
  - 3) If you are performing a calorimetry reaction and the temperature on your thermometer goes down, was the reaction endothermic or exothermic?
  - 4) If you are performing a reaction and you touch the container and it feels cold to the touch, was the reaction endothermic or exothermic? (Example: one of those instant ice packs you crack and it gets cold)
  - 5) If you are performing a reaction and you touch the container and it feels hot to the touch, was the reaction endothermic or exothermic? (Example: you mix two chemicals together and you observe flames)
  - 6) Sketch a reaction coordinate diagram for an endothermic reaction, and for an exothermic reaction.
  - 7) At what temp will there be zero molecular motion?
  - 8) Why is kelvin considered an "absolute" temperature scale? Why can you not have a negative kelvin temp?
  - 9) If you have two different substances at the same temp, you can say which of the following? Explain.
    - a) They have the same kinetic energy
    - b) They have the same average kinetic energy
    - c) They have the same velocity
  - 10) If you forget to put a lid on your calorimeter, would:
    - a) your  $T_{\text{final}}$  to be too high or too low?
    - b) your  $\Delta T$  to be too high or too low?
    - c) your specific heat to be too high or too low?
    - d) Why???
  - 11) When doing a calorimetry experiment what does it mean when we say that the substances will "reach thermal equilibrium" if left long enough?
  - 12) Which substance will heat up and cool the fastest (assuming the objects are the same mass and heated to the same temp first)? One with a C of 1.2 J/g°C, or one with a C of 0.85 J/g°C? Explain.
  - 13) Which substance will release more energy (assuming the objects are the same mass and heated to the same temperature first)?? One with a C of 1.2 J/g°C, or one with a C of 0.85 J/g°C? Explain.
  - 14) Identify if the following phase changes are endothermic or exothermic: melting, freezing, vaporizing, condensing, sublimation.
  - 15) Sketch a heating curve of water from -5°C to 110°C. Label the phase changes, which equation you would use for each segment of the curve, and then explain why some portions of the curve are flat, and some are sloped. Include information regarding the spacing of the molecules versus the average speed of the molecules.
  - 16) Is energy absorbed or released when bonds break? When new bonds are formed?
  - 17) Why are bond energy calculations often less accurate than using enthalpy of formation values?
  - 18) Explain conceptually why Hess's law works.
- EVEN MORE PRACTICE!**  
**Hard work now during the chapter will set you up for success and save you time long term! Make smart, mature choices!**
- 19) Consider doing some of the Honors Chem worksheets! You would be surprised how many AP Chem students miss points on exams for Honors level questions and not even the AP level questions! You will hear me all year long saying "don't lose points in AP Chem for Honors level material!"
    - [www.mychemistryclass.net/HCrainbowpacket10.html](http://www.mychemistryclass.net/HCrainbowpacket10.html)



**20)** Read, take notes, try some problems from your Tro online Textbook. Remember that the textbook often covers more material than we need for this class. If it isn't something I talked about in my lectures/handouts/worksheets, then you can skip it! I won't officially assign reading or problems from the textbook because it isn't a very efficient way to teach this class, but some students might need to read the textbook sections or do extra practice in order for things to "click" differently for them. That is ok! Not everyone is going to need the same amount or type of studying. A lot of this class is figuring out what you personally need to do in order to feel successful. You will have access to the textbook all year, don't forget about it!

- <https://www.mlm.pearson.com/northamerica/masteringchemistry/>

- Chapter 6: Thermochemistry
- Chapter 9.10: Bond Energies and Bond Lengths



**21)** Don't forget that there is extra practice on the class website too! [www.mychemistryclass.net](http://www.mychemistryclass.net)  
AP Chem Tab → Study Materials Link → Scroll to the chapter we are on → Extra Study Materials Link.

- I don't always have answer keys for the extra materials. If there is one, it will be in the folder!

**22)** ScienceGeek.net has some good online practice tests. I haven't checked all of them, but the ones I have checked are pretty good!

<https://www.sciencegeek.net/APchemistry/APtaters/directory.shtml>

**23)** Don't forget that there is extra practice on GoFormative too!

- [www.goformative.com](http://www.goformative.com)
  - Another teacher made some assignments on GoFormative the year the school was Remote due to Covid. I have not proofread all the remote assignments, but I have published them so they are available for you to try if you would like!

**24)** Don't forget that there is extra practice on AP Classroom too!

- <https://myap.collegeboard.org>
  - AP Classroom is a bit clunky, doesn't allow me to easily post questions in the order we go, sometimes crashes, still has old material we no longer cover, etc. BUT it is a source of questions that we know came from College Board!
  - You can use the "tags" I made to pull up practice that is just on the chapter you are interested in studying.

**25)** Don't forget that our school has free peer tutoring available through the Academic Leadership class! The links for the peer tutoring are on the top of my Class Calendar and on my Schoology header.

**26)** Don't forget that you can sign up for my Access periods! You must sign up by Tuesday 8am of the week you want to attend. The links are on the front page of my class website, at the top of my Class Calendar, and on my Schoology header.

