NAME: **HONORS CHEMISTRY**

SECTION: Energy Assignment Sheet

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| **In-class topic** | **HW (will be posted in Google Classroom)** | **Due Date** |
| 1/11: Calorimetry POGIL | 1. Work on stoichiometry individual formal lab report | Friday, 1/14 |
| 1/12: Finish candle minilab calculations | 1. Finish candle minilab if not completed in class 2. Work on stoichiometry individual formal lab report | Thursday, 1/13 |
| 1/13: Heat calculations | 1. Finish stoichiometry individual formal lab report | Friday, 1/14 |
| 1/14: Heat in phase changes | 1. Handout on calorimetry problems | Wednesday, 1/19 |
| 1/19: Multistep heating/cooling problems | 1. Study for quiz on calorimetry problems | Thursday, 1/20 |
| 1/20: Quiz  Heat of fusion of ice minilab | 1. Finish lab handout for Heat of Fusion of Ice minilab (data, questions) | Friday, 1/21 |
| 1/21: Hess' Law intro | 1. Read pp. 289-292 (sections 10.1-10.3) and make a concept map based on the key vocabulary in the reading | Monday, 1/24 |
| 1/24: Hess' Law problems | 1. Hess' Law problems (Quizizz) | Tuesday, 1/25 |
| 1/25: Enthalpy of formation problems (Desmos) | 1. Hess Law & Enthalpy of Formation problem set (CK12) | Wednesday 1/26 |
| 1/26: Entropy & spontaneous change (Quizizz) **\*Term 2 ends\*** | 1. Finish Quizizz activity if not completed in class 2. Read sections 10.8 and 10.10 in textbook; write a 5-8 sentence summary | Thursday 1/27 |
| 1/27: Gibb's Free Energy, part 2 (Desmos) | 13. Complete pp. 319-320 #59-65, 80, 82  14. Gibbs Free Energy Problem Set (CK-12) | Friday, 1/28 |
| 1/28: Mixed Practice | 15. Study for quiz on Hess' Law, heats of formation, entropy & Gibb's free energy | Monday, 1/31 |
| 1/31: Quiz  Organic Nomenclature stations practice | 16. Edpuzzle assignment on waves | Tuesday, 2/1 |

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**Dates to Remember:**

Quiz on calorimetry and phase change problems 1/20

Quiz on Hess' Law, heats of formation, entropy and Gibbs free energy 1/31

**After studying chapter 10 you should be able to:**

* State the general properties of energy.
* Define and give examples of state functions.
* Compare and contrast temperature and heat.
* Compare and contrast endothermic and exothermic processes.
* Describe in words and diagrams the heat changes that occur in melting, freezing, boiling, and condensing, and calculate the heat changes involved.
* Calculate the heat changes that occur in chemical and physical processes.
* Apply Hess’ Law of heat summation to find heat changes for chemical and physical properties.
* State two reasons why reactions occur.
* State the reasons that enthalpy changes occur in chemical reactions.
* Calculate enthalpies of formation and use them to calculate enthalpies of reaction.
* Explain how the quality of energy changes as it is used
* Describe and give examples of changes in entropy.
* Calculate Gibb’s free energies, and relate Gibb’s free energy to the spontaneity of reactions.

**Some Useful Websites:**

<http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/spht.html> Specific heat and energy calculations

<http://www.chemteam.info/Thermochem/Determine-Specific-Heat.html>

[Specific heat and heat capacity](https://cpanhd.sitehost.iu.edu/C101webnotes/matter-and-energy/specificheat.html)

[Heat Capacity and Specific Heat (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.6/primary/lesson/heat-capacity-and-specific-heat-chem/)

[Specific heat calculations (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.7/)

<http://www.kentchemistry.com/links/Energy/HeatFusion.htm>

<http://www.kentchemistry.com/links/Energy/HeatVaporization.htm>

[Heating and cooling curves (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.13/)

[Multistep problems with changes of state (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.15/)

<http://www.chem.wisc.edu/deptfiles/genchem/netorial/modules/thermodynamics/chemical/chemical3.htm> Thermochemical equations

<http://science.widener.edu/svb/tutorial/thermoequationscsn7.html> Thermochemical equations interactive practice

<https://www.chemteam.info/Thermochem/HessLawIntro1a.html>

[Hess' Law (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.19/)

<http://www.chem.wisc.edu/deptfiles/genchem/netorial/modules/thermodynamics/chemical/chemical5.htm> Enthalpies of formation

<http://www.chemteam.info/Thermochem/HessLawIntro2.html> Enthalpies of formation

[Enthalpy of Formation (Libretexts)](https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Map%3A_Physical_Chemistry_for_the_Biosciences_(Chang)/03%3A_The_First_Law_of_Thermodynamics/3.6%3A_Thermochemistry)

[Standard Enthalpy of Formation (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.20/)

<https://www.youtube.com/watch?v=870y6GUKbwc> Entropy introduction

[Entropy overview (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.21/)

[Gibbs Free Energy (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.24/)

[Calculating Gibbs Free Energy Change (CK12)](https://flexbooks.ck12.org/user:a3zhbmrlcnzlzw5achnoyxj2yxjklm9yzw../cbook/ck-12-chemistry-for-high-school/section/11.25/)

<https://bio.libretexts.org/Bookshelves/Biochemistry/Book%3A_Biochemistry_Free_and_Easy_(Ahern_and_Rajagopal)/02%3A_Energy> Bioenergetics

