

**Course: Honors Chemistry**

We hope that you, your families and loved ones are well! During the COVID-19 pandemic school closure, we will be doing our best to provide you engaging activities that will enrich your understanding of Chemistry. During term 4, you will primarily be exploring matter and its interactions, including types of chemical reactions, stoichiometry, energy transfer and properties of solutions.

Goal for this week**Learning Objectives:**

Students will be able to ...

1. to calculate the heat generated from the specific heat.
2. predict the spontaneity of a reaction.
3. calculate the Gibbs Free Energy from the enthalpy and entropy

(2016 MA STE Standard: HS-PS1-6)

Literacy Objectives:

1. Reading: to understand a concept and construct meaning
2. Writing: to take notes
3. Writing: to generate a response to what one has read, viewed, or heard
4. Reasoning: to identify a pattern, explain a pattern, and/or make a prediction based on a pattern

(<https://www.bpsma.org/schools/brockton-high-school/about-us/mission-literacy-charts>)

Lesson:

Chemistry Café: Energy

- See the page(s) below for a complete description of what to do and the resources you will need.
- ***Your science teacher will be in contact to clarify expectations (like when and how to submit your work for credit) for your class.***

WHY THIS MATTERS

Think back to the wintertime and the cold, snow and ice. To prevent people from slipping and falling we often [put ice melt](#) down on the sidewalks. As the CaCl_2 goes into solution it releases heat (exothermic) causing the ice to melt making it safer for us. All chemical reactions [involve energy](#). Knowing how much or how little is really important in keeping us safe when we work with them. Check out this [experiment](#) you can do at home!

Additional Support**Email:**

- Please reach out to your science teacher with specific questions about the lesson.

Office Hours:

- Here is a list of the [science teachers' office hours](#). Please email your teacher to set up meeting times.

Other questions:

- Science Department Head
Dr. David Mangus
davidmangus@bpsma.org



Chemistry Café

Topic: Energy

Assignments to do:

Click on the link to view the resource ...

1. Read through the [PowerPoint](#) and take notes (be sure to understand the spontaneity chart).
2. Have access to the [Specific Heat Capacities chart](#).
3. Complete the [PLIX Simulation: Chasing the Heat](#).
4. Complete the [PLIX Simulation: Entropy](#).
5. Complete the [PLIX Simulation: Burning Stuff for Science](#).
6. Watch the [Gibbs Free Energy video](#) and complete the [worksheet](#) that goes along with it.
7. Choose 3 assignments from the café below to complete:
You should select 1 appetizer, 1 main course, and 1 dessert

Appetizer

Complete the [PLIX Simulation: Heating Curve of Water](#).

Complete the [Endothermic vs. Exothermic Reaction Worksheet](#).

Complete the [Endothermic vs. Exothermic Reaction Worksheet 2](#).

Main Course

Complete the [PLIX Simulation: Heat Chamber](#).

Complete the [Specific Heat Capacity worksheet](#).

Complete the [Specific Heat Capacity Lab](#).

Dessert

Complete the [Gibbs Free Energy Worksheet 1](#).

Complete the [Gibbs Free Energy Worksheet 2](#).

Complete the [Gibbs Free Energy Worksheet 3](#).

Recommended Pacing

Monday: Begin pre-work assignments, **Tuesday:** Complete pre-work assignments, **Wednesday:** Complete an appetizer, **Thursday:** Complete a main course, **Friday:** Complete a dessert