



High School Science Virtual Learning

College Chemistry

Chemical Reactions and Energy

April 23rd, 2020



High School College Chemistry

Lesson: April 23rd, 2020

Objective/Learning Target:

The Learner will participate in an online laboratory activity to examine the energy involved in chemical reactions.



Bellringer

1. What is Specific Heat Capacity?
2. What type of experiment is used to determine heat transfer?



Bellringer Answers

1. The amount of heat (joules or calories) required to raise the temperature of 1 gram of a substance 1°C
2. Calorimetry



Over the next 2 lessons we will perform a virtual lab provided by Flinn Scientific. Today you will view the virtual lab regarding energy density, and with the given data you will fill out the lab worksheet. Tomorrow we will go over the correct answers and also have an explanation on how this applies to the larger world of fuels density.



Lab

1. Open the file [Lab Worksheet](#). You can either print it off or, once it opens, click on File→ Make copy and save it to your drive to edit.
2. Watch the first part of this video [Lab Video](#).
3. Use this link to get the [Lab Data](#) fill this into your lab worksheet.

4. For Analyze and Interpret Question #2 you will use the

$$q = C_p \times m \times \Delta T$$

q =heat(J), C_p = Specific heat(J/g°C), m =mass(g)

ΔT =Change in Temperature ($T_f - T_i$) (°C)

Also, the mass of the water is 50.0g

You can review from your text [Section 9.3](#)

Questions

1. Was all of the heat of the reaction captured in the soda can calorimeter? Explain.
2. What other items would you like to see tested in an experiment like this?

Complete answer key to the Lab and a longer explanation of how bond energy relates to heat of reaction in tomorrow's lesson.

Answers

1. No, a lot of the heat would be lost to the surrounding air. You would need something to keep the reaction insulated from the surroundings to keep the heat in. Some of the heat was also absorbed by the can.
2. Chips, fritos work well. Peanuts, pecans, almonds. Really anything that burns easily.

Complete answer key to the Lab and a longer explanation of how bond energy relates to heat of reaction in tomorrow's lesson.