



High School Science Virtual Learning

**College Chemistry**

**Chemical Reactions and Energy**

April 24th, 2020



High School College Chemistry  
Lesson: April 24th, 2020

**Objective/Learning Target:**

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



## Bellringer

1. How did the energy of the wood splint compare to the energy of Charcoal?
2. Besides joules what are two other units for heat and in what industries are they used?



## Bellringer Answers

1. The charcoal had greater overall energy, but the wood splint had over 4 times the energy per gram consumed.
2. Calorie in food and nutrition in the United States and BTU (British Thermal Units) used in HVAC industry.



Today you will review your answers to the lab report. Then in the video you will receive a more detailed explanation of the lab and where the energy comes from. Also in today's lesson they will talk about energy density. The extra video today talks about energy density in fuels and its importance in transportation.



## Lab

1. Check your answers to your lab here [lab answer key.](#)
2. Watch this video. [Topic Explanation Video-Flinn Scientific \(30:09\)](#) you can skip to the [2:00](#) mark, the first two minutes are just explaining how to make a copy of the forms from yesterday.



## Questions

1. Where does the energy of a chemical reaction come from?
2. Besides the heat given off, how does burning fuels contribute to climate change?
3. How does the information from this topic apply to the fires in Australia.



## Answers

1. The difference between the energy of the bonds in the reactants and the bonds in the products.
2. When hydrocarbons burn the products are  $\text{CO}_2$  and  $\text{H}_2\text{O}$ . The  $\text{CO}_2$  traps the heat energy from the sun acting as an insulation to keep the heat in raising the temperature and altering the weather patterns.
3. The dry drought conditions, the winds, the dead ground clutter, bushes, and grasses, provided the fuel. The fires finally stopped once the rains returned putting out the fires, making the remaining fuel, plants, moist and less likely burn.





## Additional Video

[Specific energy and energy density -MSJ CHEM \(3:15\)](#)