April 28, 2015

Young Chemist

East High School

2222 E. Washington Blvd

Madison WI 53704

Subject: Summer Job

Dear :

The People’s Candle Company is looking to fill two openings for the position of summer chemistry technician. We make candles from a variety of innovative materials and need to do research to make our product the best on the market.

To prove your mettle we are enclosing our Classic Wax Candle. Show us what you can figure out about it.

Each person in your group should send us the following two sheets of 8.5” x 11” papwer stapled together.

Sheet one, Data:

mass of candle before and after burning, amount of water (grams or mL), initial and final water temperature (°C), formula for the substance the candle is made from [use your electronic resources], a balanced equation for the combustion reaction of the candle.

Sheet two, a letter to me: Write in a similar format as this letter to you, summing up your answers to four things:

1. Use Q = m cp ∆T to find the amount of heat that entered the water.
2. Find the number of moles of candle that were burned using your formula for candle and the periodic table and the change of mass of the candle after burning
3. Write the balanced thermodynamic equation, including the delta H term, similar to A + B 🡪 C + D ∆H = ??
4. How does the heat of combustion of candle compare to that for methane (890 kilojoules per mole)? For a candle customer, list several reasons why, as a chemist, you’d recommend they use our candle rather than a Bunsen Burner for heating things.

I hope that we have a chance to meet soon. The PCCo pays a competitive wage, is an equal-opportunity employer, and offers outstanding discounts on candles.

Sincerely,



Stokely Rutherford

CEO, P.C.Co.

4338 Herrick Ln

Madison WI 53711