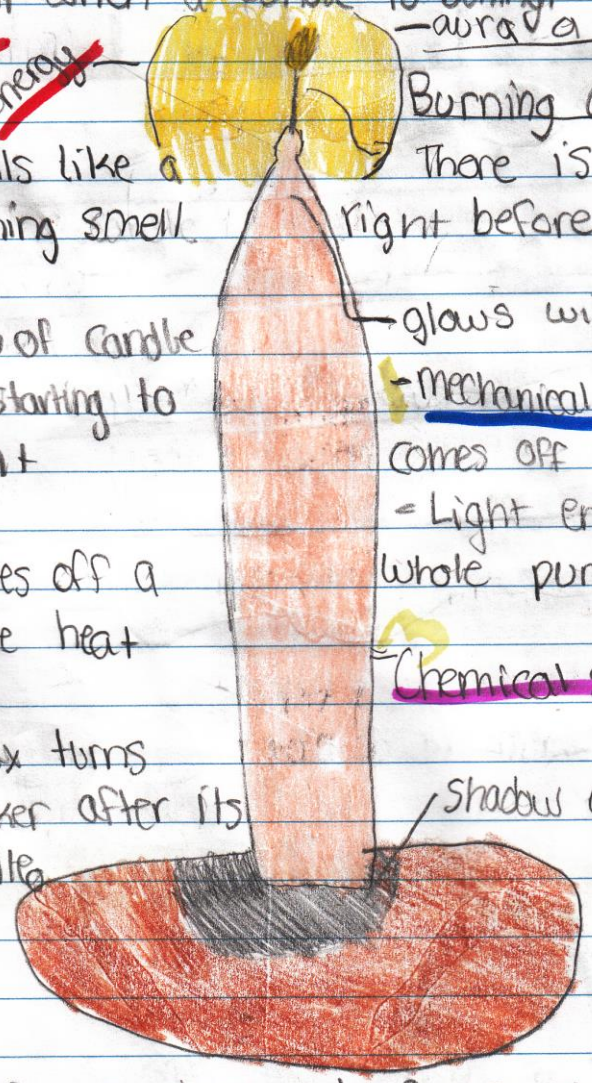
Candle Lab: Part Two 9-25-13

LT: Identify the energy transformations that occur when a candle is burning.



Heat Energy

- Smells like a burning smell

- Top of candle is starting to melt

- Gives off a little heat

- Wax turns darker after its melted

aura a gold halo - light

Burning Candle

There is no flame right before it touches the candle

glows with heat

- mechanical energy is when the wax comes off and runs down (kinetic)

- Light energy was the whole purpose of lab

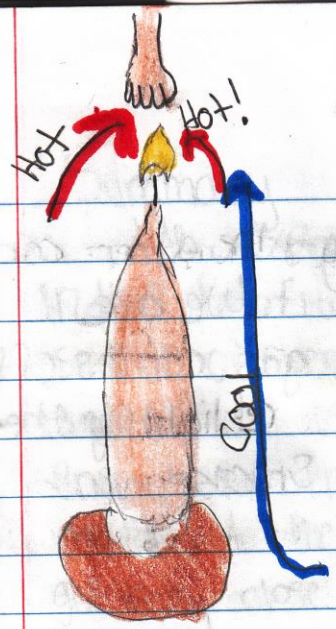
Chemical Energy in wax

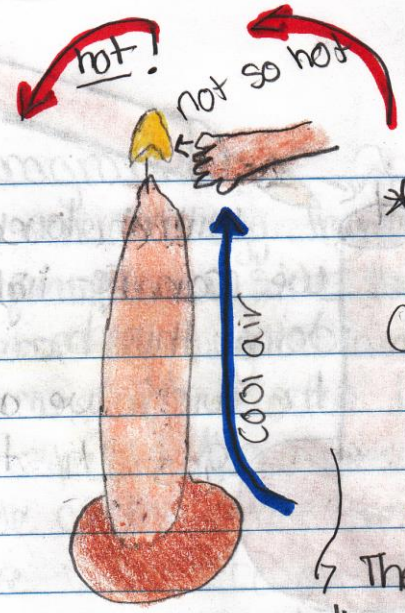
Shadow (light energy)

- I can get about a half a centimeter before the candle burns my finger (thermal energy)

- Since heat rises - I could only put my hand about 4 centimeters away because it was so hot! (heat energy)

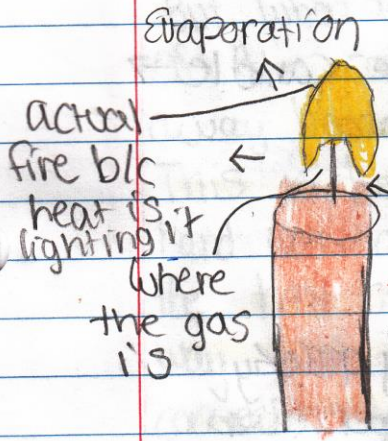
Due Tues.



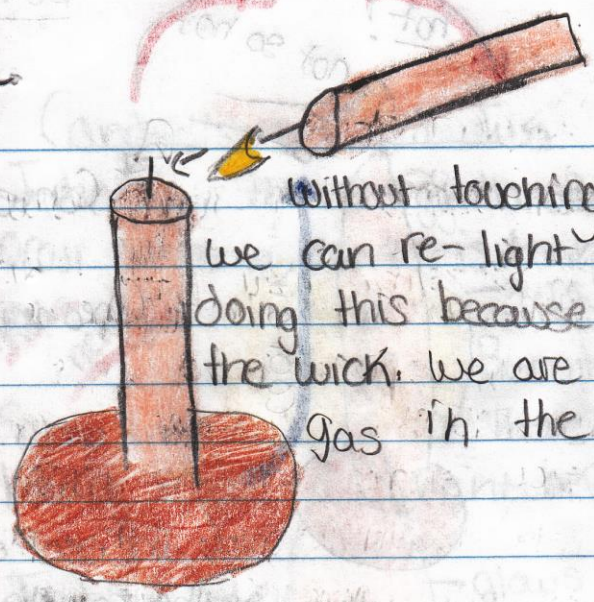


* Convection Current* (mechanical energy)

The cool air allows the candle to stay firm in order to burn



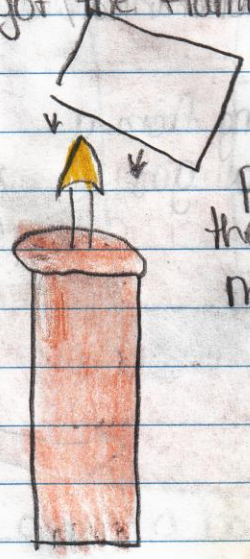
profile of flame crossection of flame on candle



without touching the other candle, we can re-light it. We are doing this because gas comes off the wick. We are re-lighting the gas in the smoke

Chemical potential energy inside candle → transformed into light & heat.

How we got the flame profile:



We very quicky put the paper over the flame to get the marks

Summary Paragraph

We explored several energy transformations in this lab. For example, inside the candle wax is alot of chemical energy, which when the candle is lit is transformed into light energy and into heat. Also, when we put our hand to the side of the candle we could get really close like within a couple milimeters. But when we put our hand over the top of the candle we were like 4-5 cm away because the candle was so hot. This is because heat rises. So when our hand was on top of the candle, we felt the heat more intensly because that the way heat was rising according to the convection current going on around the candle. Meaning that there is cool air circulating around both sides of the candle which is keeping the wax comact, and heat above the candle because thats where the flame is - thus melting the wax. So, another energy transformation was as a result of the thermal energy coming off of the candle and melting the wax, that was transformed into mechanical/kinetic energy when the wax ran down the side of the candle. Also, the wax is going up the

wick where it was evaporated into the air (that's why candles don't make smoke). So the energy transformation taking place here is the wax going from a liquid (chemical potential energy) to a gas when it evaporates. (which if the candle was scented, would be where the scent comes from). So, overall there were alot of energy transformations taking place in this lab.