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| *The energy in chemicals*CλeMis+ry: http://genest.weebly.com Stop in for help every day at lunch and Tues &Thurs after school! |  | Name\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_\_\_ |

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| 1. A combustion reaction can be described as follows.

CH4 + 2O2 🡪 2H2O + CO2 + **energy** Assuming that the system is WAX, draw an LOL energy chart that shows: wax as the system, both heat and light leaving the system, none of the ‘E’ changing except Ech.  | 1. Dissolving ammonium nitrate in a first aid “cold pack” can be described as follows.

NH4NO3(s) ) + **energy** 🡪 NH4(aq) + NO3(aq)  Assuming that the system is NH4NO3,, draw an LOL energy chart that shows: a label on the system circle, only heat entering the system, none of the ‘E’ changing except Eph.  |

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| In each graph, draw only the bar graph for Ech before and after. In each case the system is underlined. |
| 1. : for a system where gunpowder burns and gives off energy

Heat is ( entering / leaving ) the system. | 1. If the system is **A ROCK**  that is hard to dissolve and needs energy added to dissolve it

Energy is ( entering / leaving ) .Energy of the system is (increasing / decreasing ). | 1. If the **ATP** in your cells gains energy from you digesting a Snickers Bar

The change to the system is (exothermic / endothermic ). | 1. If the ATP in your cells gains energy from you digesting a **Snickers Bar**

The change to the system is (exothermic / endothermic ). |

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| http://us.cdn2.123rf.com/168nwm/serezniy/serezniy1011/serezniy101100537/8282488-test-tube-in-hand-over-violet-background.jpg | If you mix some Barium Chloride and distilled water in a test tube and hold It in your hand, it feels cold! |
| 1. If **the water and chemicals** are defined as the system, the change in energy was

 ***ΔE* = (positive / negative )**The change was ( exothermic / endothermic) | 1. If **YOUR HAND** is defined as the system, the change in energy was

 ***ΔE* = (positive / negative )**The change was ( exothermic / endothermic) |

1. In exothermic reactions, is the energy of the products less or greater than that of the reactants?



Some substances reacted in two flaskes. For each stzatement below, choose either Reaction A or Reaction B

1. \_\_\_\_\_\_\_\_ For the substances in the reaction Ech is decreasing
2. \_\_\_\_\_\_\_\_ The reaction could be written A + energy 🡪 B
3. \_\_\_\_\_\_\_\_ The reaction could be written A 🡪 B ∆H = -500kJ
4. \_\_\_\_\_\_\_\_ The ∆H = + 300 kJ
5. \_\_\_\_\_\_\_\_ The reaction is exothermic
6. \_\_\_\_\_\_\_\_ The reaction would feel cold if you held the flask in your hand.

Energy in Chemical Reactions

1. Classify the following as exothermic or endothermic:
2. 550 kJ is released
3. The energy level of the products is higher than that of the reactants.
4. The metabolism of glucose in the body provides energy.
5. The energy level of the products is lower than that of the reactants.
6. 125 kJ is absorbed.
7. Classify the following as exothermic or endothermic reaction and **give ΔH** for each:
8. Gas burning in a Bunsen burner: CH4 + 2O2 → CO2 + 2H2O + 890 kJ
9. Dehydrating limestone: Ca(OH)2 + 65.3 kJ → CaO + H2O
10. Formation of table salt: 2Na + Cl2 → 2NaCl + 2H2O + 819 kJ
11. Decomposition of phosphorous pentachloride: PCl5 + 67 kJ → PCl3 + Cl2