Name _____ Class Number _____ Class Period _____

Energy Changes Demo

Class Demonstrations

Objective:

Understand the difference between exothermic and endothermic reactions; identify the kinds of energy (i.e. heat, light, sound) given off or taken in when a substance undergoes a chemical or physical change.All chemical reactions are accompanied by a change in energy. Some reactions release energy to their surroundings (usually in the form of heat) and are called EXOTHERMIC. Some reactions need to absorb heat from their surroundings to proceed. These reactions are called ENDOTHERMIC.

Remember: Exothermic = Energy Exits (Ex. Sodium and chlorine react so violently that flames are seen and given off heat = exothermic)

Remember this is eNdothermic = Energy IN (Ex. Cold Packs = Aluminum Chloride and Urea mix together and react using surrounding heat).

What is the difference between an endothermic and an exothermic reaction?

_____

_____

_____

Watch the following demonstrations and answer the questions about each one.

1. MAGNESIUM METAL:

Look at the strip of metal your teacher is bringing around the room; write down at least three PHYSICAL properties you observe.

_____ _____ _____

DO NOT STARE DIRECTLY AT THE BURNING METAL!

a. What evidence indicates a chemical change has taken place? _____
b. What was necessary to start the chemical change? _____
c. How long did it take for the metal to catch fire? _____
d. How long did the metal burn? _____
e. Was MORE energy required to start the reaction OR given off during the reaction? _____
f. Does this make it exothermic or endothermic? _____
g. What types of energy were given off during the chemical change? _____.

2. BALLOON:

Look at the balloon and observe what happens. Describe the type of change that took place as well as the type of energy that was released.

a. Change Type (chemical or physical): _____
b. Type(s) of energy released: _____

3. THE MAGIC WAND:

This demonstration could be DANGEROUS so stay seated at a safe distance!

a. Change Type (chemical or physical): _____
b. Type(s) of energy released: _____
c. Exothermic or Endothermic: _____

4. DRY ICE:

a. Observe the ice, what type of change is taking place? _____
b. How can you tell? _____
c. This is what type of phase change? _____
d. Is this an endothermic or exothermic reaction? _____
e. Listen as your teacher touches the ice to metal. What Happens? _____
f. Why does this occur? _____

5. THE WORM:

a. Change Type (chemical or physical): _____
b. Type(s) of energy released: _____
c. Exothermic of Endothermic: _____

6. SODIUM METAL:

We will have to go outside for this demonstration. Be sure to keep your distance and stand where you are instructed!

a. Change Type (chemical or physical): _____
b. Type(s) of energy released: _____
c. Exothermic of Endothermic: _____