Endothermic and Exothermic Reactions

Name _____ Period & Day_____ Date _____

This week you will learn about endothermic and exothermic reactions.

BE VERY CAREFUL WITH THE CHEMICALS YOU ARE USING AND PRODUCING. IF YOU FELL ANY BURNING OF ITCHING, RINSE IMMEDIATELY WITH WATER ONLY. KEEP YOUR GOGGLES ON AT ALL TIMES.

Prelab Question. What is the difference between and endothermic process and an exothermic process?

Part 1:

1. Put a piece of weigh paper or a weigh boat on the balance. Tare (re-zero) the balance.
2. Add about 7 g calcium chloride to the weigh boat or weigh paper. Record the exact mass here _____ g.
3. Put the calcium chloride into a zip-lock bag.
4. Use a graduated cylinder to measure 50.0 mL room temperature water.
5. Add the water to the bag.
6. Close the bag and shake until the solid dissolves.
7. After a minute, feel the contents of a bag.
8. Waste disposal: Pour contents of the bag down the drain. Wash and dry your zip-lock bag so that you can use it for Part 2.

Questions:

1. Record your observations (ONLY what you see, feel, hear, or smell).

2. Is it an endothermic reaction or an exothermic reaction?

Part 2:

1. Put a piece of weigh paper or a weigh boat on the balance. Tare (Re-zero) the balance.
2. Add about 3 g ammonium nitrate. Record the exact mass here _____g.
3. Put the ammonium nitrate into a zip-lock bag.
4. Use a graduated cylinder to measure 50.0 mL room temperature water.
5. Add the water to the bag.
6. Close the bag and shake until the solid dissolves.
7. After a minute or two, feel the contents of a bag.
8. Waste disposal: Pour contents of the bag down the drain. Wash and dry the zip-lock bag and return it to your instructor so the other classes can use them.

Questions:

1. Record your observations (ONLY what you see, feel, hear, or smell).

2. Is it an endothermic reaction or an exothermic reaction?

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Prelab Question.

1. What is the difference between and endothermic process and an exothermic process?

2. Draw a graduated cylinder.

Part 1:

1. Pour the pre-measured beaker of ammonium nitrate (NH_4NO_3) in to a plastic bag.
2. Use a graduated cylinder to measure 50.0 mL room temperature water.
3. Add the water to the bag.
4. Close the bag and shake until the solid dissolves.
5. After a minute or two, feel the contents of a bag.
6. Waste disposal: Pour contents of the bag down the drain. Wash and dry your zip-lock bag so that you can use it for Part 2.

Questions:

1. Record your observations (ONLY what you see, feel, hear, or smell).

2. Is it an endothermic reaction or an exothermic reaction?

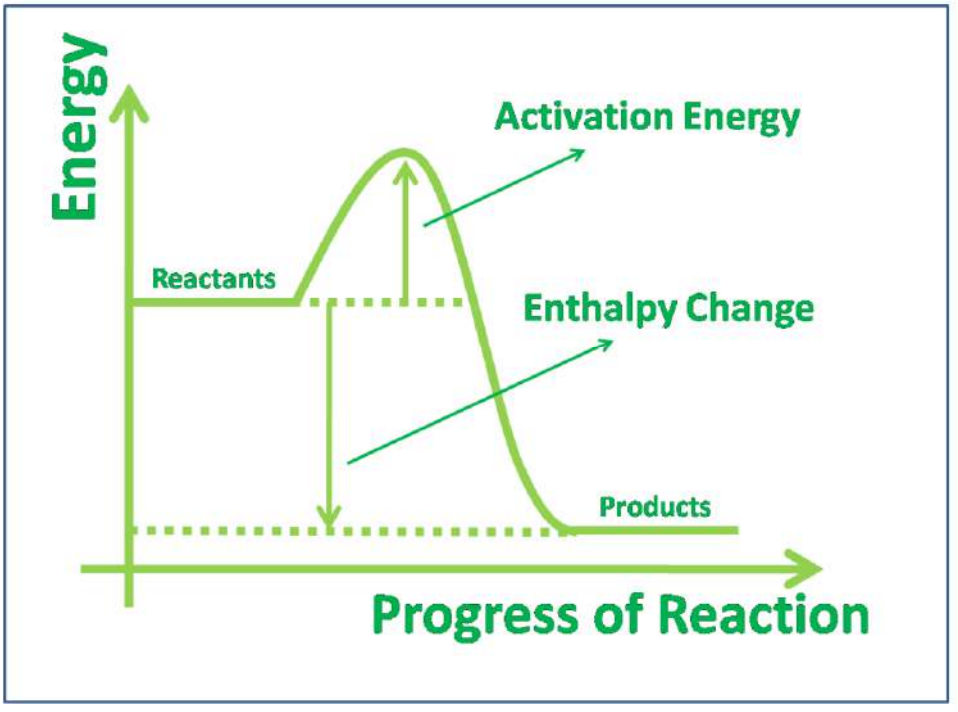
Part 2:

1. Pour the pre-measured beaker of calcium chloride ($CaCl_2$) into a zip-lock bag.
2. Use a graduated cylinder to measure 50.0 mL room temperature water.
3. Add the water to the bag.
4. Close the bag and shake until the solid dissolves.
5. After a minute or two, feel the contents of a bag.
6. Waste disposal: Pour contents of the bag down the drain. Wash and dry the zip-lock bag and return it to your instructor so the other classes can use them.

Questions:

1. Record your observations (ONLY what you see, feel, hear, or smell).

2. Is it an endothermic reaction or an exothermic reaction? ►►►►



3. The energy diagram above is a graph of one of the reactions above. Choose which one and tell why.

4. Draw the energy diagram for the other reaction. Remember, in chemistry that reactants are always on the left side and the products are one the right side. (The energy diagram for the other reaction is almost exactly the same; however, there is one clear difference.)