



The National Orthodox School/ Shmessani

Name:

Revision sheet/ **Energy changes in chemical reactions**

Date:

Grade 7CS all sections

Objectives:

- To be able to classify changes into endothermic and exothermic
- To be able to compare physical and chemical changes

Question one: Choose the correct answer

Change 1. When calcium carbonate forms calcium oxide and carbon dioxide heat is absorbed.

Change 2. Calcium oxide releases heat when shaken with carbon dioxide.

Which line BEST describes these changes?

- change 1 is exothermic; change 2 is endothermic
- change 1 is endothermic; change 2 is endothermic
- change 1 is exothermic; change 2 is exothermic
- **change 1 is endothermic; change 2 is exothermic**

2. Which of the following involves a chemical reaction?

- **cooking a cake**
- filtering sand from water
- distilling oil
- melting ice

3. Which of these processes is always exothermic?

- evaporation
- insulation
- **combustion**
- Melting

4. When ammonium chloride dissolves in water the temperature of water falls. The type of energy change is described as?

- exothermic
- activated
- **endothermic**
- a decomposition

5. Which of these involves a physical change and NOT a chemical reaction?

- apples decaying
- iron rusting
- frying potatoes
- **boiling water**

6. Which of the following temperature changes is NOT the result of a chemical change?

- a rise in temperature as neutralization takes place.
- a rise in temperature when a fuel burns
- a fall in temperature as a precipitate falls
- **a fall in temperature as liquid metal cools to solidify**

7. Which of the following is a physical change?

- adding vinegar to water
- leaving milk to go sour
- **stirring sugar with tea**
- mixing salt with water

8. The chemical change when a fuel burns can be described as?

- a precipitation
- **an exothermic reaction**
- a reversible reaction
- an endothermic reaction

9. Heat is taken in when ammonium nitrate dissolves in water. This is an example of?

- exothermic change
- **endothermic change**
- melting
- thermal decomposition

10. Equal amounts of four different substances (A -D) were added separately to equal amounts of an acid and a thermometer placed in the mixture. For which substance is the reaction the most endothermic?

- temperature rises by 5°C
- temperature falls by 3°C
- temperature rises by 3°C
- **temperature falls by 5°C**

Question two:

Classify the following reactions as endothermic or exothermic. 5.0 g of five different solids were added to 20.0 mL of water and the temperature was monitored until the entire solid dissolved.

Solid	Beginning Water Temperature ($^{\circ}\text{C}$)	Final Water Temperature ($^{\circ}\text{C}$)	Change in Water Temperature ($^{\circ}\text{C}$)
NH_4NO_3	25.4	22.1	-3.3
CaCl_2	25.4	28.9	+3.5
LiCl	25.4	23.9	-1.5
NaCl	25.4	25.1	-0.3
NaOH	25.4	29.5	+4.1

1. List the solids that underwent exothermic change: $\text{CaCl}_2, \text{NaOH}$

2. List the solids that underwent endothermic reactions: $\text{NH}_4\text{NO}_3, \text{LiCl}, \text{NaCl}$

3. Explain what happens to the energy that “disappears” from the water in an endothermic reaction.

The energy is transferred from the water to the reactant. This causes the temp. of water to drop.

4. Explain what happens to the energy in an exothermic reaction.

The energy is transferred into the water. This causes the temp. of water to rise.
