NTI DAY #10

(weather-closed school day)

PACKET TEN

(Science)

General Directions:
Due to weather, Harrison County Schools are closed. In an effort to utilize this day on the school calendar, your child is assigned and should work on this "packet" of school work today. It will count as a grade for this subject. The work attached is specific to the subject listed above. Please contact your child's teacher of this subject at 234-~~7110~~ 7123 in the event you/your student have questions on this packet. Staff and teachers reported to HCMS today and are available should you have questions.

Thermal Energy Graphic Organizer Definitions

Directions: Write a definition in your own words about the thermal energy vocabulary and draw a picture!

Word:	Definition:	Picture:
Conduction	The process by which heat and electricity are moved through an object.	
Convection	The rising and sinking of warm and cool air, fluid, gas, etc.	
Radiation	Energy released as electromagnetic waves.	
Temperature	The intensity or degree of heat present in a substance or object.	
Heat	Energy that comes from the movement of molecules.	
Insulator	Does not readily conduct heat or electricity.	
Conductor	material or device that conducts heat, electricity or sound.	

Name:_____Date:_____Period:_____

Conservation of Mass
Worksheet

Background

Antoine Lavoisier was a French chemist who did most of his work between 1772-1786. He built a magnificent laboratory in Paris, France and invited scientists from around the world to come and visit. Lavoisier conducted numerous controlled experiments. He published two textbooks that helped organize chemistry into a comprehensible science. Based on his contributions to chemistry, Lavoisier is commonly known as the Father of Modern Chemistry.

Lavoisier's most famous experiments involved the combustion of substances such as phosphorus, sulfur, and mercury. He proposed that air is composed of two parts, one of which combines with metals to form new products. This part was later named oxygen. Lavoisier believed that when a substance burns, oxygen from air combines with that substance to form a new substance. His experiments showed that the new product weighed more than the original substance by a mass equal to the amount of oxygen that reacted with the substance.

These experiments led to what is currently known as The Law of Conservation of Mass. This law states that mass can neither be created nor destroyed. It can only be converted from one form to another. Initially, Lavoisier's conclusions were not accepted by the scientific world but they eventually led to a revolution in chemical thought. His work ultimately led to the basis of Dalton's Atomic Theory.

Directions

Examine the data for each of the following combustion experiments and answer the questions based on analysis of the data.

EXPERIMENT #1

REACTANT(S)				PRODUCT(S)
Magnesium	+	Oxygen	------>	Magnesium Oxide
48.6 g	+	32.0 g	----->	80.6 g

(1) a. What is the mass of each reactant? _____

b. What is the mass of the product? _____

c. What is the total mass of reactants? _____

d. Does this experimental data support the Law of Conservation of Mass? Explain.

_____

_____

Name:_____Date:_____Period:_____

EXPERIMENT #2

REACTANT(S)				**PRODUCT(S)**
Magnesium	+	Oxygen	------>	Magnesium Oxide
? g	+	16.0 g	----->	40.3 g

(2) Based on the Law of Conservation of Mass, predict the minimum amount of magnesium that will react with all 16.0 grams of oxygen to produce 40.3 grams of magnesium oxide.

_____

EXPERIMENT #3

REACTANT(S)				**PRODUCT(S)**
Magnesium	+	Oxygen	------>	Magnesium Oxide
12.2 g	+	8.0 g	----->	? g

(3) Assuming that magnesium and oxygen will react completely with one another, predict the mass of magnesium oxide that will be produced.

_____

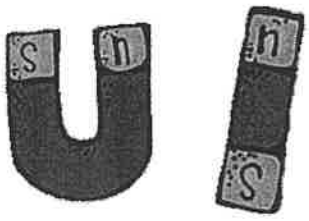
EXPERIMENT #4

REACTANT(S)				**PRODUCT(S)**		
Magnesium	+	Oxygen	------>	Magnesium Oxide	+	Oxygen
48.6 g	+	50.0 g	----->	80.6 g	+	?

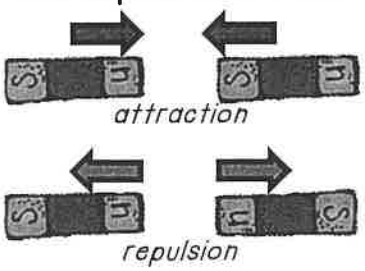
(4) Predict the mass of oxygen that will be left over after the reaction of 48.6 grams of magnesium with 50.0 grams of oxygen.

_____

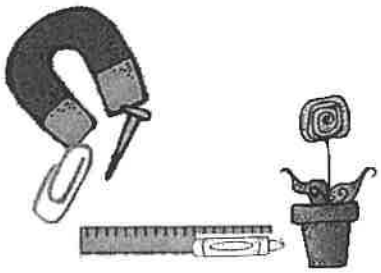
Magnetism



Magnetism is an invisible force that comes from objects called magnets that can push or pull other objects. The area around the magnet is called the **magnetic field.** A magnet has two points, called a **north pole** and a **south pole**, where the magnetism is strongest.



When two magnets are placed pole to pole, a force acts between them. A north and south pole pull each other. This is called **attraction**. Two north poles or two south poles push each other away. This is called **repulsion**.



When placed within a magnetic field, some materials turn into magnets themselves, sometimes briefly or sometimes permanently. These materials are then attracted or repulsed by a magnet. These materials are **magnetic**. Iron and some other metals are examples.

The Earth itself acts like a giant magnet with a magnetic field and two magnetic poles. These poles are found near the Earth's geographical north and south poles. Scientists think the Earth's magnetism is caused by the movement of molten iron at the Earth's core. A **compass** is a navigational device that uses a small magnet called a **needle**. The needle is attracted and repulsed by Earth's magnetism. The needle moves so that one end points to Earth's north pole and the other end points to Earth's south pole. You can make your own compass by rubbing a sewing needle on a magnet, then letting it float in water. If the sewing needle is made of steel, it will stay permanently magnetized.

Did You Know?

The rocky mineral **magnetite**, which contains iron, is naturally magnetic. Early sailors used magnetite tied to and hung from a string as a magnetic compass.

A **maglev train**, or magnetic levitation train, hovers above the track, supported by a strong force of repulsion between magnets on the train and the track. Other magnets are attracted to the train and pull it along the track.

Name:

Magnetism

Define the following vocabulary from the passage.

Attraction – _____

Compass – _____

Magnetic – _____

Magnetic Field – _____

Magnetism – _____

Needle – _____

North Pole – _____

Repulsion – _____

South Pole – _____

What is the difference between a magnet's attraction and repulsion?

Why can't a magnet pick up a ruler?

How would hanging magnetite from a string work as a compass?