PHYSICAL & CHEMICAL CHANGES

State whether each is an example of a Physical (P) or Chemical (C) change.

- 1. Glass breaking
- 2. Hammering wood together to build a playhouse

What is the difference between physical & chemical changes?

- 3. A rusting bicycle
- _____4. Melting butter for popcorn
- 5. Glassblower creating sculptures
- 6. Freezing a chocolate-covered banana
- ____7. Separating sand from gravel
- _____ 8. Spoiling milk
- _____9. Burning toast
- _____ 10. Making salt water to gargle for a sore throat
- 11. Mixing lemonade powder into water
- 12. Cream being whipped
- 13. Water evaporating from a pond
- 14. Cutting grass
- 15. Burning leaves to clear a field
- 16. Humidifier putting moisture into the air
- ____ 17. Corroding metal
- _____ 18. Bleaching your hair
- 19. Fireworks exploding
- 20. Squeezing oranges to make orange juice
- _____ 21. Frying an egg
- ____ 22. Pouring milk on your oatmeal
- _____23. Food rotting in the refrigerator
- _____ 24. Trimming a rose bush
- ____ 25. Making a chopped salad
- 26. Rotting wood



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What's the Matter with Matter?

My Little Book on Matter Chp 2

Name:

Sci Number:

Period:

	What is Matter:	Section 1 definitions:	Read the second paragraph on page 48 and complete the following: It is important to remember the
Word:	Book definition	My sentence definition	differences between physical and chemical properties. You can observe
Pg found			properties without changing the identity of the substance. You can observe
gravity:			
			PHYSICAL AND CHEMICAL PROPERTIES
			What is the difference between a physical & chemical property?
inertia			
		[······································
mass:			State whether each is an example of a Physical (P) or Chemical (C) property.
			1. A rock's density
			2. boiling point of Gatorade
			3. ability of an old car to rust
			4. red color of a ripe apple
matter:			5. ability of wood to ignite
			6. bitter taste of a lemon
			7. melting point of wax
			8. hardness of marble
meniscus			9. Luster (shininess) of gold
			10. Reacts with an acid to form hydrogen
			11. Smell of sulfur
			12. Reacts with a water to form a gas
			13. luster of aluminum foil
newton:			14. texture of a nail file
			15. Supports combustion
			16. Can neutralize a strong acid
		[17. Freezing point of water
volume:			18. Temperature of hot chocolate
	· · · · · · · · · · · · · · · · · · ·	[19. Smoothness of our desks
			20. Mass of a textbook
			21. Smell of an orange
			22. Whistle of a tea kettle
weight:			23. Reacts with oxygen to form carbon dioxide
			24. Sweetness of a Skittle
			Skattles

pg 15

Teach a parent: Today's concept is: Explain the differences

between: Physical/Chemical Properties vs Physical/Chemical Changes?

Please use this format for the Teach It Master It (TIMI) assignments.. This should be fun!! If dancing around the table helps to teach a concept, do it! The better <u>YOU the student</u> can teach the concept, the better YOU the student will understand the concept. AND you might just have some fun too! To teach the assignment/concept, you may use ANY or ALL of these techniques to help. You may also use the book as a guide. PLEASE HAVE FUN!!

A. Simply explain the concept. No written work is necessary.

B. Explain the concept and use some notebook paper to show real-life examples you created while teaching.

C. Write out the thought process you will use to explain the concept. You may do this in steps or a one-chunk paragraph form.

D. Show real-life examples you used along the way to effectively explain the process.

Parent Response

1. _____ I'm not sure my child really understands, therefore, I don't either. Please work with him/her and let's try again.

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Parent Signature:_____ Date: _____

e: ____

Mom or Dad Comments: Please explain how your student taught you this concept and what you learned in 3-5 sentences!

Space for any additional notes from this section:



Section 1: What is Matter? (pages 36 – 42)

- 1. What do a human, hot soup, and a glowing neon sign have in common? Explain.
- 2. Explain how you would find/calculate the volume of each type of matter in the chart at the top of the next column.

Liquid	Solid	Gas

- 3. Matter has volume: pg 36 Mark each of these statements *True* or *False* a. An object's volume is the amont of space the object takes up
 - b. Things with volume can't share the same space at the same time
 - c. _____ When measuring a volume of water in a graduated cylinder, you should look at the bottom of the meniscus.
- d. _____ A liquid's volume is usually expressed in grams or milligrams
- 4. Copy figure 6 on page 39 in the box below. SUMMARIZE the sentences.

	Physical Properties (pg43-46)	С	hemical Properties (pg47)
Definition			
(explanation)			
Types	1. Thermal conductivity	1.	
(examples)	2. Malleability	2.	
	3.	3.	
	4.	4.	
	5.	5.	
	6. Density	6.	
2. Match each physical property in Column B to the correct phrase in Column A, then write			
the correct letter in the space. Use the table on pg 44 to help you!			
Column A			Column B
1. Sand does not dissolve in water			a. state
2. Gold can be made into gold foil			hat have a factor described
3 Ice is the solid form of water			b. thermal conductivity

c. solubility

d. density

e. ductility

f. malleability

_4. Copper can be drawn out into wire

6. Ice cubes float in a glass of water

because of their mass per unit volume.

by the hot chocolate in it

____5. A foam cup protects your hand from being burned

	Physical Changes (pg48)	Chemical Changes (pg49)
Definition (explanation)		
Types	1.	1.
(examples)	2.	2.
	3.	3.
	4.	4.
	5.	5.
	6.	6.

Virtual Lab: Data Table:

Material	Mass (g)	Volume of Water displaced in ml	Sinks or Floats	Explanation?
Wood				
Aluminum				
Plastic				
Lead				
Cork				
Steel				
Clay				
Rubber				
Candle				

Answer Journal Questions Here:

4. Look at figure 7 on page 40.

How does the size, mass, and weight compare between a brick and a sponge'

5. Read the top paragraph on page 41 and complete the following:

a. The SI unit of mass is the _____ but is often expressed in _____ and _____

b. The SI unit of weight and force is the _____, which is equal to about grams on Earth.

6. Complete the chart below

6. Complete the chart below	
Mass is	Weight is
 A measure of the amount of in an object constant for an object no matter where the object is in the universe measured with a expressed in, and 	 a measure of the on on an object depending on where the object is in relation to the Earth measured with a expressed in

7. Space for any additional notes from this section:

Teach a parent: Today's concept is: What is Matter?

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to help. buoyancy act on the object. Buoyancy

acts against the weight of an object and pushes it upward. The upward force, called the buoyant force, opposes the downward force of gravity.

Archimedes, a Greek mathematician, made an important discovery about buoyancy. According to Archimedes' Principle, the buoyant force on an object is equal to the weight of the fluid displaced, or pushed away, by the object. Weight is the measure of the force of gravity on an object. Weight is determined by mass, the amount of matter in an object. Archimedes stated his principle in terms of weight and not mass because scientists in ancient times were not yet aware of the idea of mass.

Archimedes' Principle explains why an object will float or sink. If the object displaces an amount of water that weighs as much as or more than the object, the object will float. For example, even though a beach ball displaces only a small amount of water, the mass of the displaced water is greater than the mass of the beach ball. This is why the beach ball floats. An object that has more weight and mass than the water it displaces, such as a rock, will not float.

In this Virtual Lab, you will find the mass of an object using an electronic balance. You will then predict if an object will float by comparing its mass to the mass of the water displaced by the object.



Virtual Lab : http://glencoe.mcgraw-

hill.com/sites/0078741858/student_view0/unit1/chapter3/virtual_labs.html#

Why do things float?

convert the volume of the water displaced from milliliters (mL) to grams (g). The mass of 1 mL of fresh water is 1 g. If you know the volume of water displaced, you also know the mass of the water displaced. For example, if the volume of water displaced is 5 mL, the mass of the water displaced is 5 g. If the volume is 2.7 mL, the mass is 2.7 g, and so on.

To do this Virtual Lab, you will need to

Objectives:

- State Archimedes' Principle.
- Describe Archimedes' Principle in terms of buoyancy.
- Predict whether objects will float or sink in water.

Procedure:

1. Find the mass of an object by dragging it to the electronic balance. Record its mass in the Table.

2. Drag the object above the tank and drop it into the water.

3. Read the graduated cylinder. Record in the Table the volume of the water displaced by the object.

4. Compare the mass of the object to the volume of the water displaced. Remember to convert the volume of the water to its mass in grams.

5. Hypothesize whether the object sank or floated by clicking the radio button next to "float" or "sink." Check your hypothesis by clicking Watch What Happened.

6. Did the object sink or float? Enter the results of the experiment in the Table.

- 7. Repeat steps 1-6 for each object.
- 8. Complete the Journal questions.

Density

Calculate density, and identify substances using a density chart Density is a measure of the amount of mass in a certain volume. This physical property is often used to identify and Substances classify substances. It is usually expressed in grams per cubic centimeters, or g/cm³. The chart on the right lists the densities Gold of some common materials.

EQUATION:

density = mass / volume D = m / V

SAMPLE PROBLEM: What is the density of a billiard ball that has a volume of 100 g/cm³. And a mass of 250g? $D = 250q/100 q/cm^3$ $D = 2.5 \text{ g/cm}^{3}$

Your Turn!

1. A loaf of bread has a volume of 2270 cm³ and a mass of 454q. What is the density of the bread?

2. A liter of water has a mass of 1000g. What is the density of water? (Hint: $1 \text{ ml} - 1 \text{ cm}^3$)

3. A block of wood has a density of 0.6 g/cm³ and a volume of 1.2 cm³. What is the mass of the block of wood? Be careful!

4. Use the data below to calculate the density of each unknown substance. Then use the density chart above to determine the identity of each substance.

	Mass (g)	Volume	Density (g/cm³)	Substance
		(cm³)		
	Ex: 4725	350	4725 [.] / [.] 350 = 13.5	mercury
а.	171	15		
b.	148	40		
c.	474	250		
d.	680	1000		

Densities of

Substances

Mercurv

Aluminum

Gasoline

Air (dry)

Lead

Iron

Bone

Density

(g/cm³)

19.3

13.5

11.4

7.87

1.7-2.0

0.66-0.69

3.7

Section 2: Describing Matter (nages 43-51) definitions.

Word: Pg found	Book definition	My sentence definition
Physical property		
Physical change		
Chemical property		
Chemical change		
density		

Section 2: Describing Matter (pages 43-51)

Describing Density: pg 44

1. Look on page 45. Skim "Spotlight on Density" and "Using Density to Identify Substances"

- a. What is the formula for calculating density?
- b. What is the density of water?
- c. Why does a golf ball feel heavier than a ping-pong ball?

2. What is density? ______

Pg-10

......

3. Look on page 46. What does figure 12 tell you about the density of the liquids in the jar?

3. What are 2 reasons why density is a useful property for identifying substances

Density Questions & Calculations: SHOW YOUR WORK!! Density: D= m/v (mass / volume) You can also rearrange the formulas as: Mass: m= D x V or Volume: V = m/D 1. Find the density of a substance with a mass of 5kg and a volume of 43 m³

2. Suppose you have a lead ball with a mass of 454g. What is its volume? (density of lead is: 11.35 g/cm^3)

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3. What is the mass of a 15mL sample of mercury? (density of mercury is: 13.55 g/cm³)

4. A block of pine wood has a mass of 120g and a volume of 300 cm³. What is the density of wood?

Space for any additional notes from this section: