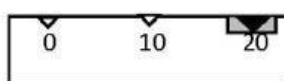


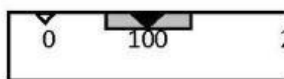
Name: _____

Teacher: G P S

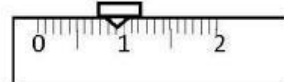
Period: _____

Study Guide: CRM 2.3 - Properties & Changes of Matter**Activity 1: Measuring Matter**

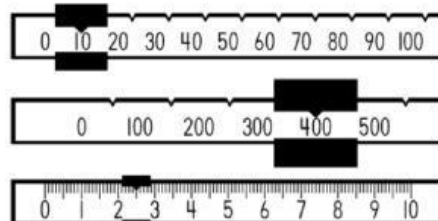
Using the sliders from a triple beam balance- include units...



What is the mass of the object to the left? _____



What is the mass of the object to the right? _____

**Mass vs weight**....which changes with gravity? _____

Which stays the same for the same object no matter where it is found? _____

On which planet would you have more mass? _____

On which planet would you weigh more? _____



Earth



Jupiter

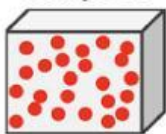
Find the Volume for each of these objects

Regular Objects	Liquids- 2 examples	Irregular Objects- the pebble
$V = \text{_____} \times \text{_____} \times \text{_____}$	Tool:	Technique:
	1. 2.	
Volume with units:	Volume with units: 1. 2.	Volume with units:

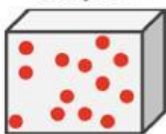
2.3 Prop & Changes of Matter

Activity 2: Density

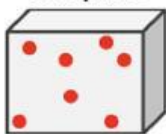
Sample A



Sample B



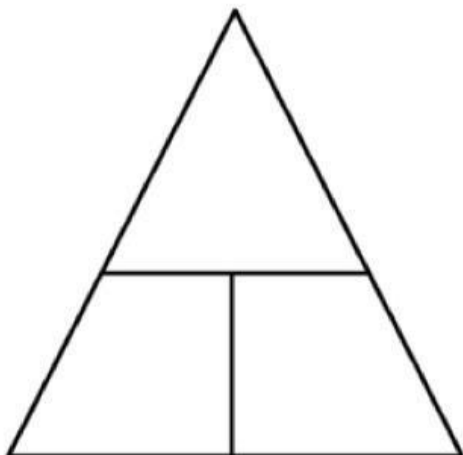
Sample C



Which has the greatest density? _____

Which has the least density? _____

Fill in the Density Triangle:



For the Unknowns on the right, calculate the missing value and then use the Table of Densities below to identify each of the unknown substances.

1. Unknown A:

Density:	Mass: 1932 g
	Volume: 100 cm ³

2. Unknown B:

Density:	Mass: 178.4 g
	Volume: 20 cm ³

3. Unknown C:

Density: 2.64 g/cm ³	Mass:
	Volume: 55 cm ³

4. Unknown D:

Density: 3.52 g/cm ³	Mass: 704 g
	Volume:

Table of Densities

Solids	Density g/cm ³	Solids	Density g/cm ³
Marble	2.56	Copper	8.92
Quartz	2.64	Gold	19.32
Diamond	3.52	Platinum	21.4

5. Now let's calculate a half size sample of Unknown A:

Density:	Mass: 966 g (half of 1932 g)
	Volume: 50 cm ³ (half of 100 cm ³)

6. Did the density change?

2.3 Prop & Changes of Matter

Activity 3: Properties of Matter

Match the property to its best definition

1. Melting point

2. Boiling point

3. Magnetism

4. Thermal conductivity

5. Electrical conductivity

6. Malleability

7. Solubility

8. Reactivity

9. Flammability

10. Density

a. How well electric currents move through a substance

b. Ability to burn easily

c. Amount of matter packed into a given amount of space

d. Ability to be rolled or pounded into different shapes

e. Force of attraction that can act at a distance

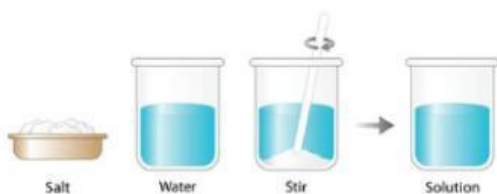
f. Rate at which a substance transfers heat

g. Ability of a substance to dissolve into another substance

h. Temperature a substance changes from solid to liquid

i. Ability to interact with another substance to form a new substance

j. Temperature a substance changes from a liquid to a gas



Making a Solution:

1. The salt is the _____

2. The water is the _____

3. The solution is _____

Size Dependent or Size Independent?

Place the words from the word bank into the correct category. Remember size independent are characteristic properties.

Word Bank: melting point • solubility • volume • magnetism • conductivity • weight • malleability • density • reactivity • flammability • mass

Size Dependent	Size Independent

2.3 Prop & Changes of Matter

Activity 4: Characteristic Properties				
Use the table of characteristic properties and the descriptions to determine the identity of these mystery metals:				
				1. Mystery Metal A is not magnetic and is the best conductor of both thermal and electrical energy: 2. Mystery Metal B is the least dense, is not magnetic, and melts the fastest: 3. Mystery Metal C is attracted to a magnet and would be a liquid by 1500 °C: 4. Mystery Metal D has the highest melting point and is the worst conductor of electricity:
Property	Aluminum	Iron	Gold	Nickel
Density	2.70	7.87	19.3	8.90
Melting Point	660 °C	1538 °C	1064 °C	1455 °C
Thermal conductivity	237	79	315	91
Electrical conductivity	62%	17%	76%	22%
Magnetism	no	yes	no	yes

Activity 5: Kinds of Changes			
1. In a _____ change, you change how a substance looks or feels, but not what it is. 2. In a _____ change, you turn something into an entirely new substance with its own unique properties.			
Identify the type of change- Physical or Chemical?			
1. Water boiling	P	C	6. Dissolving Kool Aid in water
2. Baking a cake	P	C	7. Bike chain rusting
3. Lighting a candle	P	C	8. A firework exploding
4. Banana turning brown	P	C	9. Boiling water for tea
5. Crushing a can	P	C	10. Digesting food
List at least 6 clues that can help you determine if a Chemical Change may have occurred:		1. 2. 3. 4. 5. 6.	

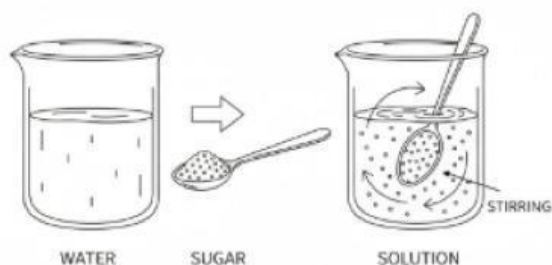
2.3 Prop & Changes of Matter

Activity 6: Conservation of Matter

Complete the Law of Conservation of Matter:

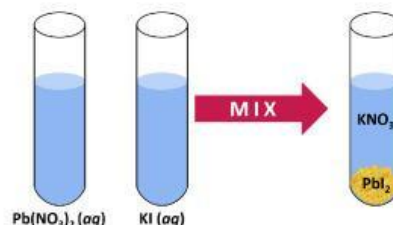
1. Matter cannot be _____ or _____, it can only be _____.

Kind of Change:

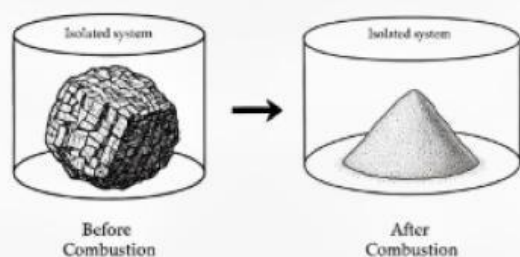


Start: 100g water+ 25g sugar End: _____

Kind of Change:



Start: 100g + 100g End: _____

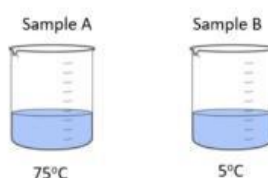
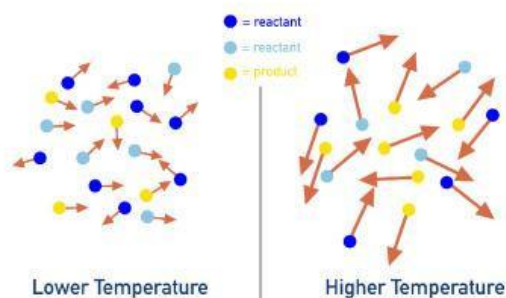


Start: 500g coal End: _____

2. The mass of the _____ (or things you start with) is always equal to the mass of the _____ (or things you have at the end)

Activity 7: Temperature and Reaction Rates

Circle the temperature where the particles move faster:



- In which sample would Alka Seltzer dissolve faster?
- In which sample would sugar dissolve slower?
- In which sample would a glow stick last longer?