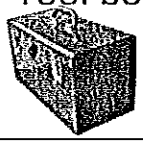
Answer Key

Definition	Property	Formula/method	Tool	Unit
Mass = the amount of matter in an object	Mass	X	Triple Beam Balance	g
Weight = the amount of grav. pull on an object	[redacted]			
Volume = the amount of space an object takes up	Volume of liquids	X	graduated cylinder	mL
	Volume of Rectangular Solids	L x W x H	ruler	cm^3
	Volume of Irregular solids	water displacement	g.c.	cm^3 (or mL)
Density = the amount of mass in a certain volume	Density	Mass ÷ Volume	X	g/mL or g/cm^3

Key

Define Volume - the amount of space an object takes up

1) TOOL for volume of liquids	Grad. cyl.
2) Relationship between cm^3 and mL	cm^3 = mL
3) METHOD for volume of irregular solids	water displacement
4) TOOL for volume of rectangular solids	ruler
5) UNIT for volume of liquids	mL
6) UNIT for volume of rectangular solids	cm^3
7) FORMULA for volume of rectangular solids	L x W x H

Object	Tool	Unit	Explain how to find volume of this object in words:
1) Baseball 	G.C.	cm^3	use water displacement, drop into a g.c. an measure how much it rises
2) Tool box 	ruler	cm^3	measure L and W and H with a ruler and multiply L x W x H
3) Grape Juice 	G.C.	mL	Pour into a G.C.

Key

Mass & Weight Activity

Name _____
Date _____
Period _____

DIRECTIONS: 1) DECIDE if each statement is TRUE or FALSE.
2) CIRCLE the word TRUE or FALSE.
3) IF it is FALSE, REWRITE the statement to make it true.

1) **Weight stays constant.**

TRUE (FALSE)

If FALSE, REWRITE to be TRUE: Mass stays constant

2) **The Earth has more mass than Jupiter.**

TRUE (FALSE)

If FALSE, REWRITE to be TRUE: The Earth has less mass than Jupiter.

3) **The moon has a stronger gravitational pull than Earth.**

TRUE (FALSE)

If FALSE, REWRITE to be TRUE: The moon has weaker grav. pull than Earth.

4) **Your weight will decrease if you stand on top of a mountain.**

(TRUE) FALSE

If FALSE, REWRITE to be TRUE: _____

5) **You would weigh less on the Pluto than on Earth because Pluto is smaller in size.**

TRUE (FALSE)

If FALSE, REWRITE to be TRUE: ... Because Pluto has weaker gravity

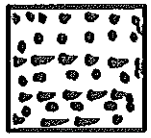
Spongebob is going on a trip. He will be travelling to the moon and after that to Saturn. NASA is concerned about how much the rocket can carry, so they want to make sure I am in top physical condition for the trip. They do not want me to gain weight before the trip, or is it that they don't want my mass to change?

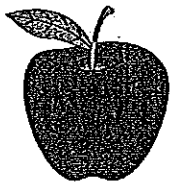
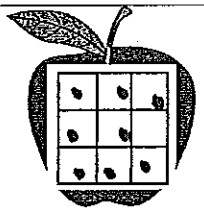
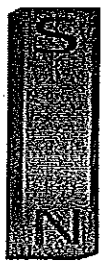
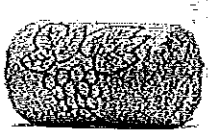
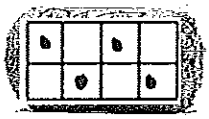
At sea level on Earth, NASA is going to measure my mass using a tool called a triple beam balance. The unit of measurement for mass is g. The strength of the pull of gravity changes depending on your distance from the source of gravity. On Earth, the source of gravity is the core. The higher your elevation, the less you weigh because you are farther from the source of gravity.

First, I teleport to the bottom of the Grand Canyon. When I arrive, my mass will stay the same but my weight will probably change. Down here, I am closer to the source of gravity, so the pull of gravity is stronger and I weigh more than at sea level.

In my next expedition, I teleport to Pluto, where I will have the same mass but a different weight than I had on the Earth. In studying matter, scientists generally say that objects (even planets) with more mass, have a greater gravity. Pluto has less mass than Earth, and therefore weaker gravity. So, I will weigh less than I do on Earth.

Key

Define *Density* -	
Draw a picture of LESS dense particles: 	Draw a picture of MORE dense particles: 
Formula for Density :	mass ÷ volume
Units for density:	g/mL (liquids) or g/cm³ (solids)
The density of water is:	1 g/mL
Objects float (in water) if:	less than 1 g/mL
Objects sink (in water) if:	more than 1 g/mL

Object	Mass (g)	Volume (cm^3)	Density (g/cm^3)	Draw the particles	Float or Sink in water
1) apple 	9.5 g	**10** cm^3	0.95 g/cm^3		F
2) magnet 	60 g	10 cm^3	6 g/cm^3		S
3) cork 	4 g	8 cm^3	0.5 g/cm^3		F

Object	Density (g/cm^3)
1) apple 	0.95 g/cm^3
2) magnet 	6 g/cm^3
3) cork 	0.5 g/cm^3
4) water	1 g/mL
5) oil	0.9 g/mL
6) corn syrup	1.4 g/mL

In the space below, write and show what would happen if you dropped these 3 items in with our corn syrup, water, and oil from class!