

NAME: _____

PERIOD: _____

MEASUREMENTS LABORATORY

EQUIPMENT: GRADUATED CYLINDER RULER BALANCE BEAKER

OBJECTS: MARBLE, BALL BEARING, RUBBER AND METAL WASHERS, NAIL, SINKER, SLIDE, ICE CUBE, PIE PAN

PROCEDURE: MASS A SMALL PIECE OF PAPER TOWEL TO FIT ON THE PAN OF YOUR BALANCE. USE THIS EACH TIME YOU MASS AN OBJECT. BE SURE TO DEDUCT THE MASS FROM THE MASS OF THE OBJECT BEFORE RECORDING. ZERO YOUR BALANCE. ACCURACY IS A NECESSITY IN THIS LABORATORY EXERCISE!

LINEAR MEASUREMENT: WHICH OBJECTS IN TABLE 1 BELOW CAN BE MEASURED WITH RESPECT TO LENGTH, WIDTH, AND HEIGHT? TO OBTAIN THE MEASUREMENTS OF THE ICE CUBE, FIND THE LENGTH OF THE TOP OF THE CUBE AND THE BOTTOM, THEN ADD THOSE TOGETHER AND DIVIDE BY 2 TO GET AN AVERAGE LENGTH. DO THE SAME FOR THE WIDTH. SHOW THOSE MEASUREMENTS IN CHART 1 BELOW:

CHART 1.

OBJECT	LENGTH (Cm)	WIDTH (Cm)	HEIGHT (Cm)

WHAT INSTRUMENT ARE YOU USING FOR LINEAR MEASUREMENT? _____

VOLUME: VOLUME IS THE AMOUNT OF SPACE AN OBJECT OCCUPIES, SO YOU NEED TO FIND THE VOLUME OF AN OBJECT BY MULTIPLYING LENGTH X WIDTH X HEIGHT. THE UNITS USED HERE ARE Cm. X Cm. X Cm. SO THE UNIT OF VOLUME IS Cm³, BUT WHAT IF THE OBJECT IS STRANGELY SHAPED, SUCH AS A PAPER CLIP? IT BECOMES NECESSARY TO USE DISPLACEMENT OF WATER. POUR A CERTAIN AMOUNT OF WATER IN YOUR GRADUATED CYLINDER-- SO THAT IT'S EASY TO SEE HOW MUCH. PLACE YOUR OBJECT IN THE CYLINDER AND MEASURE THE AMOUNT OF CHANGE. RECORD VOLUMES IN TABLE 1.

MASS: MASS IS DEFINED AS _____

WEIGHT IS DEFINED AS _____

WHAT INSTRUMENT DO YOU USE TO MEASURE MASS? _____

MASS THE OBJECTS AND RECORD THOSE MEASUREMENTS IN TABLE 1. IT IS EXTREMELY IMPORTANT THAT YOUR MEASUREMENTS BE VERY ACCURATE.

DENSITY: DENSITY IS A MEASURE OF HOW CLOSELY PACKED ATOMS ARE. IT REQUIRES VOLUME AND MASS MEASUREMENTS. THE FORMULA FOR DENSITY IS MASS DIVIDED BY VOLUME OR M/V. IF THE MASS OF AN OBJECT IS 4 Gm AND THE VOLUME IS 2 Cm³, THEN THE DENSITY IS 4 Gm/2 Cm³ OR 2 Gm/Cm³. DENSITY IS USED TO DETERMINE WHAT AN OBJECT IS MADE FROM.

AFTER YOU COMPUTE DENSITY AND RECORD IN TABLE 1, LOOK ON P. 111 IN YOUR TEXT AND IDENTIFY WHAT EACH OBJECT IS MADE OF.

