Name: _____

Period:_____

Chapter 17 Review

Density — Know that it is ratio of mass to volume.
   Know that density is how compressed something is (how much matter is crammed in).
   Know that something that is denser sinks.
   Be able to calculate density from mass and volume.
   Know that a substance is denser in its solid than in its liquid form.
   Know that water is the one exception to the above rule: water is denser than ice. Know the density of water.

Consider these liquids: Liquid A, 2.43 g/mL; Liquid B, 1.0 g/mL; Liquid C, 0.87 g/mL.

How will these liquids stack top to bottom?

What is Liquid B?

A 1.75 g/mL object is dropped into the density column.
      Where will it end up?

Where would a piece of ice end up?

Find the density of a 45 gram rock that takes up 15 milliliters of space.

A 30 milliliter object rock is 15 grams. Find density.

Will the following object float?

Plastic, 1.28 g/mL _____

Decide if the following objects will float or sink in water.

Wood, .59 g/mL _____   Clay, 1.86 g/mL _____

What is denser liquid silver or solid silver?

Why?

Know and understand these words: Hardness; Elasticity; Brittleness; Malleability; Tensile Strength; Viscosity.

1. Density	a. A measurement of how easily a solid can be pounded into thin sheets	1. tensile strength	a. Upward force of a liquid or gas pushing upon something immersed in it.
2. Hardness	b. A measurement of the "compactness" of a substance; ratio of mass to volume.	2. viscosity	b. Any material that flows; either a gas or a liquid.
3. Brittleness	c. Measure of a solid's ability to return to its original shape after stretching.	3. buoyancy	c. Measure of a fluid's resistance to flow. (How thick a fluid is.)
4. Elasticity	d. A measure of how easily a solid will shatter.	4. g/mL	d. Measure of how hard it is to break something by pulling.
5. Malleability	e. A measure of how easily a solid can be scratched.	5. fluid	e. Unit of density.

Which is harder: diamond or glass?   Soap or marble?

Which is more malleable: aluminum or glass?

Which is more brittle: glass or rubber?

Which is more viscous: honey or water?

Which is more elastic: rubber or wood?
      A rubber band or salt-water taffy?

Which has more tensile strength: steel or paper?
      Steel or spider web?

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Buoyancy:
        Know that buoyancy is the upward pressure a fluid exerts on something in it.
        Know that Archimedes' Principle states that if an object displaces an amount of water equal to its mass, it will float.
        Know that shape makes objects "seem" less dense (why a steel boat floats).
        Be able to determine whether an object will float or sink in water by its volume (how much it displaces)
              and how much water it displaces.
        Know that Archimedes' Principle works for objects floating in air, too.

Why do you seem to weigh less in water?

A 300 gram boat displaces 400 mL of water. How much cargo can it carry and still float?

A 400 gram boat displaces 300 grams of water. Will it sink or float? _____

What is more dense a steel boat or a block of steel?

A 150 gram object displaces 125 mL of water. Will it sink or float? _____

A hot air balloon has a mass of 6,000 kilograms. How much air will it need to displace to be able to float?

Why does a helium balloon float. (Cannot say that Helium is lighter than air.)

Gas Laws—Know the basics about the two Gas Laws.
        Boyle's Law— $P_1V_1 = P_2V_2$
                When you increase the amount of volume of gas in a container the pressure goes up.
                    (More air in a tire makes its pressure go up.)
        Charles' Law: $V_1/T_1 = V_2/T_2$
                When you increase temperature, the volume increases.
                    (If you heat up a balloon, it gets bigger.)

If I put a balloon in the freezer what will happen?	If I take air out of a tire what will happen to its pressure?
Which gas law does this demonstrate?	Which gas law does this demonstrate?
A gas at 50°C has a volume of 50 mL. If I increase the temperature to 80°C what will its volume be? $V_1/T_1 = V_2/T_2$ $50mL/50C = V/80C$ $V_2 = 80mL$	A gas has a pressure of 40 pascals and a volume of 30 mL. If the pressure decreases to 30 pascals, what will its volume be?