WEIGHT LOSS UNDER WATER

Objective: Look at buoyancy from the point of view of "weight loss".

RESEARCH

Weight: measure of force of gravity on mass

Mass: amount of matter in an object

Weight Loss: can be caused by buoyancy

RESEARCH

Buoyancy: fluids possess a force that pushes up on objects, lessening their weight

Buoyancy causes some objects to **<u>float</u>**

RESEARCH

Density of a fluid compared to density of immersed object:

determines whether an object sinks or floats. Any change in density changes the amount of buoyancy.

RESEARCH

To investigate buoyancy:

you can measure "weight loss" objects experience

PROCEDURE

1. Weigh each object using the spring scale. Record the weights in the data table.
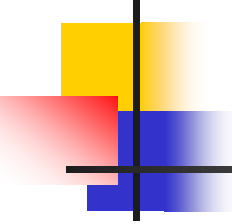   <u>1 Newton = 100 grams</u>

PROCEDURE

2. Weigh each object in water. DO NOT put the spring scale in the water. Record.
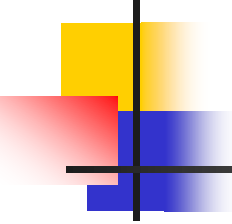
3. Calculate the difference in weights.

CALCULATE

Divide the weight in water by the weight in air for each object to get the Ratio of Weight in Water to Weight in Air:

Round to the .XX (hundredths)

CONCLUSIONS

1. Did any of the objects lose mass?

   no

2. Did any of the objects lose weight?

   yes (all of them)

3. What causes the objects to lose weight while immersed in water?

   buoyancy

CONCLUSIONS

4. How would using salt water instead of fresh water to immerse the objects in affect the amount of weight loss?

   there would be a bigger weight loss because the liquid would be more dense and have more buoyancy

5. Which kinds of objects had a higher ratio?

   metal

6. What does it mean when objects have a higher ratio?

   that their weight in water is close to their weight in air

7. What causes the ratio of weight in water to weight in air to be different for different objects?

   metal objects tend to be denser which offsets the buoyant force