Team Names _____

Density Column

Honors Biology Inquiry Lab

Introduction: Density is the ratio of an object's mass to its volume. Water has a density of 1g/mL. However, salt added to water changes the density of the solution. The more salt added, the denser the solution.

Purpose: Create a 5 layer colored density column by making five salt solutions of varying densities. The solution with the greatest density will be the bottom layer.

Materials: water, salt, food coloring, graduated cylinder, balance, stir rod, beakers,

Procedure: Your team will be given a container of salt. You are not required to use the entire container, but no extra salt will be given. Each layer should be equal in size, approximately 20-30mL and colored as indicated in the diagram. Record your data in the data table below and calculate the density for in each layer.

Layers	Grams of salt	mL of H_2O	Density calculations (g/mL)
Yellow			
Blue			
White (clear)			
Green			
Red			

Yellow

Blue

White (clear)

Green

Red
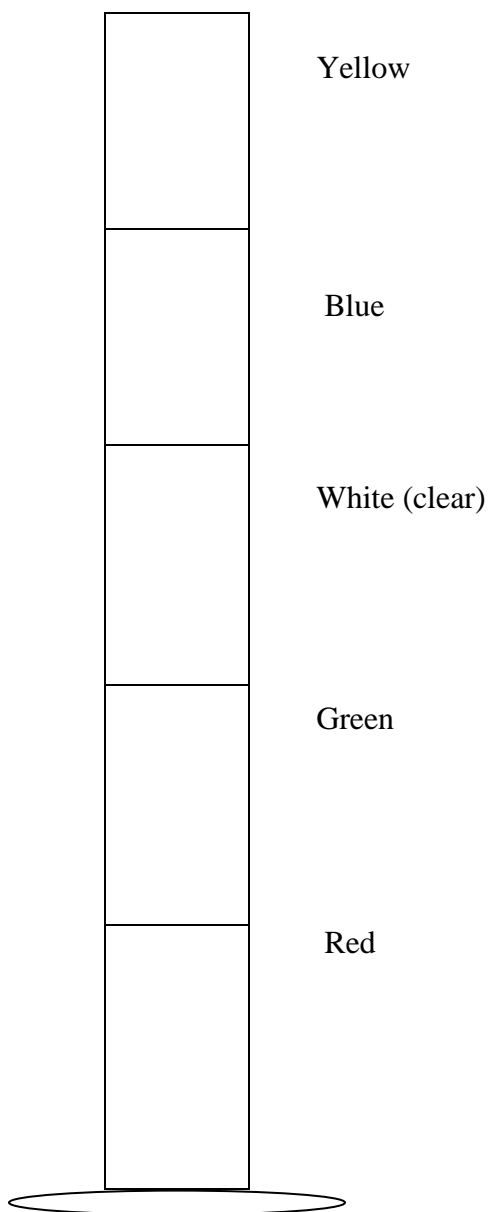
Your team will determine what the density (mass/volume) of each layer must be in order to have at least a difference of 0.2g/ml between each layer. All calculations must be shown and labeled (including correct units). Remember, the layer with the highest density must be on the bottom.

Your team must build the column. After you make salt solutions of the appropriate densities, put 1-2 drops of food coloring in each layer. You do not need food coloring in the white layer. Using a pipette, carefully layer the solutions one on top of another. The greater the difference between the layers, the easier this will be. When you have successfully built your column, call you teacher over to receive your grade.

Grade _____
Teacher's signature _____

Wash and dry all materials and return them to your lab drawer.