

## Determining the Density of a Lego Model

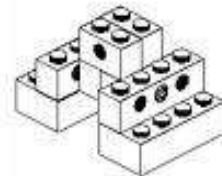
### Pre lab

- 1) What is density? (Hint: Chapter 1, page 19)
- 2) How do you calculate density?
- 3) Write a formula to find density.

Name(s): \_\_\_\_\_  
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### Materials

- Lego Pieces
- Water
- Graduated Cylinder



### Procedure

- 1) Build a Lego Model (be sure your model will fit into your graduated cylinder.
- 2) Measure the mass of your Lego Model in grams. Record the mass to the nearest tenth of a gram.
- 3) Fill your graduated cylinder about  $\frac{3}{4}$ ths full. Record the volume of the water.
- 4) Lower the Lego model into the water. Record the volume of the water when the Model is floating.
- 5) Push the Lego Model until it is just submerged. The Lego will “lift” the level of water. **This is known as *water displacement***. Hold the Lego model there and record the new volume to the nearest tenth of a millimeter.
- 6) Remove your Lego model, dry all equipment and clean your area.

### Data and Observations

- 1) Sketch a diagram of your Lego model.

Quantity	Measurement (label)
Mass of Lego Model	
Volume of water	
*Volume displaced by floating Lego model	
*Volume displaced by submerged Lego model	

\*Determine the water displaced by the Lego model by subtracting the initial volume from the final volume.

### Analysis

Calculate the Lego model’s density. (Show your work and label using correct units. Round your answer to the nearest hundredths)

Is the density of the Lego greater or less than the density of water? How do you know?

If you take apart your Lego model, what will happen to the density of the pieces? Explain.