

# Density of Water, a Block, & a Rock

## I. Water

1. Zero your balance and find the mass of an empty graduated cylinder. Record the value on the second line in the table below labeled "Mass of just the Graduated Cylinder".
2. Fill the graduated cylinder with approximately 50 mL of water. Read and record this value as the "Volume of Water" in the data table.
3. Zero your balance, place the filled graduated cylinder on it, and measure the mass of the graduated cylinder and water. Record the value in your data table labeled "Mass of Graduated Cylinder with H<sub>2</sub>O".
4. Calculate the mass of just the water by **subtracting** the mass of just the graduated cylinder from the mass of the graduated cylinder with H<sub>2</sub>O.
5. Finally, calculate the Density of Water by **dividing** the volume by the mass.

ROUND TO THE NEAREST TENTH ! (.1)

Mass of Graduated Cylinder with H<sub>2</sub>O \_\_\_\_\_ grams

-Mass of just the Graduated Cylinder - \_\_\_\_\_ grams

Mass of just the Water \_\_\_\_\_ grams

Volume of the Water \_\_\_\_\_ milliliters

Density = Mass ÷ Volume

Density = Mass of H<sub>2</sub>O \_\_\_\_\_ grams ÷ Volume of H<sub>2</sub>O \_\_\_\_\_ milliliters

Density = \_\_\_\_\_ grams/milliliter Your answer should be about \_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

If an object has a density >greater than> \_\_\_\_, it will \_\_\_\_\_  
& if it has a density <less than< \_\_\_\_, it will \_\_\_\_\_.



QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

## II. Block

1. Zero your balance and find the mass of the "Jenga Block". Record the value in the table below.
2. Measure the Length, Width, and Height of the Jenga Block. Record the values in the data table.
3. Calculate the volume of the Jenga Block and record it in the data table.
4. Now that you have the Mass & Volume of the Block, calculate its Density!

ROUND TO THE NEAREST TENTH ! (.1)

Mass of Jenga Block \_\_\_\_\_ grams

Length = \_\_\_\_\_ cm    Width = \_\_\_\_\_ cm    Height = \_\_\_\_\_ cm

Volume of a Rectangle = Length x Width x Height

Volume of the Jenga Block \_\_\_\_\_ cm<sup>3</sup>

Density = Mass ÷ Volume

Density = Mass of Block \_\_\_\_\_ grams ÷ Volume of Block \_\_\_\_\_ cm<sup>3</sup>

Density = \_\_\_\_\_ grams/cm<sup>3</sup>

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

The Jenga Block has a Density that is \_\_\_\_ than 1.  
The Jenga Block will \_\_\_\_\_ in water!



### III. Rock

1. Zero your balance and find the mass of the Rock. Record the value in the table below.
2. Pick up your graduated cylinder and read it at eye level at the bottom of the meniscus and record in the data table as "Volume # 1 Initial".
3. Tilt the graduated cylinder and slide the Rock in. The water level will rise. Read the graduated cylinder at eye level at the bottom of the meniscus and record it in the data table as "Volume # 2 Final".
4. Now that you have the Mass & Volume of the Rock, calculate its Density!

ROUND TO THE NEAREST TENTH ! (.1)

Mass of Rock \_\_\_\_\_ grams

Volume # 2 Final (Graduated Cylinder, Water, & Rock) \_\_\_\_\_ milliliters

-Volume # 1 Initial (Gaduated Cylinder and Water) - \_\_\_\_\_ milliliters

Volume of Rock \_\_\_\_\_ milliliters

Density = Mass ÷ Volume

Density = Mass of Rock \_\_\_\_\_ grams ÷ Volume of Rock \_\_\_\_\_ milliliters

Density = \_\_\_\_\_ grams/milliliters

The Rock has a Density that is \_\_\_\_ than 1.  
The Rock will \_\_\_\_\_ in water!

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_



## Density Lab Questions

1. The amount of **matter** in an object is its \_\_\_\_\_.
2. The amount of **space** an object takes up is its \_\_\_\_\_.
3. The amount of **matter in a space** is an object's \_\_\_\_\_.
4. What is the **formula** for Density? \_\_\_\_\_ = \_\_\_\_\_ / \_\_\_\_\_
5. What **instrument** is used to measure **mass**? \_\_\_\_\_
6. What **units** are used to measure **mass**? \_\_\_\_\_
7. What **instrument** is used to measure a **rectangular or cube shaped solid**? \_\_\_\_\_
8. What **units** are used to measure a **rectangular or cube shaped solid**? \_\_\_\_\_
9. What **instrument** is used to measure an **irregularly shaped solid**? \_\_\_\_\_
10. What **units** are used to measure an **irregularly shaped solid**? \_\_\_\_\_
11. What **units** are used for **density**? \_\_\_\_\_ / \_\_\_\_\_
12. The **density of water** is approximately = to \_\_\_\_\_.
13. If an object has a density **greater than 1** it will \_\_\_\_\_.
14. If an object has a **density less than 1** it will \_\_\_\_\_.
15. What do you think would happen to the **density of the rock** if a piece of it **broke off**?  
A. Increase B. Decrease C. Stay the Same
16. What do you think would happen to the **density of the block** if it were **cut in half**?  
A. Increase B. Decrease C. Stay the Same
17. How should you **read the pointer on your balance & the water level on your graduated cylinder**?  
At \_\_\_\_\_
18. **Where** on the **meniscus** should you **read the water level**? At the \_\_\_\_\_.
19. **Draw** where the **block** would be in a tank of water if you were to drop it in.
20. **Draw** where the **rock** would be in a tank of water if you were to drop it in.

