

What is Density?

Density is how much stuff (mass) is in a certain space (volume). We can think of it as how heavy something is for its size.

Why is Density Important?

Understanding density helps scientists figure out why some things float and others sink. For example, a rock sinks in water, but a boat floats!

Five Steps to Calculate Density

1. **Step 1: Understand the Formula**

Density can be calculated with the formula: $Density = Mass / Volume$. This means we will divide the mass of an object by its volume.

2. **Step 2: Measure the Mass**

Use a scale to find out how heavy your object is. The mass is usually measured in grams (g). For example, if you have a small toy and it weighs 100 grams, that's your mass.

3. **Step 3: Measure the Volume**

Find out how much space your object takes up. You can do this by using a measuring cup with water! Drop your object in, and see how much water rises. If the water rises by 20 milliliters (mL), that's your volume.

4. **Step 4: Use the Formula**

Now it's time to put your numbers into the formula! Using our example:

Mass = 100 g

Volume = 20 mL

So, $Density = 100 \text{ g} / 20 \text{ mL} = 5 \text{ g/mL}$. This means that for every milliliter of space, there are 5 grams of your object!

5. **Step 5: Interpret Your Result**

Now you know the density! If the density is less than the density of water (which is 1 g/mL), your object will float. If it's more, it will sink!

And there you have it! You have learned how to calculate density step by step. Now you can try it with different objects around your home!