Atoms and Molecules Video (stop at 2:45)

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DENSITY

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What is Density?

- Density is the amount of mass per unit of volume.
  - **Density= mass divided by volume**
  - **D= m/v**
    - D=density, m=mass, v=volume
- Or in other words:
  - How heavy something is for its size.

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How packed an object is…

- Density will tell you if an object has particles really close together or further apart.
  - Which has a higher density?

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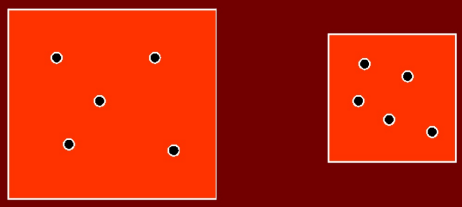
Can you answer this?

Which has a higher density?



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Units for Density

We use the units **grams/cubic centimeter** or **grams/milliliter.**

g/cm^3 or g/mL

These units come from:

-grams for mass

-cm^3 or mL for volume

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Does density change?

- Density is a proportional relationship. That means that as long as the mass and volume are proportional to each other the density will not change.
  - Ex. If you have piece of clay that has a density of $2g/cm^3$. The clay will have the same density whether you have a large piece or a small piece. The density does not change.
  - Most substances have a predictable density (i.e. Water has a density of 1g/mL).

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To float or not to float

- A substance that has a lower density will float on a substance that has a higher density.
- Ice floats on water because it is less dense. Can you think of other things you've noticed that float because of their densities?
  - Anything with a density of more than 1g/mL will sink in water, less than 1g/mL will float

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Practice

1. What is the density of this object?
2. Will it float or sink in water? How do you know?

Answer

- Density
  - D=m/v
    - Mass=200 g
    - Volume= 5cm x 10cm x 2cm= 100cm^3
    - D= 200g/100cm^3= **2g/cm^3**

The object will sink in water because it has a higher density than water (1 g/mL).

Study Jam Density Video

Density Stations

I can determine the relative density of an object.

Put these liquids in order of density.

Water
Rubbing Alcohol
Corn Syrup
Oil
Dish soap