

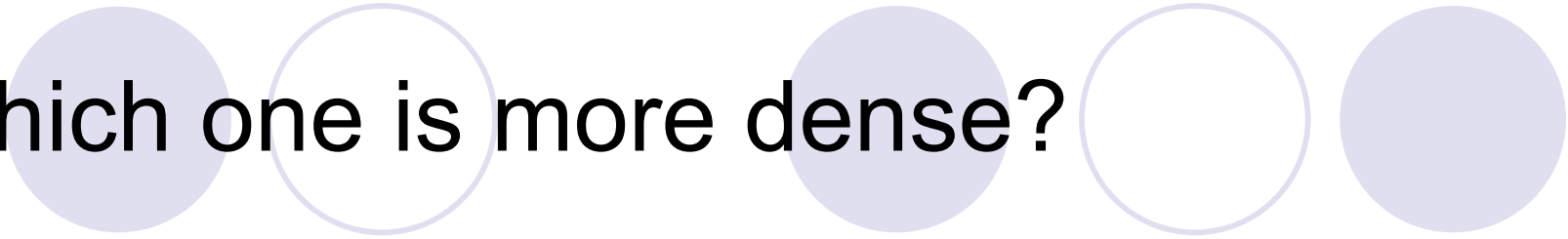
Density

A decorative header consisting of five circles. The first circle is solid light purple. The second circle is white with a light purple outline. The third circle is solid light purple. The fourth circle is white with a light purple outline. The fifth circle is solid light purple.

What is density?

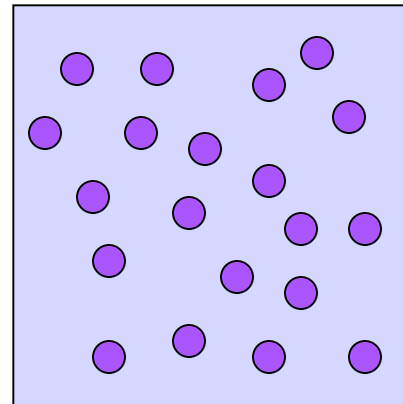
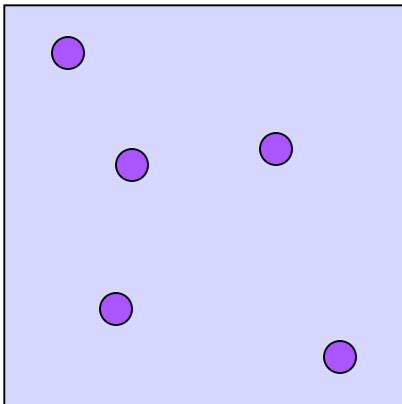
- Density is a comparison of how much matter there is in a certain amount of space.

Which one is more dense?

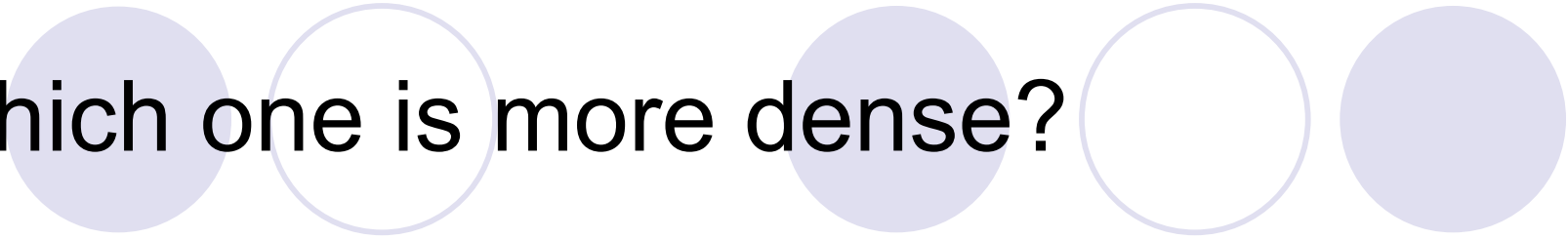


- Demonstration: People in a square

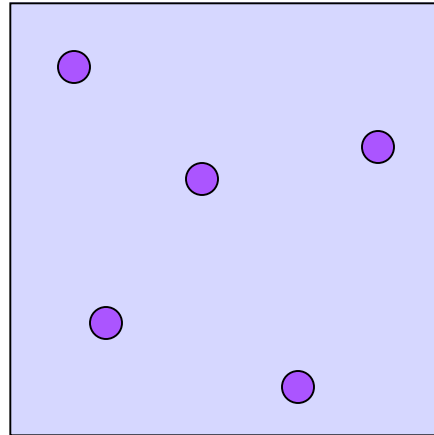
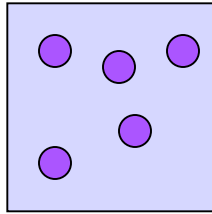
- How about this: Which square is more dense?



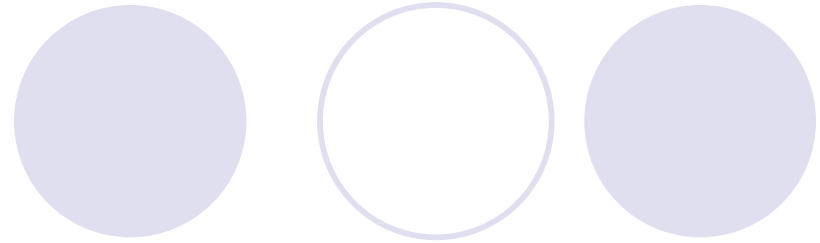
Which one is more dense?



● Now which one is more dense?



What is density?



- Density = $\frac{\text{mass}}{\text{volume}}$ OR mass \div volume.

- Units for density: $\frac{\text{g}}{\text{cm}^3}$

ALWAYS
REMEMBER
UNITS!

- Why are these the units for density?

Let's try a density problem together

- Frank has a paper clip. It has a mass of 9g and a volume of 3cm^3 . What is its density?

- Frank also has an eraser. It has a mass of 3g, and a volume of 1cm^3 . What is its density?



Work on these problems with your neighbor.

- Jack has a rock. The rock has a mass of 6g and a volume of 3cm^3 . What is the density of the rock?
- Jill has a gel pen. The gel pen has a mass of 8g and a volume of 2cm^3 . What is the density of the gel pen?

Five circles are arranged horizontally at the top of the slide. From left to right, they are: a solid light purple circle, an empty white circle with a light purple outline, a solid light purple circle, an empty white circle with a light purple outline, and a solid light purple circle.

Now, try these on your own.

- Al'Licia has a watch. It has a mass of 4g and a volume of 2cm^3 . What is the density of the watch?
- Mia has a wallet. It has a mass of 15g and a volume of 5cm^3 . What is the density of the wallet?

Liquid Layers

The title 'Liquid Layers' is positioned on the left side of the slide. To its right, there are two groups of three circles each. The first group consists of a solid light blue circle, a white circle with a light blue outline, and another solid light blue circle. The second group consists of a solid light blue circle, a white circle with a light blue outline, and another solid light blue circle.

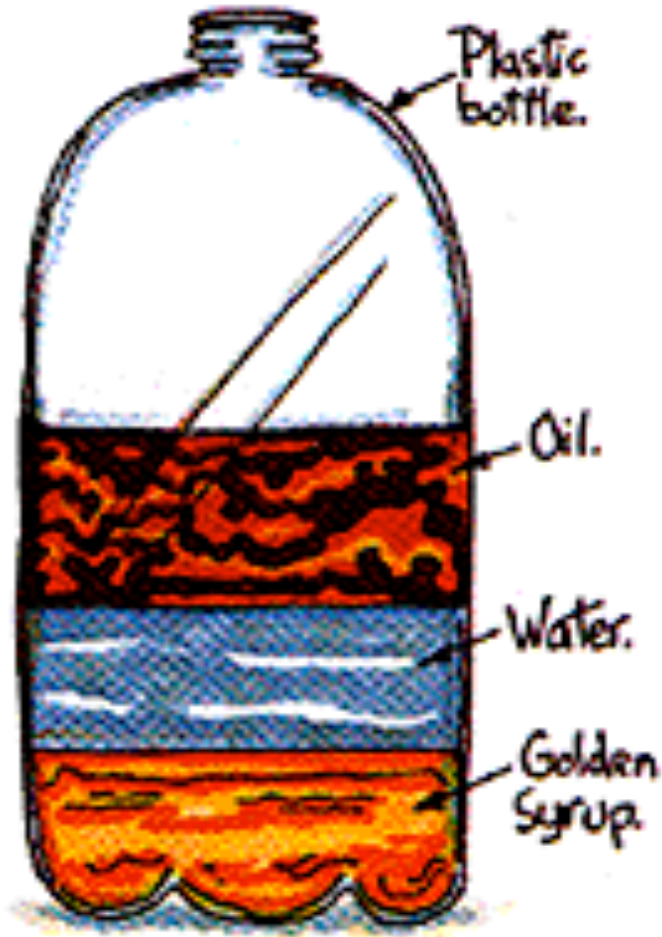
- If you pour together liquids that don't mix and have different densities, they will form liquid layers.
- The liquid with the **highest density** will be on the bottom.
- The liquid with the **lowest density** will be on the top.

Liquid Layers

- Check out this picture from your book. Which layer has the highest density?
- Which layer has the lowest density?
- Imagine that the liquids have the following densities:
 - 10g/cm^3 . 3g/cm^3 .
 - 6g/cm^3 . 5g/cm^3 .
- Which number would go with which layer?



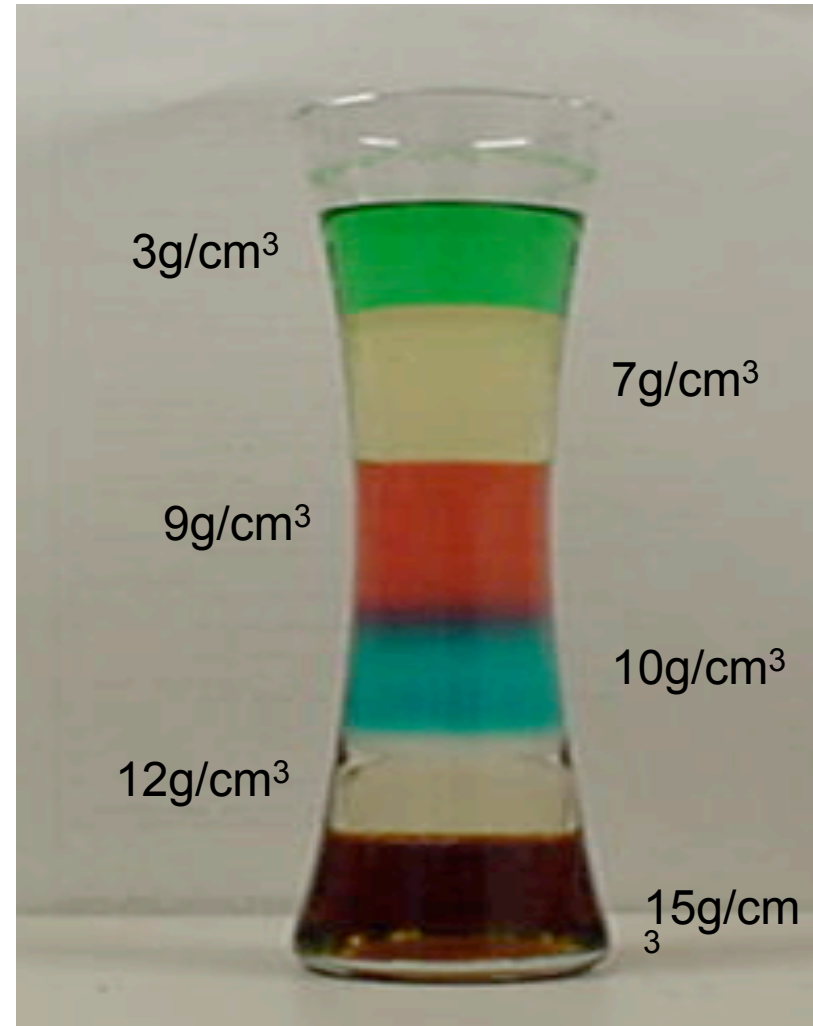
Liquid Layers – Try with your neighbor



- Which liquid has the highest density?
- Which liquid has the lowest density?
- Which liquid has the middle density?

Liquid Layers – Try on your own!

- Imagine that the liquids on the right have the following densities:
 - 15g/cm^3 10g/cm^3
 - 3g/cm^3 9g/cm^3
 - 7g/cm^3 12g/cm^3
- Match the colors to the correct densities.



Review



- What is the formula for density?
- What happens if you pour together liquids that have different densities?
- Will the liquid on the top have the highest or lowest density?
- Will the liquid on the bottom have the highest or lowest density?

Review

- You have a piece of aluminum which weighs 234 g. The density of aluminum is 2.7 g/cc. What is the volume of the aluminum?

Super Scientist Question of the Day

- Jake has a book, a ruler, and a balance.
- **How can Jake find the density of the book with the tools he has?**

