

# Density Tower



Knowledge  
Through  
Entertainment

**Density is a foundational concept in physics, which explains why boats float, rocks sink, and balloons fly away when you let them go. With just a few materials from home, you can conduct your own colorful density experiment and see how this principle works firsthand. Check it out!**

**Ages: 5 - 16**

**Under 30 minutes**

Density is defined as an object's mass, per unit volume, or, more generally, how compact a material is. An anchor is denser than water, which is why it sinks. An air bubble is less dense than water, which is why it rises to the surface. And a balloon filled with Helium is less dense than air, which is why it will float away! Each layer in your column contains a liquid with a different density, which gives you the cool layered effect you observed!

## MATERIALS

- Honey
- Corn syrup
- Maple syrup (pure)
- Milk
- Soap
- Water
- Vegetable oil
- Rubbing alcohol
- Clear jar
- Dropper or spoon
- Food coloring

## STEP-BY-STEP TUTORIAL



### Step 1

Gather your materials.



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- 2) **Step 2**  
Arrange your materials from most dense to least dense: honey, corn syrup, maple syrup, milk, soap, water, oil, and then rubbing alcohol. Begin by pouring a centimeter or so of the densest material, honey, into your jar. Try to avoid the walls of the jar.



- 3) **Step 3**  
Next, pour about a centimeter of corn syrup in. Wait a few minutes for the honey and corn syrup to separate.



- 4) **Step 4**  
Continue pouring liquids in from most dense to least dense. Starting with the maple syrup, we used a spoon to help us gently pour the liquid and prevent mixing between layers.



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5

## Step 5

Starting with the soap layer, we used a dropper to gently place the next layer on top of the previous to prevent mixing. We dyed our water blue, so it was more visible.



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## LEARN MORE

Once you've added the rubbing alcohol, you've completed your density column! If you'd like, you can now test the density of a variety of other materials by seeing how far they sink! How far does a peanut sink? How about a cherry tomato, grape, or raisin? Feel free to vary the individual layers as well! How does vinegar or molasses compare to your other liquids?

The experiment can be linked to climate change and sustainability by demonstrating how the density differences in fluids are similar to those seen in the Earth's atmosphere and oceans. In this experiment, various liquids are layered based on their densities, illustrating how denser materials sink while less dense ones float. This mirrors how warm, less dense water in the oceans rises, while cooler, denser water sinks—a process essential to ocean circulation and climate regulation.

With climate change, these natural processes are being disrupted. For example, as polar ice melts, the influx of freshwater, which is less dense, alters ocean currents, affecting global weather patterns. Similarly, the warming of ocean surfaces reduces the density contrast, further affecting this critical circulation.

This experiment can help children understand the importance of maintaining these natural balance systems, emphasizing the role of sustainability in protecting these essential processes from further climate disruption. By visually demonstrating how density works, it provides a tangible way to explore the broader impacts of global warming.

## SOURCE

<https://www.kiwico.com/diy/stem/quick-easy-experiments/density-tower>

KiwiCo was founded to nurture children's creativity and problem-solving skills through hands-on projects, making it easier for parents to provide enriching activities. The company simplifies the process of building, exploring, and creating together by designing fun and educational experiences that foster creative confidence. With a growing team of designers, experts, and kid testers, KiwiCo aims to equip children with the skills they need to face future challenges. Founder and CEO Sandra, an engineer and mother of three, created KiwiCo to inspire curiosity and exploration in families.