

Density Column

Liquid Layers Density Column with Many Layers

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Make a density column with many liquid layers using common household liquids. This is an easy, fun and colorful science project that illustrates the concept of density.

**Density Column Materials**

You can use some or all of these liquids, depending on how many layers you want and which materials you have handy. These liquids are listed from most-dense to least-dense, so this is the order in which you pour them into the column.

1. honey
2. corn syrup or pancake syrup
3. liquid dishwashing soap
4. water (can be colored with food coloring)
5. vegetable oil
6. rubbing alcohol (can be colored with food coloring)
7. lamp oil

**Make the Density Column**

Pour your heaviest liquid into the center of whatever container you are using to make your column. If you can avoid it, don't let the first liquid run down the side of the the container because the first liquid is thick enough it will probably stick to the side so your column won't end up as pretty. Carefully pour the next liquid you are using down the side of the container. Another way to add the liquid is to pour it over the back of a spoon. Continue adding liquids until you have completed your density column. At this point, you can use the column as a decoration. Try to avoid bumping the container or mixing its contents.

The hardest liquids to deal with are the water, vegetable oil, and rubbing alcohol. Make sure that there is an even layer of oil before you add the alcohol because if there is a break in that surface or if you pour the alcohol so that it dips below the oil layer into the water then the two liquids will mix. If you take your time, this problem can be avoided.

**How the Density Column Works**

You made your column by pouring the heaviest liquid into the glass first, followed by the next-heaviest liquid, etc. The heaviest liquid has the most mass per unit volume or the highest density. Some of the liquids don't mix because they repel each other (oil and water). Other liquids resist mixing because they are thick or viscous. Eventually some of the liquids of your column will mix together.

**More About Density**

* [Rainbow Density Column](http://chemistry.about.com/od/chemistrydemonstrations/ht/rainbowinaglass.htm)
* [Red, White & Blue Density Column](http://chemistry.about.com/cs/howtos/ht/patrioticcolumn.htm)
* [Elements Listed by Density](http://chemistry.about.com/od/elementfacts/a/elementdensity.htm)

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