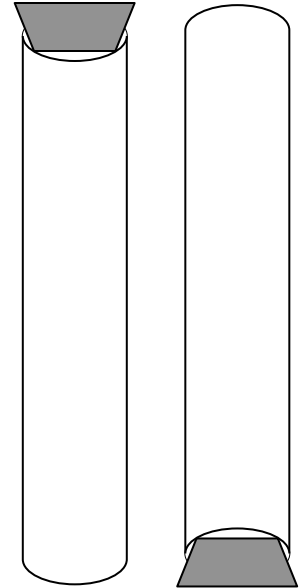


1 Two liquids – Same volume.

1. The liquids in the bottles have the same volume, but do they have the same mass?
2. Why not?

2 Liquid layers: alcohol, oil, water, corn syrup

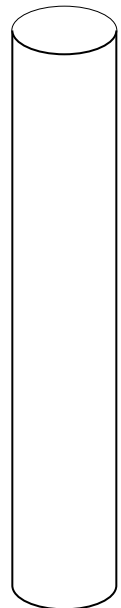
1. Sketch the order of the layers in the test tube to the right.
2. What happens when the tube is covered and then inverted?
3. Do any of the layers mix?
4. “Birds of a feather, flock together.”
“Like dissolves like” What is it that must be alike to get liquids to mix?

**3 Oil and food coloring**

1. What do the droplets of food coloring do in the oil? Why do you suspect the droplets are not *soluble* in oil?
2. What happens when shaken?
3. What happens when water was added? Where did the water end up? What happened to the color of the water?
4. Why it more important that food coloring is mixable with water and not so important to be mixable in oil?

4 Density Rainbow - R, O, Y, G, B, I, V

1. Sketch the colored liquids in the cylinder to the right.
2. Why were the liquids stacked up in a particular order? Which color liquid is most dense?
3. Why was the least dense liquid put in first? Why were the liquids not poured in V, I, B, G, Y, O, R

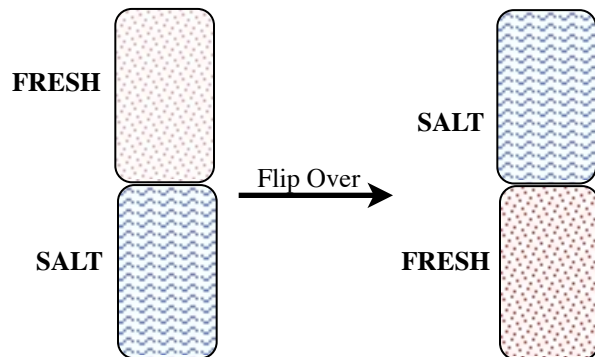


5 Making water more dense.

water in cylinder: mass _____ / vol _____ = density _____

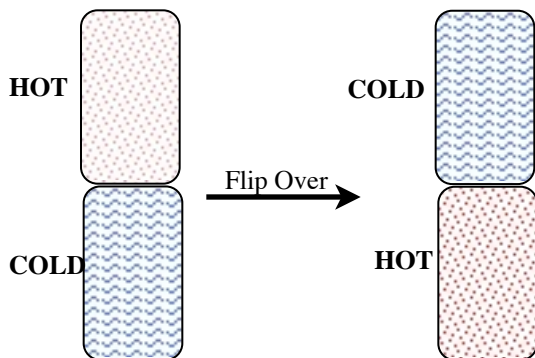
_____ g salt added to that water: mass _____ / vol _____ = density _____

6 Salt / Fresh water in Gatorade bottles



1. What happened when the salt and fresh water bottles were arranged like the left sketch?
2. What happened then the salt and fresh bottles were arranged like the sketch to the right?
3. Which is more dense, the salt water or the fresh water? Explain why.

7 Cold / Hot water in Gatorade bottles



1. What happened when the cold and hot water bottles were arranged like the left sketch?
2. What happened then the cold and hot bottles were arranged like the sketch to the right?
3. Which is more dense, the cold water or the hot water? Using the particle theory, explain why. (Give me a nanoscopic explanation.)