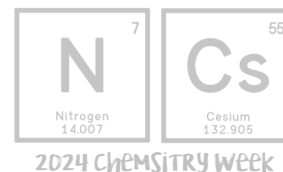


**2024**  
**CHEMISTRY**  
**WEEK**

# Part 1

## - Magic Milk



### ITEMS NEEDED:

- whole milk
- food coloring (liquid, not gel)
- dish soap (blue Dawn works best)
- shallow dish or bowl
- toothpicks

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1. Pour some milk into a shallow dish or bowl until the milk covers the bottom.
  2. Add some drops of food coloring on the milk. You can use a variety of colors, just be sure to add 3-4 drops of each color.
  3. Add a drop of dish soap into the center of the milk.
  4. Watch in amazement as the colors dances across the surface of the milk.
  5. Take a piece of paper and gently press it onto the top of the milk and gently remove. Let dry overnight for a colorful souvenir from our experiment.
  6. Do you know what caused the colors to move around in the milk? Find out the answer in the how does this experiment work section below.

### How Does the Science Experiment Work

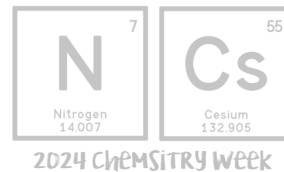
The key to the dancing colors in this experiment is soap! Soap molecules consist of a hydrophilic (“water-loving”) end and a hydrophobic (“water-fearing”) end. Water molecules are polar molecules that can dissolve other polar molecules. Fat (and oil) molecules are nonpolar molecules, so they cannot dissolve in water.

Milk is a mixture of water, fat, vitamins and minerals. When soap is added to the milk, it helps to separate the water and fat in the milk. When soap is mixed in with the fat and water, the hydrophobic end of the soap molecule breaks up the nonpolar fat molecules, and the hydrophilic end of the soap molecule links up with the polar water molecules. Now that the soap is connecting the fat and water, the nonpolar fat molecules can be carried by the polar water molecules.

As the soap molecules connect to the fat molecules, the molecules of the food coloring get pushed around everywhere resulting in an explosion of color! As the majority of soap molecules attach to the fat molecules and the soap spreads throughout the milk, the color explosion will slow and eventually stop. Add more soap and see if there are more fat molecules that haven't attached to soap - if there are unattached fat molecules still, the color explosion will begin again.

## Part 2

### - Stained Glass



#### ITEMS NEEDED:

- glue
- food coloring (liquid, not gel)
- dish soap (blue Dawn works best)
- Mason jar lid & ring
- Wax paper



1. Insert lid firmly into jar ring and place on a wax paper square.
2. Pour glue into ring, until bottom is completely covered, but not too deep.
3. Drop a few color dots onto glue.
4. Dip toothpick into the dish soap, then into the center of a color dot, making sure the toothpick goes to completely through the glue to the lid top. Hold it there until you see the color, spider out. Re-dip toothpick into dish soap, then into each color dot.
5. Let glue dry for a day or two.

## Part 3

### - Rainbow Bubbles

1. Dip the provided sock bottle in the bubble solution and blow.

Thanks for playing with the  
Chemistry Class at School today!