



Color Exploding Milk

Each experiment produces different and wonderful patterns; you'll want to do this project over and over again!

HINT: take pictures of your plates so you can show your friends.

Ingredients:

- White plate
- 2% or whole milk
- Mini food coloring bottles
- Liquid dish soap (a few drops)

Instructions

1. Pour milk onto a plate to cover the bottom, just to the sides. *(not too deep, you want to save milk to do it again!)*
2. Put 5 drops of food coloring in the middle of the milk. *(do NOT touch the milk, or move the plate - it will ruin the experiment.)*
3. Carefully drop only ONE drop of liquid dish soap in the middle of the milk.
4. Watch what happens! (take picture!)
5. After observing the effects, you may add other single drops of liquid dish soap, to change the pattern.

WHAT'S HAPPENING?

Why doesn't the food color drops move right away?

Physics of surface tension of a liquid is where all the molecules of water (for example) are holding on to each other, and create a "skin" on the surface.

Once the surface tension is disturbed, the liquid flows.

Why did the detergent make the milk explode outwards?

Physics AND chemistry!

First, the detergent disturbed the surface tension of the milk.

Second, the chemistry of the dish soap reacted with the milk and changed some of its molecules, clumping up and allowing them to flow freely in the liquid...pushing around the food color!

(Milk is mostly made up of water, fat, protein, and sugars – adding other chemicals or heat can greatly change it into many different things: butter, cheese, cake!)

