Magic Milk Experiment

Equipment:

Almond Milk or Cow's Milk
Dish soap
Q-tips (Cotton Swab)
Cotton Balls
Food colouring
Shallow plate or wide bowls

Higher fat milk is recommended for best results!

Instructions for Method 1:

1. Fill a plate or bowl with milk.
2. Drop in at least 2 drops of each of four colours of food colouring. The more variety of colours the cooler the painting.
3. Generously dip the end of a q-tip in dish soap.
4. Now dip the q-tip (cotton swab) into the milk next to a drop of colour.
5. The first thing that will happen is the colour will burst as soon as the dish soap hits it. It's a great effect but very short lived. Once there is a little dish soap in the milk it no longer "bursts".
6. Gently swirl the q-tip through the different colours and you'll see little rivers of colour start to form.
7. Continue until the colours begin to mix and become brown. Empty your plate/bowl and repeat.

Instructions for Method 2:

1. Pour a thin layer of milk in a plate or bowl.
2. Add a few drops each of food colouring on the centre of the plate.
3. Soak a cotton ball in dish soap.
4. Carefully place the cotton ball in the centre. The colours will explode out of the centre!
5. Let the reaction continue until the colours begin to mix and become brown.

The Science Behind the Magic Milk Experiment:

The dish soap molecules are attracted to the fat molecules in the milk. As soon as you introduce the soap to the milk/colouring mixture the molecules race around trying to bond. The food colouring gets pushed around in the process and appears to burst. Eventually the molecules all bond and the reaction stops.

This is a good example of how detergents work, their molecules have two ends: one end is attracted to oils and the other to water. One end of detergent molecules attracts oils and dirt from clothes, dishes etc., and as they stick together, they break the oil and dirt down into smaller, easy to remove pieces.