Oh my where does the time go! The holiday season is upon us already. School let out yesterday, and today officially marks the winter holiday break (or so I am told!). With mere days away from the arrival of good old St. Nick, we have been planning what to leave out for him as he stops at our house. I am sure many of you will be leaving the old standby of milk and cookies of course. This week we are going to put a twist on this and make Santa Milk. Although, I would advise against leaving this out for him to drink! Let's get started…

***Remember to ask an adult before doing this experiment.**

Materials

half and half
green food colouring
red food colouring
popsicle stick
red glitter
green glitter
dish washing soap
popsicle stick/toothpick
empty pie plate (clear if possible)
shallow dish

Procedure

1. Fill the pie plate about 1/3 full of half and half. Make sure the bottom is covered.
2. Sprinkle some glitter over the surface.
3. Add one small drop of red food colouring in four different spots in the pie tin.
4. Repeat above using the green food colouring.
5. The food colouring will just sit on the surface of the milk.
6. Put a few drops of dish washing soap in the shallow dish.
7. Dip the popsicle stick into the dish soap. Make sure that the entire tip is covered liberally in the dish washing soap.
8. Place the popsicle stick in the middle of the half and half.
9. Watch what happens.

Explanation

You should have observed the festive colours within the pie plate begin to swirl and swirl around once you place the popsicle stick with the dishwashing soap on it in the middle of the pie plate. Watch what happens to the glitter – it should have scattered to the outer edges.

What is going on here, what is causing this cool color show? Well let me explain it to you. When you touch the half and half with the popsicle stick, the dishwashing detergent lowers the surface tension of the half and half. The bonds that hold the proteins and fats together begin to weaken. If you can visualize it, then the molecules of fat essentially begin to bend, roll or twist around as the soap molecules begin racing to catch up with the fat molecules. During all of this activity, the food colouring

begins to get bumped together allowing it to flow freely throughout the milk in a swirling motion. Add another drop of soap to your Popsicle stick to see this happen all over again!

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