Red, White, and Blue

K-5 Theme Week

Make a 4th of July Popper

For more detailed directions click on the link below:

- *Picture and idea from Happiness is Homemade*

Materials:

- 9 inch Balloons
- Scissors and tape
- Empty Toilet Paper Tubes
- Packing Tape
- For decorating paper: patterned paper works great, but can use white paper and decorate it.
- For the confetti: cut up tiny bits of paper (tissue paper works best) *about 3 tablespoons.

DIRECTIONS:

1. Tie a knot at the end of the balloon then snip the end off
2. Pull the balloon up and over the tube
3. Secure it with packing (or heavy duty) tape.
4. Decorate and cover your tube,
5. Make confetti-lots!
6. Put about 3 tablespoons in.
7. Pull down the end of the balloon and release!

4th of July Milk

Materials:

- 1% or higher milk (The more fat in the milk the better)
- food coloring and a drop
- Liquid dish or laundry soap
- A small shallow dish or bowl
- 1 or 2 cotton Swabs (Q-tips)

DIRECTIONS

*Pour enough milk in your dish to cover the bottom to the depth of about $^1/_4$ inch.
*Add 1-3 drops of food coloring (use one color or many) to the milk. *Keep the drops close together in the center of the plate of milk.

STOP! Before you move on to the next step, make a prediction: What will happen when you touch the end of a dry cotton swab to the center of the milk in your dish?

*Touch (do not stir)the tip of the cotton swab to the center of the milk. Describe what happens.

STOP! Before you move on to the next step, make a prediction: What will happen when you touch the end of a cotton swab dipped in soap to the center of the milk in your dish?

*Now place a drop of liquid dish soap on the other end of the cotton swab. Place the soapy end of the cotton swab back in the middle of the milk and hold it there for 10 to 15 seconds. Describe what happens.

Experience from: Steve Spangler Science

4th of July Milk

Make it an experiment:

- Try other liquids, like water, to see what results you get.
- Do other soaps cause the food coloring to behave differently?
- Try different types of milk, 2%, whole, non-fat.

Experience from: Steve Spangler Science

4th of July Milk Follow-Up

HOW IT WORKS: ***What makes this 4th of july milk magic occur?***

Well first, milk is mostly water; but, it also contains vitamins, minerals, proteins and tiny droplets of fat. Fats and proteins are sensitive to changes in the surrounding solution (the milk).

The secret of these awesome bursting colors is in the chemistry of that tiny drop of soap. Like other oils, milk fat is a non-polar molecule, which is a “science-y” way to say that it doesn’t dissolve in water. When soap is mixed in, however, the non-polar soap structures break up and collect the non-polar fat molecules. The polar surface of the soap molecules then connects to a polar water molecule with the fat held inside the soap. Thanks to the soap connection (literally), the non-polar fat can then be carried by the polar water. This is when the fun begins.

As the soap molecules race around to join up with the fat molecules, the fat molecules bend, roll, twist and contort in all directions. During this fat molecule gymnastics demonstration, the food coloring molecules are bumped and shoved everywhere, providing an easy way to observe all that previously invisible activity. As the soap becomes evenly mixed with the milk, the action slows down and eventually stops. This is why milk with a higher fat content produces a better explosion of color: there’s just more fat to combine with all of those soap molecules.

Experience from: Steve Spangler Science

4th of July Milk Follow-Up

Try adding another drop of soap to see if there's any more movement. If so, you discovered there are still more fat molecules that haven't found a partner in that big color dance. Add another drop of soap to start the process again.

Experience from: Steve Spangler Science

Science and History Links to Explore

*The science of air pressure

*5 Ways to Demonstrate Air Pressure to Children

*The Science of Fireworks

*Fireworks in a Jar experiment

*National Geographic Kids

*Museum of the American Revolution Virtual Tour

Books to Explore

What can you learn about our country? Click on links above to login. Ask your school librarian for username and password.

Digital eBooks and Audiobooks from Sno-Isle (Click on Picture to check them out!) Get Library Card

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Reading, Writing and Math

Check out the activities by grade below to support summer learning! These activities can be repeated and practiced in any order.

Kindergarten

First Grade

Second Grade

Third Grade

Fourth Grade

Fifth Grade