



Virtual STEM Activities

Presented during 2022 Pennsylvania Farm Show

*Instructional videos featuring Whitaker Center for Science and the Arts educators
will be available on the Calving Corner YouTube page*

Color Explosion

Milk, food coloring, and soap mix to create a rainbow of color. In this simple chemistry activity, soap molecules connect with the fat molecules in the milk, and they move the food coloring around in interesting and beautiful ways. Experiment with the placement and amounts of food coloring, the amount of soap used, and the colors added to create your own milk masterpiece!

Materials:

Plate
Food Coloring
Dish soap
Cotton swab
Whole milk (*not included in the prepackaged kit*)

Directions:

1. Pour a thin layer of milk onto your plate. Make sure to completely cover the bottom of the plate.
2. Add drops of food coloring to the top of the milk. Don't mix them in - simply drop them on the surface.
3. Touch a cotton swab to the surface of the milk. *Does anything happen?*
4. Dip the cotton swab in dish soap and touch it to the surface of the milk. *Watch what happens!*

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Making Ice Cream

What do you think “Half & Half” is? It is half cream and half whole milk! We will use all of our observation skills as we turn half & half into ice cream! We will watch the physical change through the clear walls of the bags, listen and feel for the changes in texture as we shake, and smell and taste at all stages of the process.

Materials:

1 small Ziploc Bag (quart size)	Rock Salt
1 large Ziploc Bag (gallon size)	Ice (<i>not included in kit</i>)
Measuring spoons and cups	Sprinkles (<i>optional, not included in kit</i>)
Half & Half (<i>not included in kit</i>)	Cups
Vanilla	Spoons
Sugar (5 packets = 1 tablespoon)	

Instructions

1. In the smaller (quart size) Ziploc bag, combine:
 - 1 cup of half and half
 - 1 teaspoon of vanilla extract
 - 2 tablespoons (10 packets) of sugar
2. Removing any excess air, seal the bag firmly. *What do the contents of the bag look like?*
3. In the larger Ziploc bag, fill it about 1/2 way with ice. Add 1/4 cup of salt.
4. Then place your small bag into the larger bag, add ice to fill the larger bag. Seal the larger bag.
5. Shake vigorously, 7-10 minutes, until the ice cream has hardened. *Some prefer to wear gloves as the salt makes the ice extra cold. *What is happening while you are shaking the bag?*
6. Take the small bag out of the large bag and rinse the outside of the small bag with cold water. Make sure to rinse out the top part of the bag also (above the seal). ** *How have the contents of the bag changed?*
7. Once done rinsing, carefully open the small bag, being careful not to get any remaining salt inside the bag.
8. The ice cream will be a little icy looking to start. Use a spoon to mix it around and soften it up a bit. Scoop out and enjoy!

**Notes

Tips for preventing salty ice cream:

1. Properly seal the bag.
2. Rinse off the little bag after shaking.
3. Double bag if still salty.

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