

Science experiments

1. Homemade volcano!

Materials:

- An outdoor space to complete the experiment (it can get very messy)
- An empty 2L soda bottle or any similar container
- Two teaspoons of dish soap
- ½ cup of cold water
- 1 ½ of vinegar
- Baking soda mixture (fill a small cup halfway with baking soda and then fill the rest with water, mix together)
- Optional: food colouring

Instructions:

1. In the empty bottle, mix the dish soap, water, vinegar and a few drops of any coloured food colouring.
2. Quickly pour the baking soda mixture into the bottle and watch the bottle erupt!



How it works:

When you mix baking soda and vinegar, a gas called carbon dioxide is created. Because there isn't enough room in the bottle for the carbon dioxide to spread out, it erupts out of the bottle!

2. Slime!

Materials:

- 5 fluid ounces (1 bottle) of Elmer's glue
- ½ tablespoon of baking soda
- 1 tablespoon of contact lens solution
- 1 bowl and spoon
- Optional: food colouring and glitter

Instructions:

1. Pour the glue into a bowl.
2. Add food colouring if you want to (a fun combination is 3 drops of red and 6 drops of blue to make purple!)
3. Add the baking soda to the glue and mix well.
4. Mix in the contact lens solution until the slime gets harder to stir.
5. Remove slime from the bowl and knead with your hands.
6. Add glitter if you want to: sprinkle it on the top and fold the slime in half twice to trap the glitter. Have fun!



How it works:

The glue molecules stick together in a structure we call polymers. They are more of a liquid in this form. When you add contact solution, the molecules become all mixed up and the slime becomes harder and less liquidy.

3. Milk art!

Materials:

- A bowl
- ½ cup of milk
- Dish soap
- Cotton swab
- Food colouring, more than one colour

Instructions:

1. Pour the milk into the bowl. Try not to move it, you want it as still as possible.
2. Put a drop of each colour in different places in the milk.
3. Put a drop of dish soap on the end of a cotton swab and touch it to one of the colours. WOW!
4. Experiment and make some cool designs!



How it works:

Milk has fat in it and the food colouring floats on top of the fat. The fat is connected through bonds that hold it together. Soap is used to break down these bonds in oils and fats so that they separate. When you add dish soap to the milk, the milk bonds separate and moves the colours, making lovely art!

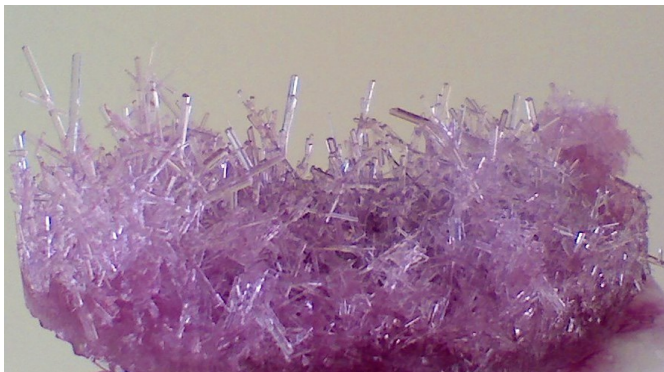
4. Cool crystals!

Materials:

- ¼ Epsom salt
- ¼ cup hot water
- Cup
- Food colouring
- Plate

Instructions:

1. In the cup, add the hot water to the Epsom salt and stir them together. If the salt doesn't completely dissolve, microwave the cup for 20-30 seconds.
2. When all of the salt is dissolved, add a couple of drops of food colouring and mix.
3. Place the cup in the refrigerator. Within a few hours, crystals should be starting to form at the bottom of the cup.
4. Scoop the crystals onto a plate. They last longer if you put them in a jar with the lid on.
5. You can do this experiment with multiple different colours to get a variety of colourful crystals!



How it works:

More salt can dissolve in hot water than cold, so there is less room for the dissolved salt when it cools in the fridge. Because of this, the atoms of the dissolved salt run into each other and make a crystal structure.

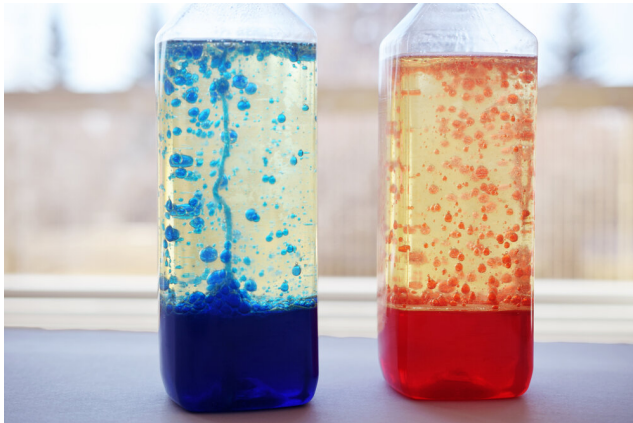
5. Lava Lamp!

Materials:

- Clean plastic bottle
- Water
- Vegetable, mineral, or baby oil
- Fizzing tablets (such as Alka Seltzer)
- Food colouring

Instructions:

1. Fill the bottle about a third of the way with water.
2. Add a few drops of food colouring and mix it gently.
3. Pour the oil into the bottle until it is almost full. You might have to wait a couple of minutes for the water and the oil to fully separate.
4. Drop your fizzy tablet into the bottle (you may have to break it in half).
5. Try turning off the lights and shining a flashlight into the bottle to get a cool lava lamp effect!



How it works:

The oil floats on top of the water because it is lighter than water. The food colouring has the same density as water so it sinks through the oil to the water. When you drop the tablet in, it starts to dissolve and it releases carbon dioxide, a gas that is lighter than both water and oil. The coloured air bubbles from the carbon dioxide float to the top, and when the air comes out of the coloured water blob, the water gets heavy again and sinks.