Slime

*Ingredients*

* Water
* Liquid starch (Sta-Flo)
* Elmer’s glue
* Food dye
* Glitter

*Instructions*

1. In a bowl, pour ¼ cup water with ¼ cup glue and stir
2. Add food dye
3. Add glitter
4. Add ¼ cup starch and stir
5. Knead with your hands until the slime is congealed and stretchy
   1. If the slime is too stringy and sticky, add more liquid starch
   2. If the slime is too stringy but NOT sticky, add more glue
6. Keep in a sealed container for up to a month

Slime is a fun example of polymer interactions. For more slime experiments and an explanation of the science behind the slime, check out this link:

http://www.omsi.edu/sites/all/FTP/files/chemistry/NH-PDF/NH-F1-ChooseOoze.pdf

Vinegar and Baking Soda

*Ingredients*

* White vinegar
* Baking soda
* Food dye
* Water bottle
* Balloon
* Funnel

*Instructions*

1. Pour ½ cup vinegar into water bottle
2. Add food dye for colorful fizz
3. Use a funnel to add 2 tbsp baking soda to the balloon
4. Stretch the end of the balloon over the mouth of the bottle
5. Lift the top of the balloon to empty the baking soda into the bottle
6. Watch the balloon expand!
7. If results are disappointing, adjust the ratio of vinegar to baking soda and try again

The reaction between vinegar (acetic acid) and baking soda (sodium bicarbonate) creates carbonic acid, which decomposes into carbon dioxide and water. The carbon dioxide gas produced can be used to blow up a balloon, create a miniature volcano, or propel a bottle rocket!

Chemistry Experiments

Do it yourself at home!

pH Indicator

*Ingredients*

* Red cabbage
* Blender (optional)
* Coffee filter
* Clear plastic containers
* Suggested substances to test include vinegar, lemon juice, carbonated drinks, water, baking soda, laundry detergent, diluted bleach\*, and diluted ammonia\*

\* While chlorine bleach are common cleaning agents that produce interesting color results, they should only be used **with supervision**. They are skin and eye irritants. NEVER mix chlorine bleach and ammonia, as toxic gas will be produced.

*Instructions*

1. Chop 2 cups of red cabbage
2. Either boil the pieces in a pot or mix the pieces in boiling water in a blender for as long as it takes for the color to leach out of the cabbage
3. Filter out the solid material. The remaining, purplish liquid is your pH indicator
4. Label and fill a clear plastic container with each substance you want to test. Make sure not to mix substances
5. Pour indicator into each container
6. Watch the colors change!

pH is a logarithmic scale measuring the concentration of hydrogen ions in solution. Water has a neutral pH of about 7. A basic solution will have a pH above 7. An acidic solution will have a pH below 7.

Why red cabbage? Red cabbage has pigments called anthocyanins. The molecular structure of these pigments is altered by the pH of its environment, causing a color change. In this way, the color of the red cabbage juice *indicates* pH, making it an excellent pH indicator.

**Red Cabbage Indicator Colors**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **pH** | **ACID** | | | **BASE** | | |
| 2 | 4 | 6 | 8 | 10 | 12 |
| **Color** |  |  |  |  |  |  |
| Red | Pink-Purple | Purple | Blue | Blue-Green | Green-Yellow |