

LET'S GET CHEMICAL

DAY FOUR: CHEMISTRY ROCKS!

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CHEMISTRY ROCKS!



Welcome to Let's Get Chemical Day Four!

This week, you have learned about and observed different chemical reactions. Today you are going to see the process of recrystallization by making your own crystals from borax. This is different from a chemical reaction! Recrystallization happens when a substance, like borax, is dissolved in hot water and cooled slowly.

The solubility of the mixture of water and borax will play a huge role in the formation of the crystals. Solubility is the ability of a solute to dissolve in a solvent. Solubility typically increases with heat, so using hot water allows for more solute to dissolve! As the temperature of the water begins to cool, the solute (borax) will become less and less soluble. As it cools, the water will hold less and less borax due to the solubility decreasing. The borax will separate from the water and form into crystals. This is how the process of recrystallization works.

Did You Know?

The main ingredient of borax is sodium borate. The product is a naturally occurring white mineral that is typically used as a cleaning product. Sodium borate is a compound. A chemical compound is a substance that is made up of atoms from two or more chemical elements. In this case, borax (sodium borate) is made up of sodium, boron, oxygen and hydrogen.

Materials:

- Borax
- Water
- String
- Pencil or Popsicle Stick
- Pipe Cleaners
- Scissors
- Something to Mix With
- Jars or Glass Cups
- Cooking Pot & Heat Source

Instructions:

- Form the pipe cleaners into the desired shape you want for your crystals. You will do one shape per jar.
- Add water to the cooking pot and bring to a boil. The amount of water you need will be dependent on how many crystals you are making. (3 cups should be enough for two small jars)
- Add 3-4 tablespoons of borax to the pot for every cup of water in the solution. Mix until the borax dissolves. The water should be clear. (if the water is cloudy, the crystals will be cloudy)
- Pour the solution into the jars. Each jar should be about three quarters of the way full.
- Use string to tie your pipe cleaners to the pencils or popsicle sticks.
- Place your pencil/stick over the rim of each jar so the pipe cleaners are completely suspended into the solution in the jars.
- Ensure that the pipe cleaners are not touching the sides of the jar so they can grow as large as possible.
- The submerged pipe cleaners should form crystals over 12-24 hours. The longer you leave them, the more they will grow.
- After the crystals have grown, take them out of the jars and let them dry!

Challenge!

Turn your new crystals into a key chain or ornament as a gift for a friend/family member! Check out this fair entry idea: Category: Educational Display; Science Discovery Projects Section 4301; 4305

