

DIY Bouncy Balls

Materials

- borax
- cornstarch
- warm water
- white or clear school glue (white = opaque ball, blue = translucent ball)
- food coloring (optional)
- measuring spoons
- spoon or craft stick to stir the mixture
- 2 small plastic cups for mixing
- permanent marker or pen
- ruler
- zip-lock plastic baggie

Instructions

- Label one cup “Borax Solution” and the other cup “Ball Mixture.”
- Pour 2 tbsp warm water and 1/2 tsp Borax powder into the cup labeled “Borax Solution.” Stir the mixture to dissolve the Borax. Add food coloring, if desired.
- Pour 1 tbsp of glue into the cup labeled “Ball Mixture.” Add 1/2 tsp of the “Borax Solution” and 1 tbsp of cornstarch. Do not stir.
- Allow the ingredients to interact for 10-15 seconds and then stir them together to fully mix. Once the mixture becomes impossible to stir, take it out of the cup.
- Start molding the ball with your hands. It will be sticky, but will solidify as you knead.
- Once the ball is less sticky, go ahead and bounce it! You can store your plastic ball in a sealed ziploc when you’re finished.
- You’ve made a bouncing ball. Now you can vary the procedure and see what happens. Experiment with the ratio between the amounts of glue, cornstarch, and borax. Compare the balls. How do the sizes differ? Which one is more sticky? Which one takes longer to solidify? Which one bounces the highest?

What’s Going On?

A crosslinker is a type of chemical that will take long chains (polymers) of different chemicals and link them to make a big tangled mess of goo. In this reaction the sodium borate in the borax acts as the crosslinker and glue contains two polymers - polyvinyl alcohol and polyvinyl acetate.

This activity is adapted from the American Chemical Society’s “Meg A. Mole’s Bouncing Ball”, a featured project for National Chemistry Week 2005.