

# Discovery Bottles

Each of the following projects requires a clean, empty plastic bottle with smooth (or minimally ridged) sides. Twenty-ounce bottles and smaller water bottles (like Aquapod) work well for most projects, though 20-oz. bottles are recommended for the three “waves” bottles. Where different amounts of ingredients are listed, the smaller amount is for smaller bottles and the larger amount for 20-oz bottles; however, feel free to experiment with amounts to achieve the effect you prefer. After adding the ingredients, screw the top on tightly. To minimize the risk of a bottle opening or leaking, either seal the top with a hot glue gun or secure it with duct tape. (If you’re not able to do this step at home, I can do it at school.) Make sure the effect is the way you like it before gluing or taping.

## Swirling Colors Bottle



This is one of the more complicated bottles to prepare, but the mesmerizing swirl effect is well worth the effort. Slowly and carefully spray about  $\frac{1}{4}$  cup **foam shaving cream** into a bottle. Add **warm water** until the bottle is completely full. Shake to incorporate the shaving cream with the water, and wait for the foam to dissolve. When two separate layers form (the top layer being cloudier than the bottom layer), add a little more water, allowing the excess to overflow into a sink. Keep adding more water, shaking, and allowing liquid to settle until all the foam is dissolved and you have a bottle of liquid without any layers. Add food coloring, and shake to incorporate the color. (The goal is to achieve a deep, rich color.) Allow mixture to cool. If, as it cools, you notice a white residue at the top, add more water, until the

residue is gone. You will know the bottle was prepared successfully when you begin to see swirls of white in the colored liquid when you shake it. Note: The swirl effect may be unimpressive at first but will intensify over the next few days, as the color becomes richer and more pearlescent.

## I-Spy Bottle



Begin by adding several **trinkets** to a bottle. (Some ideas to consider: a few alphabet beads, acorn cap, seashell, twisty pasta, K’nex or Lego piece, googly eye, elbow macaroni, die, button, paper clip, coins, marble, dried bean, popcorn kernel, Barbie shoe, heart bead, eraser, piece of chalk, small bell, pencil stub, rock, rubber band, tack.) Then fill  $\frac{2}{3}$  with **rice or finch birdseed**. (If you want, you can dye the rice beforehand using 1 part rubbing alcohol to 1 part food coloring.) Tape an “I Spy” list to the side of the bottle. Without looking at a list, children could write down the objects they find, or they could look at the list and try to find all of the objects. You could create a different kind of I-Spy bottle by putting alphabet beads into the bottle and seeing what words can be created from the visible letters. Or you could make an I-Spy bottle for a certain letter of the alphabet and include only

objects that begin with that letter.

## Density Bottle

Fill a bottle with **shampoo**. Add **two or three marbles**. Turn the bottle upside down, and watch the marbles slowly descend through the bottle. Notice how the marbles don't descend through the liquid until the air bubbles reach the top.

## Sparkling Waves Bottle

Fill a bottle  $\frac{1}{4}$  of the way with **isopropyl rubbing alcohol** (adult supervision required). Next, pour **baby oil** into the bottle within  $\frac{1}{2}$ " of the top. Add two drops of **green or blue food coloring**, **a few sequins and/or a few pinches of foil confetti** (optional), and about a teaspoon of **glitter**. (White crystal glitter lends a lovely foam effect to the waves). Fill to the brim with more baby oil. Screw on the lid tightly. Turn the bottle on its side, and rock slowly back and forth to make waves (very relaxing!). Or shake the bottle for a different effect.



## Alphabet Bottle



Fill a bottle with **alphabet beads** (about 50 for an Aquapod bottle or 100 for a 20-oz. bottle). Add a couple **marbles**, to break up the letters if they clump together. Fill with a 1" to 1 $\frac{1}{2}$ " layer of **clear corn syrup**. Flip the bottle upside down, then slowly rotate it on its side, to distribute the letters as evenly as possible. Flip it upright again, and watch the letters float down the sides of the bottle; name the letters or try to identify words.

## Hidden Treasures Magnet Bottle

Fill a bottle half full of **salt, sand or rice**. Add **small metal objects** that will be attracted by a magnet (nails, paper clips, tacks, pins, screws, magnetic bingo discs, paper fasteners, jingle bells, etc.) and shake. Slowly drag a magnetic wand (available in the classroom) along the side of the bottle to uncover the hidden objects..

## Glitter Bottle

Fill the bottom of a bottle with a  $\frac{1}{2}$ " layer of **glitter**. Add **water**, to the top off the bottle. Shake and observe what happens.

## Kaleidoscope (or Stress) Bottle

Pour  $\frac{1}{2}$  cup of clear corn syrup into a bottle. Add a small package of **foil confetti**, **glitter (optional)**, and **a few sequins (optional)**. Turn the bottle on its side, and slowly rotate it, to distribute the confetti and evenly coat the sides with corn syrup. Return the bottle to an upright position, and watch the confetti meander down the sides of the bottle. Or just keep slowly turning the bottle.



## Magic Color Bottles

Fill **three bottles** with **water**. Add a few drops of **red food coloring** to one bottle, a few drops of **blue food coloring** to another, and a few drops of **yellow food coloring** to the third. Shake to evenly distribute the color. When you place one of the bottles in front of another bottle, you'll see what new color is made (i.e. blue & yellow = green).

## Sand Bottle

Fill the bottom of a bottle with about 1½" of **sand** (or colored sand). Add **water** nearly to the top. Shake and observe what happens.

## Floating Magnets Bottle

In the party section of a store like Wal-Mart, look for **colored magnetic bingo discs**. Add about 25 magnetic discs to a bottle filled with **water**. Drag the magnetic wand (available in the classroom) along the sides of the bottle to pull the discs through the water.

## Waves Bottle Variation 1

Fill a bottle 1/3 of the way with **water**. Add a couple drops of **food coloring** and a few pinches of **crystal glitter (optional)**. Fill another 1/3 of the way with **baby oil**. Fill to the top with **vegetable oil**. Turn the bottle on its side, and watch the waves roll gently.

## Waves Bottle Variation 2

Fill a bottle halfway with **baby oil**. Add **water** to fill ¾ of the way. Add a couple drops of **food coloring**. Turn the bottle on its side, and watch the waves roll gently.

## Bubble Bottle

Fill a bottle with 1" or more of **water**, a squirt of **dishwashing liquid**, and a couple drops of **food coloring**. Shake and observe.

## Crayon Shavings Bottle

Put ¼ cup of **crayon shavings** into a bottle; then fill with **water**. Shake and observe.

## Tornado Bottle

Fill a bottle with **water** nearly to the top. Crumple a few small pieces of **aluminum foil** into tiny balls. Hold the bottle upright, and move it vigorously so the top end makes a circle. (If the cap end were a crayon, you would draw a circle with it.) When you stop moving the bottle, watch the aluminum foil balls continue to move in a circular motion.

## Find More Ideas at:

-<http://www.teachers.net/lessons/posts/422.html>  
-<http://www.teachers.net/lessons/posts/2844.html>

-<http://www.kinderfriends.com/discoverybottles.html>  
-Google search for "discovery bottles."