

Bath Bomb Tips

The science challenge for this module has students figure out the ingredients in a bath bomb, and then create and test their own.

Bath bombs fizz in water when the citric acid reacts with baking soda to produce carbon dioxide gas. Cornstarch is added to slow the reaction and allow them to fizz for longer. Coconut oil is used to hold the solid ingredients together. Food coloring and scents are often added as well.

Try some of these tips if students have trouble with their homemade bath bombs. If time permits, allow students to create and test bath bombs with new formulas.

If the bath bomb doesn't fizz:

- **Reduce the amount of cornstarch.** Cornstarch slows down the reaction between citric acid and baking soda, so too much can prevent fizzing.
- **Add more citric acid.** A similar amount of citric acid and baking soda is needed for the reaction, but adding slightly more citric acid than baking soda may help.
- **Reduce the amount of coconut oil.** Only a small amount of oil is needed to hold the bath bomb together. Too much may slow the reaction by preventing the citric acid and baking soda from coming into contact.
- **Use warmer water.** Bath bombs are formulated to work in a warm bath, and heat can help reactions go faster. If they don't fizz, try putting the bath bombs in warmer water.

Bath bomb texture:

- **Too liquid or soft.** If students use a lot of coconut oil, it may be too liquid to form into a ball right away, but they will solidify eventually. Have students check back on their mixture every 3–5 minutes until it has solidified enough to form into a ball.
- **Too brittle.** While only a small amount of oil is needed to bind the ingredients, too little oil might result in brittle bath bombs. If students try to reshape them after they have solidified, they might break apart. This can be fixed by putting the bath bomb (and any pieces that break off) into a small plastic cup and placing the cup in warm water for a few minutes to re-melt the coconut oil. Students can then reshape the bath bomb.

Adding color and scents:

Real bath bombs have fun colors and pleasing scents. Students may enjoy being creative and adding different combinations of food coloring and scented oils. It's recommended to test out various colors and oils first to make sure they don't interfere with the reaction.

- **Additives may affect the reaction.** Different colored food dyes are dissolved in different kinds of solvents. Some are water-based and may start the bath bomb reaction when added to the mixture before it solidifies. Others may contain ingredients that inhibit the reaction. The same is true of different scents.
- **One drop is enough.** For most colors and scents, a single drop is enough and will be less likely to affect the main chemical reaction.

