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Erupting Lemon Volcano

This experiment helps children explore chemical reactions, review citric acid and the release of [carbon dioxide](#). This project pairs well with Fizzy Colors, Exploding Baggies and Balloon Blow-Up.

Materials:

- Lemons, oranges, limes or other citrus fruit
- Baking soda
- Food coloring
- Dish soap
- Plate, tray or bowl
- Craft stick
- Lemon juice
- Paper
- Art materials: pencil, crayons, colored pens

Instructions:

1. Carefully cut the citrus fruit in half and place one half on a plate or bowl. Assist children in using a safety knife.
2. Prepare extra lemon juice by juicing the second half. Pour the juice into a cup and set aside. Be sure to wear your **safety glasses** to avoid the juice splashing in your eyes.
3. Use craft sticks to poke holes in various sections of the lemon.
4. Add 3 drops of food coloring onto the lemon. Encourage the children to count aloud "1.2.3".
5. Pour some dish soap all over the top of the lemon.

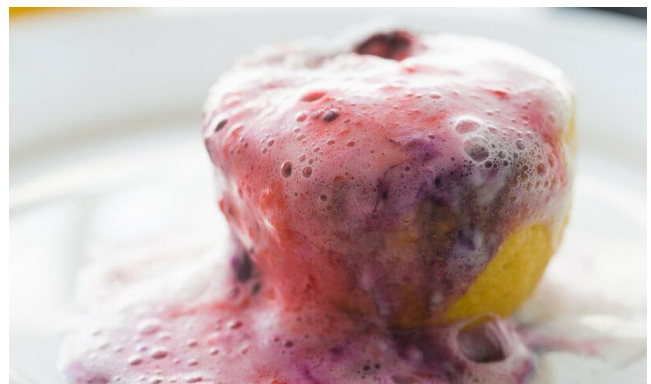




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Note: [What does dish soap do?](#) Adding dish soap to a reaction produces additional foam and bubbles.

6. Add a spoonful of baking soda onto the lemon. It should start to frizz.
7. Use the craft stick to press some of the baking soda down into the different sections of the lemon to get the eruption going.
8. To keep the reaction going, alternatively add more baking soda, coloring, dish soap and the reserved lemon juice to the reaction. [Have you ever smelled a volcano this good?](#)
9. Clean up the mess. Encourage children to draw or paint the largest volcano in the world.



Educational Components:

- [What did you see happening?](#) A reaction occurred! It fizzed and made bubbles!



- Citrus fruits like limes, lemons, and oranges contain a compound called citric acid. [Can you say citric acid?](#) **Citric acid** is a type of acid that reacts when mixed with baking soda.
- [How are bubbles usually made?](#) With air from our mouths.
 - In this case, when we mix the citrus fruit (citric acid) and baking soda a reaction occurs and releases Carbon Dioxide gas.
- [Have you heard of Carbon Dioxide?](#)
 - Carbon dioxide gas is found in our air. Gases are clear, tiny particles that we can't see. It is also the gas that we exchange with plants! Plants release oxygen which we breathe in and we release carbon dioxide which they "breathe in"!
- [How do you know your reaction has finished?](#)
 - The reaction is finished when we stop seeing bubbles. This occurs when our [reactants](#) run out.
- [Can you guess what our reactants are?](#)
 - The things we put together to make a reaction happen.
- [What are our reactants?](#)
 - The citric acid (from our citrus fruit) and vinegar!
- [What is a volcano?](#)
 - A volcano is a place on the Earth's surface where the liquid from the center of Earth, called [magma](#), escapes.
- [Are there different types of volcanoes?](#) Yes! [Cinder Cone](#) is the most common kind of volcano. It usually has a narrow top, steep sides and a wide bottom.
- [What is the largest volcano on Earth?](#)



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- Mauna Loa, found in Hawaii, is the world's biggest volcano on Earth. It is the width of about 89 commercial airplanes or 928 cars.
- [Do Engineers work with volcanoes?](#) Yes! Engineers design instruments that predict when volcanoes will erupt to make sure people get to a safe place.

