

ACTIVITIES

Activity #36 – Judging

1. Bring in a variety of lemons to judge (which will also be used for one of the activities). Before judging, have members create a scorecard.
2. Alternatively, bring in any items (Leader or members) to judge.

Activity #37 - Share your experiment results (*last week's At Home activity*)

After the last club meeting, you were asked to conduct one more experiment at home (individually or in pairs or in groups) and to be prepared to share the results of your experiment today. Share the results of your experiment with all of us. Each person/group will have 10 minutes (15 minutes for senior members).

Activity #38: Lemon Volcanoes

Materials:

- Lemons (2 per volcano)
- Baking Soda
- Food Colouring
- Craft Stick
- Dish soap
- Tray
- Cup & Spoons

Optional Materials: (if you choose to do the open-ended inquiry experiments)

- Vinegar
- Ketchup
- 50-100 ml of 30% hydrogen peroxide (H₂O₂) solution
- Saturated potassium iodide (KI) solution
- Disposable gloves
- Safety glasses

MEETING 6

Instructions:

1. Prep your lemon by slicing the bottom off to make them sit flat. Flip the lemon over and slice out the core. If you are making an open-faced volcano, slice the lemon in half.
2. Prepare extra lemon juice by slicing a second lemon in half and juicing it. Pour juice into a cup and set aside.
3. Place your cored lemon on a tray. Use your craft stick to mush the center of the lemon and bring out the juices. Be sure to keep the juice in the lemon!
4. Place a few drops of food colouring or liquid watercolours (do not dilute) in the center of the lemon.
5. Add in a good squeeze of dish soap to the lemon. This is not necessary but causes the bubbles to ooze and froth more and longer.
6. Add a spoonful of baking soda into the lemon. It should start to fizz. Take your craft stick and stir the lemon and lemon juice. It should start foaming really well as you stir it!
7. To keep the reaction going alternatively add more baking soda, colouring, dish soap and the reserved lemon juice to the reaction. Squeezing the lemon to release the juices also enhances the reaction.

Discussion:

- What causes the eruption to happen?

Lemon juice contains citric acid which when mixed with baking soda (sodium bicarbonate) reacts to form carbon dioxide and sodium citrate, which causes the liquid to fizz and bubble. Citric acid is a common food additive used in soft drinks as a preservative and flavouring.

Open-Ended Inquiry Questions:

- Try taking this activity to the next level! Use different combinations of ingredients and compare the level of eruption. Your task is to figure out how much to use to get the right kind of eruption. In this way, you are practicing repeat trials and documenting everything. You will need a volcano-type container, food colouring and dish soap
 - Baking soda and vinegar
 - Baking soda and ketchup

Senior Members *only*)

- 50-100 ml of 30% hydrogen peroxide (H₂O₂) solution and saturated potassium iodide (KI) solution.
- **NOTE:** Wear disposable gloves and safety glasses. Oxygen is evolved in this reaction, so do not perform this demonstration near an open flame. Also, the reaction is exothermic, producing a fair amount of heat, so do not lean over the graduated cylinder when the solutions are mixed. Leave your gloves on following the demonstration to aid with cleanup. The solution and foam may be rinsed down the drain with water.