**Lemon Fizz**

**DESCRIPTION:**   
When basic baking soda (NaHCO3) is combined with acidic lemon juice (mainly citric acid, H3C6H5O7) an acid base reaction occurs. The reaction releases CO2 which can be captured using dish soap to form bubbles.

H3C6H5O7 (aq) + 3 NaHCO3 (s) → 3 CO2 (g) + 3 H2O (l) + Na3C6H5O7 (aq)

**TOPICS COVERED:**- acids and bases  
- evolution of a gas  
- chemical change   
- organic reactions

**MATERIALS NEEDED:**- baking soda (NaHCO3)  
- lemon juice  
- dish soap  
- 250 mL beaker  
- 100mL graduated cylinder  
- food coloring

**PROCEDURE:**1. Put about 5.0 g of baking soda into the bottom of the 100mL graduated cylinder.   
2. Add about 5.0mL of DI water (regular works too) to dissolve the baking soda.   
3. Add a squirt of dish soap and some food coloring and mix gently.  
4. Squeeze the juice of ¾ of a lemon into a beaker.   
5. Pour the lemon juice into the graduated cylinder and watch the bubbles form.

**ADDITIONAL COMMENTS:**This is a safer alternative to Elephant’s Toothpaste, and because it uses household chemicals instead of a strong oxidizer. Also, it is more relatable to students this way, but it doesn’t cover the same topics that Elephant’s Toothpaste does.

**SAFETY:**   
Safety goggles should be worn at all times. Be careful squeezing the lemon if your hands have cuts on them; the citric acid will make it burn. The mixture is not edible, but it can still be used to wash dishes.

**REFERENCES:**Shakhashiri, B.Z. *Chemical Demonstrations;* University of Wisconsin Press: Madison, 1989; Vol. 3, pp 96.