



Roseville Utility
Exploration Center

HOME for the Holidays

EXPLORE IT!

Make Fibonacci Rainbow Lemonade (Math Project)

Make math a reason to celebrate with this Fibonacci drink. Round it out with snacks that also contain the Fibonacci Sequence. Popcorn, sunflower seeds, pineapple, apples...the list is endless!

What is the Fibonacci Sequence? It is a pattern that adds the previous two numbers in the sequence to get the next one. For example, 1 is the first number. We imagine there is a zero there so the next number in the sequence is also 1 because $0+1=1$. The next number is found by adding $1+1=2$, then $1+2=3$, then $2+3=5$ and so on.

Math is everywhere. You can see it in these examples of the Fibonacci Sequence: seashells, pineapples, daisies, paintings. Math is a big part of a utility worker's job too. Whether calculating flow rates, measuring chemicals or balancing weight ratios, our utility workers use math every day. Math is important in cooking as well. Try this project and see how fun (and tasty) math can be!

Materials: simple syrup (1 cup sugar dissolved in 1 cup water), food coloring, water, ice or a spoon to slow down pouring (ice works best for this project), liquid measuring cup





Instructions:

1. Build each layer in a separate, clear cup to watch the Fibonacci Sequence at work while you prepare. Add food coloring to each layer for an added rainbow effect.
2. First (bottom layer): Mix 5 tsp. lemon juice and 8 tsp. simple syrup with $\frac{1}{2}$ cup water
3. 2nd layer: Mix 3 tsp. lemon juice and 5 tsp. simple syrup with $\frac{1}{2}$ cup water
4. 3rd layer: Mix 2 tsp. lemon juice and 3 tsp. simple syrup with $\frac{1}{2}$ cup water
5. 4th layer: Mix 1 tsp. lemon juice and 2 tsp. simple syrup with $\frac{1}{2}$ cup water
6. 5th layer: Mix 1 tsp. lemon juice and 1 tsp. simple syrup with $\frac{1}{2}$ cup water
7. 6th layer: Mix 1 tsp. simple syrup with $\frac{1}{2}$ cup water
8. 7th (top layer): Mix 1 tsp. lemon juice with $\frac{1}{2}$ cup water
9. Assemble your rainbow lemonade:
10. Fill 4 glasses with ice. The ice will keep the layers separate and create a real showpiece. (Note: it can be made without ice, but it's very easy to end up with a muddled mess instead of awesome layers. The ice slows your pour and shows off your layers.)
11. Pour your bottom layer into the glass normally, then pour the second layer directly over the ice slowly. Repeat with each layer until you finish with the top layer.
12. Celebrate your math-tastic masterpiece and serve your rainbow lemonade with a Fibonacci feast of pineapple slices, sunflower seeds and crosscut sections of fruits or vegetables that follow the Fibonacci Sequence.

