Cosmic Lemonade

Cosmic Lemonade doesn't just look cool; it's packed with science! Most liquids are an acid or a base and the pH scale measures these two essential chemicals on a scale of 0 to 14.

Using a pH indicator will visually inform you if a liquid is an acid or base by changing color. Our experiment uses Butterfly Pea Flower Tea, which contains Anthocyanin—a natural pH indicator. Refreshing and STEM-packed? Now, that's our kind of experiment!

Let's jump into the scientific method, you always start with a question. For Cosmic Lemonade, you might ask, what would the color be if no acid was added? What would happen if limes were used rather than lemons? Would a hot or cold day affect the outcome?

After you have your question, you can head to the [Learn page on the Betty Lab website](#) to study up and form your hypothesis, which just means what do you think the answer to your question will be?

Now it's time to test your hypothesis!

Ingredients

- 1 Butterfly Pea Flower Tea Bag
- 1 cup hot water
- Ice
- 4 cups Lemonade made with your lemonade mix packets and cold water

Supplies

- ¼-cup and 1- cup measuring cups
- Mug
- 4 glasses
- Straw or spoon for stirring

Directions

Step 1
Start by making your lemonade, adding both packets of lemonade mix to 4 cups of cold water. Let it chill in the refrigerator for about 3 hours.

Step 2
Next, heat enough water to fill your mug to near-boiling. **Make sure an adult is present to handle the hot water!**

Step 3
Add your teabag to your mug and pour the near-boiling water over the teabag. Let it steep for 3-4 minutes or until the tea is a deep blue color.

Step 4
Next, fill four glasses with ice and fill them with one cup of lemonade each.

Step 5
Add ¼ cup of the tea you have made to each glass of lemonade.

Step 6
Now it's time to watch the color change!

Step 7
Serve with reusable or paper straw and enjoy. Don't forget to clean up!

Draw Your Conclusion

Examine how it worked! What worked? What didn't work? What could you change next time to alter your results? Will you try again?