Does Color Affect Taste?

Experimental Procedure

This project follows the Scientific Method. Review the steps before you begin.

Working with Human Test Subjects

There are special considerations when designing an experiment involving human subjects. Fairs affiliated with Regeneron International Science and Engineering Fair (ISEF) often require an Informed Consent Form (permission sheet) for every participant who is questioned. Consult the rules and regulations of the science fair that you are entering, prior to performing experiments or surveys. Please refer to the Science Buddies documents Projects Involving Human Subjects and Scientific Review Committee for additional important requirements. If you are working with minors, you must get advance permission from the children's parents or guardians (and teachers if you are performing the test while they are in school) to make sure that it is all right for the children to participate in the science fair project. Here are suggested guidelines for obtaining permission for working with minors:

1. Write a clear description of your science fair project, what you are studying, and what you hope to learn. Include how the child will be tested. Include a paragraph where you get a parent's or guardian's and/or teacher's signature.
2. Print out as many copies as you need for each child you will be surveying.
3. Pass out the permission sheet to the children or to the teachers of the children to give to the parents. You must have permission for all the children in order to be able to use them as test subjects.

Note: It is important that your volunteers do not know that there is apple juice in each cup! You want your volunteers to be unbiased. Therefore, do not let them see you prepare the drinks ahead of time! However, you want the volunteers to be able to see the color of the prepared apple juice, which is why you need to use clear or transparent cups. Without seeing the color before drinking the juice, you won't be able to test if the color of the juice changes the perception of how the volunteers taste the juice.

1. Use your marker to number the clear cups. Label one fourth of the cups with the letter A, the next fourth with the letter B, the next fourth with the letter C, and the final fourth with the letter D.
2. Add about 1/4 cup of apple juice to each clear cup.
3. Line up all the cups labeled 'A' in a row, all cups labeled 'B' in a row, all the cups labeled 'C' in a row, and all the cups labeled 'D' in a row.
4. Add two drops of blue food coloring to the cups labeled A (add more food coloring if the color is not dark enough).
5. Add two drops of green food coloring to the cups labeled B (add more food coloring if the color is not dark enough).

Copyright © 2002-2025 Science Buddies

6. Add two drops of red food coloring to the cups labeled C (add more food coloring if the color is not dark enough).
7. Do not add any food coloring to the cups labeled D.
8. Make a copy of Table 1 in your lab notebook.

Letter on Cup	Volunteer 1	Volunteer 2	Volunteer 3	Total
A				
B				
C				
D				

Table 1. Example data table. Add more columns if you have more volunteers.

8. Fill the three drinking glasses with filtered water.
9. Have your first volunteer sit down at the table. Line up a cup labeled A, B, C, and D in front of your volunteer. Also give them a glass of water.
10. Ask them to start by drinking some water to cleanse their palate, which means to clean and refresh their mouth before the experiment starts.
11. Tell your volunteer that you want them to taste the drink in cups A, B, C, and D, drinking water in between each. They have two minutes to taste the drinks. Once they have tasted the drink in each cup, they should rate them from the one they liked the best, to the one the liked the least. Your volunteer can taste each cup more than once, but they should drink water in between each taste.
12. Have your volunteer start the test. When they taste their first cup, start your timer or stopwatch. Do not answer any questions your volunteer asks you, or react to anything they say!
13. After two minutes, stop your timer and tell your volunteer to stop tasting.
14. Ask them which drink was their favorite. Their favorite drink will get 4 points. In the 'Volunteer 1' column, mark their favorite cup with the number '4.' For example, if your volunteer said they liked the drink cup B best, you would write the number 4 in the 'B' row under 'Volunteer 1.'
15. Ask your volunteer which drink they liked second best. Their second favorite drink will get 3 points. In the 'Volunteer 1' column, mark their second favorite cup with the number '3.'
16. Ask your volunteer which drink they liked least. Their least favorite drink will get 1 point. In the 'Volunteer 1' column, mark their least favorite cup with the number '1.'
17. Write the number '2' in the remaining row.
18. Repeat steps 9-17 with your remaining two or more volunteers. Record their responses in the corresponding columns.
19. Add the points across each row and record the totals in the 'Total' column. For example, if cup A was rated a 2, 1, and 2 by the three volunteers, you would record '5' in the Total column for cup A.
20. Which cup has the highest total? Which cup has the lowest total? Were there any patterns in which cup the volunteers seemed to prefer? How does this compare to your prediction about whether color affects taste?

Copyright © 2002-2025 Science Buddies

Last edit date: 2022-04-12

You can find this page online at: https://www.sciencebuddies.org/science-fair-projects/project-ideas/FoodSci_p081/cooking-food-science/does-color-affect-taste?mode=procedure

You may print and distribute up to 200 copies of this document annually, at no charge, for personal and classroom educational use. When printing this document, you may NOT modify it in any way. For any other use, please contact Science Buddies.

Science Buddies is a 501(c)3 nonprofit organization.
Copyright © 2002-2025 Science Buddies. All rights reserved. Reproduction of material from this website without written permission is strictly prohibited.
Use of this site constitutes acceptance of our Terms and Conditions of Fair Use.
Privacy Policy