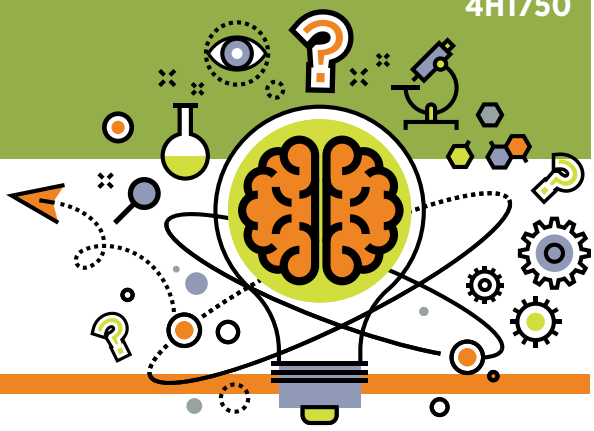
TEACHING SCIENCE
...when you don't know diddly-squat



Does color affect our sense of taste?

Purpose:

The purpose is **not** to teach specific content, but to teach the process of science – asking questions and discovering answers. This activity encourages young people to try to figure things out for themselves rather than just read an answer on the internet or in a book. As a leader, try not to express your opinion, but let the youth engage in arguments based on evidence.

Time required:

20 minutes or multiple days depending on the interest and questions the youth have

Materials:

- ❑ Jellybeans of various flavors
- ❑ Grape soda, root beer and club soda
- ❑ Food coloring
- ❑ Clear containers
- ❑ Small paper cups
- ❑ Blindfolds (optional)
- ❑ Writing utensil
- ❑ Copy of tables

SCIENCE PRACTICE:
Asking questions and defining problems

1. *Many kinds of food look good to eat. We may even prefer some foods over others depending on how they look. Would you eat a blue carrot? What about a purple bean? Can you think of a food you would not eat because of the color?*

SCIENCE PRACTICE:
Planning and carrying out investigations

2. Pour soda as described below each into a separate clear container.
   - Grape
   - Root beer
   - Clear soda colored to look like cola
   - Clear soda with red food coloring
   - Clear soda with orange food coloring

   Have youth first pour liquid from one of the clear containers into a small paper cup. Then have them taste it and try to identify the flavor. Record their answers in Table 1. Have them continue in the same way with the rest of the liquids.

   Next, have youth taste jellybeans of various flavors. First, have them taste with their eyes closed (or blindfolded) and try to identify the flavor. Record the results. Now, have them try the same flavors with their eyes open. Record the results in Table 2.

SCIENCE PRACTICE:
Using mathematics and computational thinking

3. Use Table 1 and Table 2 to record and compare results.

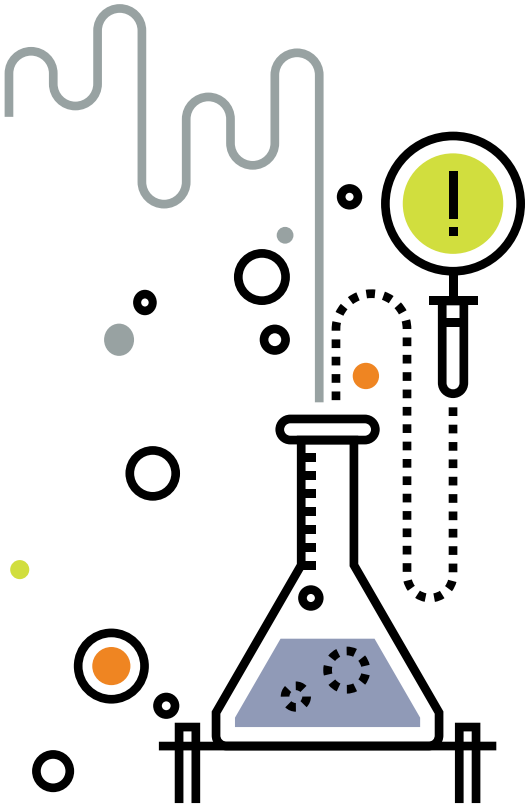
Table 1. Soda Results

Type of soda	Grape	Root beer	Clear soda cola	Red color	Orange color
Number of people guessing correctly					

Table 2. Jellybeans

Color of jellybean	Color#1 (red)	Color #2 (orange)	Color #3	Color #4	Color #5
Eyes closed	Jane – Fruity, Mike – Cherry	Jane – orange, Mike – citrus			
Eyes open					

You do not need all the answers to teach science. You simply need an inquisitive mind and to be willing to carry out an investigation.



SCIENCE PRACTICE:
Analyzing and interpreting data

4. These experiments measure accuracy in determining flavor. Ask the youth: *How many correctly guessed the right flavor? Were there others flavors guessed that are not included? Did color affect your decision?*

SCIENCE PRACTICE:
Engaging in argument from evidence

5. Have youth explain how color affects our sense of taste. Ask: *Do you think you could make someone eat something they otherwise would not eat by changing its color?*

SCIENCE PRACTICE:
Obtaining, evaluating, and communicating information

6. *Do stores make certain foods look better? Does advertising on TV, magazines, the internet and other places make foods look better than they are? What can you do to improve your decision making about eating food?*

Other thoughts:

- *Does our sense of smell have anything to do with our sense of taste?*
- *What fruits and vegetables look most appetizing in the store?*
- *When you are picking berries, does the color of the fruit affect your selection? Do certain colors of berries taste better?*
- *Do you think any of the fresh foods you find in the store are artificially colored? Why or why not? How could you find out if they are artificially colored?*
- *Are foods artificially colored to make them more appealing to children? Can you think of any examples?*
- *Could you make green eggs and ham like in the Dr. Seuss book of that name? Do you think the color would determine whether or not kids will eat them?*

- *Are there other foods you can duplicate the experiment with? Examples include candies and cereal of various colors such as Skittles, M & Ms, Froot Loops, Trix, Fruity Pebbles, marshmallows from Lucky Charms, colored marshmallows, Life Savers, Sixlets, candy conversation hearts and other colored foods.*

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Science & Engineering Practices:

These eight Science and Engineering Practices come from *A Framework for K–12 Science Education* (National Research Council, 2012, p. 42). These research-based best practices for engaging youth in science are connected to in-school science standards that all children must meet.

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Reference:

National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press.

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