



Curiosity Guide #705

Color Science

Accompanies Curious Crew, Season 7, Episode 5 (#705)

Colorful Beans

Investigation #5

Description

How boring are black jellybeans? How can we find some color?

Materials

- Black jellybeans
- Spoon
- Cup of water
- Tray
- Filter paper

Procedure

- 1) Place one filter paper on the tray so that the paper is lying flat.
- 2) Submerge a black jellybean in the cup of water for 5 to 10 seconds.
- 3) Take the jellybean out of the water with the spoon.
- 4) Use your fingers to place the bean on the center of the filter paper. Try to prevent too much water from spilling on the paper.
- 5) Observe what happens to the filter paper.
- 6) What do you notice after 10 to 15 minutes?

My Results

Explanation

In the subtractive color system, color is produced when different wavelengths of light are absorbed or reflected. The color that we see corresponds to the wavelengths that are reflected off an object. Black jellybeans appear black because there are many different colored dyes combined in the recipe that makes black jellybeans. All those colors combine to make the beans look black. When a bean gets wet, some of the dyes begin to separate. The water molecules are attracted to the filter paper and begin to move through the fibers of the paper. Some of the dyes are more soluble in water than others. The different colors of dye travel with the water at different speeds and over a lesser or greater distance. The process of separating a mixture is called **chromatography**. What colors could you see, and which colors traveled the farthest?

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