

Chromatography

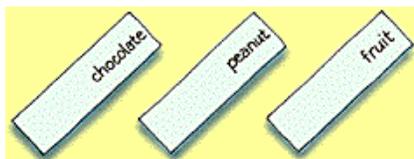
Candy-coated chocolate, peanut butter, and fruit jellies come in many different colors in a pack. In the activity below you can check out the brown ones. Those brown ones may be more colorful than you think!

Materials:

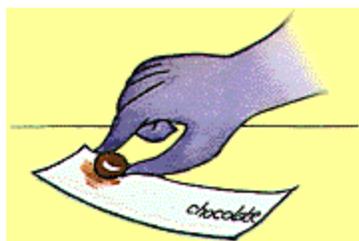
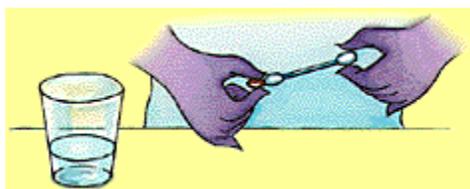
- Candy-coated chocolate (brown)
- Candy-coated peanut butter (brown)
- Candy-coated fruit jelly (brown)
- Pencil
- Coffee filter (cone type)
- Cotton swabs
- Water paper or plastic cup (at least 7 oz)
- Blunt end scissors

Procedures:

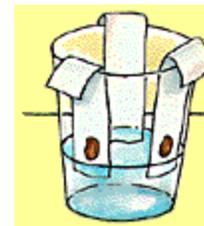
1. Cut three strips of coffee filter about 10 cm long and 3 cm wide. Write the name of each candy on a separate strip near the end of the strip.



2. Pour about cup of water into a cup. Dip one end of a cotton swab into the water and gently wet one side of a candy. Gently rub the candy's wet side onto its filter strip about 2 cm from the end to make a dark dot on the paper.



3. Repeat step 2 for your two other candies and paper strips, using a clean swab each time.
4. Carefully place your strips in the cup of water so that only a small portion of the bottom of each strip touches the surface of the water. Be sure that each dot is above the surface of the water. Bend the rest of the strip over the rim of the cup to keep it in place.



5. Observe each strip as the water moves up through the dot. What do you notice happening? Was the brown color on the candies a mixture of other colors? What are these other colors? Compare the colors used in each candy. In what ways are they the same or different?
6. Check the ingredients listed on the candy wrapper to see if the colors you now see match the ones used to color the candies!

Think about this ...

Here's another separation sensation! Put one drop each of two different food colors in a cup so that they mix. Use a cotton swab to soak up the color mixture. Place a dot of the color on a strip of coffee filter. Use chromatography the way you did in Candy Chromatography to see what happens.

Where's the Chemistry?

The reason why the colors separate has to do with the chemicals that make up the color, the water, and the paper. The chemicals that make up the color are called pigments. Some pigments attach to water better than others so they move further up the paper before sticking. The size, weight, and shape of the pigment also has something to do with how it moves along the filter paper and where it finally attaches. These factors usually cause enough separation that you can tell which colors were combined to make the original mixture.



The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at www.acs.org/kids.

Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

Never eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

Never experiment on your own!

For more detailed information on safety go to www.acs.org/education and click on "Safety Guidelines".

