The Nose Knows!

Some substances give up their smell molecules very easily and others need to be helped along a little. Perfume and peppermint both have nice smells. Let's check out the different ways that their smell molecules get into the air.

Materials:

Perfume
Peppermint candy
2 small plastic cups
Paper napkin
Plastic wrap
Water

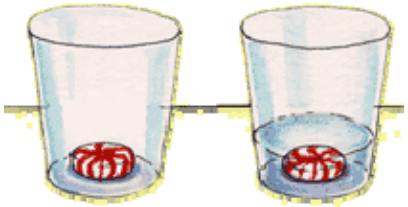
Procedures:

1. Place 2 or 3 drops of perfume in the bottom of a plastic cup. Unfold a paper napkin and quickly place it over the cup.
2. Smell over the napkin. Did you smell anything? Wait 1 or 2 minutes and smell again. Was the smell any stronger? Were the smell molecules able to get into the air and through the napkin?

3. Now try placing a piece of plastic wrap over the cup. Smell the outside of the plastic wrap. Did you smell anything? Wait 1 or 2 minutes and smell again. Was the smell any stronger? Were the smell molecules able to get through the plastic wrap?

   The smell molecules from perfume get into the air pretty easily. Let's see if the same is true for a piece of peppermint candy.

1. Place a peppermint candy in each of two cups. Smell the air over the candies in each cup. Can you smell the peppermint?



2. Add water to one of the cups so that it is about 1/4 full. Swirl the water and smell the air over the cup. Can you smell the peppermint now?

Think about this ...

You saw how the smell molecules in perfume got into the air easily and those from peppermint needed a little help by being dissolved in a liquid. Did you ever notice how some leaves and fruit need to be torn or cut a little to really release their smell? Try this: Smell the outside of an orange, lemon, or grapefruit.

Use your fingernail or unbend a paper clip and scrape the outside of the peel. Now smell the peel. What do you notice? Why do you think scraping helped the smell molecules escape?

Where's the Chemistry?

Different molecules get into the air, or evaporate, at different rates. Also, some molecules have a stronger smell than others. Perfume is made from molecules that get into the air easily and have a strong smell. The molecules from the peppermint candy also have a strong smell but need to be dissolved before they evaporate easily.

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".