



Botanical Garden Programs: Discovering Plants

SMELLING UP A STORM:

Examining the Relationship between Plants and Scents



Grades K–3

I. Introduction

Smelling Up a Storm investigates a non-visual way humans gather information about the world around them. This exercise demonstrates that common scents are often derived from plant sources. This lesson can be used as either preparation for your class's visit to the Huntington, or as reinforcement of the trip afterwards.

II. Objective

- ◆ To develop an appreciation for the botanical sources of many familiar odors through the observation and comparison of scents, and communicate of this information.

III. Background

Scents Are All Around Us

Fragrances are all around us. Everywhere we go, scents impress us as being strong, weak, pleasant, unpleasant, fresh, woody, spicy, floral, and so on. We encounter aroma in cosmetics, personal and household care products, plastics, automobiles, and the food we eat. How do we detect all these different scents?

The answer: with about 5 million olfactory odor detectors in our nose and mouth. If you think that's a lot, think again. Dogs have 200 million detectors! What is the source of these scents? Most are manufactured in chemical factories, but many are from plants. Today we will observe scents obtained from plants, distinguish between them, and guess their source. Many of the scents used here are found in the plants of the Huntington's Herb Garden.

IV. Materials Needed

- ◆ empty film canisters from film developing store, one for every student
- ◆ cotton balls, one for every student
- ◆ box of unscented facial tissue
- ◆ three to five of the following:
 - lemon extract
 - peppermint extract
 - vanilla extract
 - cinnamon extract
 - clove oil (toothache drops)
 - anise or licorice extract

V. Lesson Activities

1. Time Required (in Minutes)

10 to prepare canisters

5 to explain activity

10 to match smells

5 to identify the smells

10 to discuss questions

40 total

2. Safety and Environmental Concerns

Although hazards with this exercise are minimal, read the extract labels. Care should be taken not to get substances in the eyes, drop the saturated cotton balls, or to spill the extract bottles. Instruct the students in the proper procedures for using one's hand to waft odors toward the nose, rather just than taking a deep breath!

3. Preparation

Wash (with dish soap) and dry the canisters to remove the chemical odor of the film. Pick the extracts you want to use.

Divide the number of students in your class into groups by the number of scents you are using (a class of twenty using four scents would divide into four groups of five). For each scent, moisten enough cotton balls with extract for each student in that group. (Remember, a little extract goes a long way!)

Place the cotton balls into empty film canisters. Firmly close the film canisters (in the end, you should have one canister per student). Mix up the canisters in a box or bag.

4. Procedure

Distribute canisters, one to a student, with a reminder not to open the canisters yet!

Explain the progress of the activity: smell, find other students with similar scents, and identify the scent.

Students smell their mystery scent (without touching the cotton ball).

Students find others in the class that share the same scent. Students with the same mystery scent try to identify the smell.

Groups share their findings with the class.

Note: The unscented tissues can be used as a “filter” when the nose gets overloaded: breath through the tissue a few times before trying another scent.

VI. Discussion Questions

1. What is the name of the scent in your canister?
2. Did anyone in your group disagree with the others about the scent? What did that student think it smelled like?

After your teacher tells you the names of each of the scents, name as many products or foods as possible for each scent where the odor might be used.

3. What is the plant source of your scent?

VII. Extension Activities

1. Identify which part of the plant is used to produce the scent by looking them up in a book or visiting a nearby garden and sniffing them out.
2. Identify three cultures that use this particular scent, and how they use it.
3. If the class used extracts, try to recreate the scents using parts of living plants. (Fresh lemon for lemon extract, etc.) Use both plant extracts and plant materials to demonstrate the link between common scents and their botanical sources. Students can compare the strength of the scents, and figure out whether extracts or fresh plant material has a stronger odor. (Extracts are usually stronger because they are concentrations of the plant's essential oils.)