

## Making Scented Inserts



### Summary

What can we smell? In order to smell something, it must have two properties. The first is that it must be in the air so that it can get into your nose. Most things you smell have liquid particles that can be carried into the air, and this is why many smelly products are liquids (e.g. perfumes, air fresheners, etc.) The second requirement for something to be smelled is that the tiny particles now in your nose must fit the *receptors* (little detectors that are specific for different molecules in the air). This works because most smells are really made up of *primary odors* that your nose can split up and identify. All of the possible smells happen by mixing these smells in different combinations and amounts.

Scientists were able to determine the 4 major taste components and map them directly to areas on the tongue, but efforts to do the same with smells have proved more difficult! For this reason, categorizing smells may require you to use more than the primary odors (especially since most of these smell BAD!) Shown below is a list of possible smell descriptors. If you do not know exactly which category something fits in, make up your own!

### ODOR IDENTIFIERS:

Primary Odors	Taste Components	Other Possible Descriptions
Flowery – roses, honeysuckle, lilacs	Sweet – anti-freeze (also see fruity and flowery)	Fruity – apple, cherry, etc.
Fruity – sweet fruits like apples, cherries, etc.	Sour – lemon, lime (also see citrusy)	Soapy – laundry detergent
Musk – strong smell, found in some men’s cologne	Salty – soy sauce	Pine – pine trees, Christmas trees
Camphorous – moth balls	Bitter - coffee	Spicy – nutmeg, cinnamon, etc.
Stinging – vinegar, may feel like they are burning your nose!		Citrusy – oranges, grapefruit
Rotten/Sulfurous – rotten eggs		Woody – any type of wood
Ether –some cleaners, hospitals		Nutty – peanut butter
Sweaty - sweat		Chocolatey – candy bar
Fishy – fish at the store		Minty - peppermint

Scented inserts are used to sell perfume and can be found in magazines and department stores. They are usually folded pieces of paper that has a kind of glue holding it closed. When you unfold it, the glue pulls apart and releases the fragrance. This works because the microcapsules are broken when you pull apart the paper (physical rupture of

the outer layer) releasing the active ingredient (the smell) into the air. Scratch-and-sniff stickers work in a similar way (see Scratch-and-Sniff Stickers activity).

Making a scented insert is harder than it may seem. The adhesive (glue) used to hold it closed cannot have smell of its own, as this would interfere with the perfume smell. Also, some glues will react with the perfume to make it smell different. The most important thing is for the smell to stay the same for as long as possible. Researchers test and compare many possible combinations of scent and adhesive ingredients to reach this goal.

## Goals

- Learn to categorize different scents
- Test different adhesives for your insert to see which holds smells the longest
- Compare different scented products (main scent, ingredients, etc.) to see which lasts the longest.



**Materials needed** (for testing two products – you may want to test more!)

- 1 piece of Unlined Paper
- Scissors
- Scotch Tape
- Glue Stick
- Q-Tips
- 2 scented products to test (things like perfumes, body wash, shampoo, conditioner, and other scented hair products) \*\*

\*\*NOTE: You may want to read the first half of the “Comparing Scented Inserts” activity (through part A) BEFORE choosing your samples. This will help you to set up a good *experiment*!

**Activity** (*Estimated time for making samplers, 1 hour*)

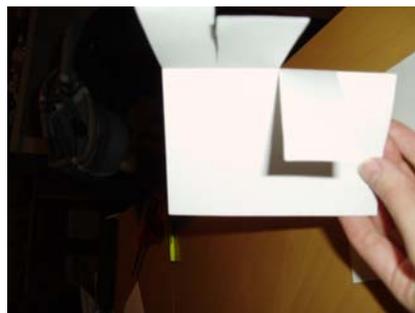
In this activity, you will be the researcher and try to determine which scents and adhesives make the best scented insert!

### A. Cutting and Labeling Your Scent Samplers.

1. Cut one piece of paper into four equal pieces. Fold each over, leaving ~2cm hanging out on the bottom. Divide folded pieces into pairs.

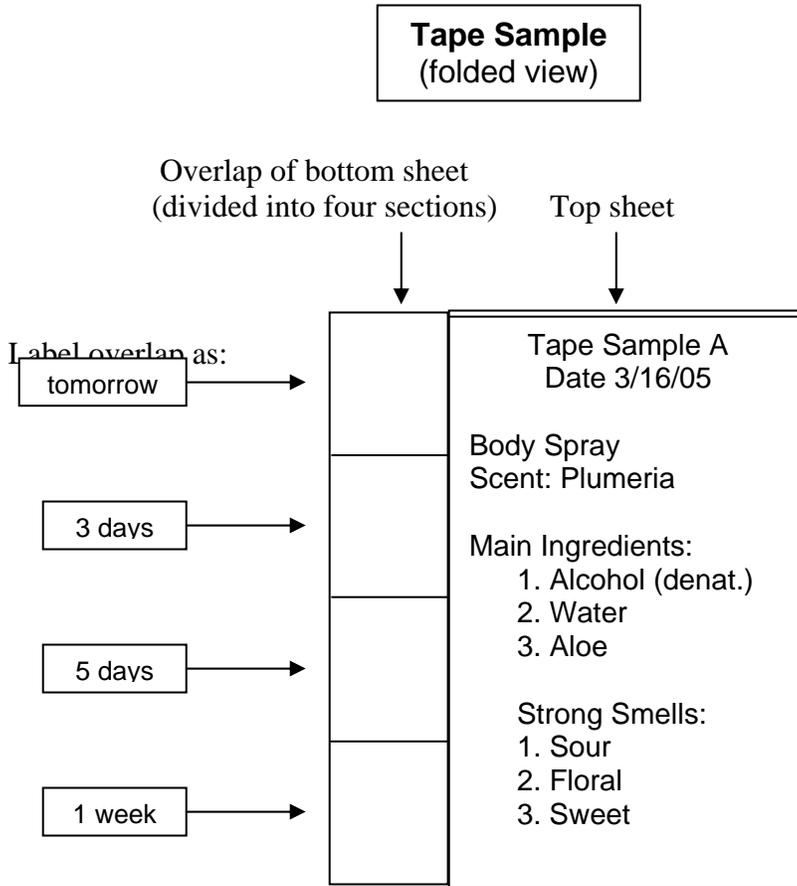
2. For only 1 of each pair, cut the top (part of the fold) only into four even strips (see picture to right.) Label these two as “*glue sample*”, and label the two **uncut** pieces as “*tape sample*.”

3. On the bottom of all your sheets (glue and tape samples), label each section (of the four), as tomorrow, 3 days, 5 days and 1 week. (see Figure 1, next page).



4. On the top of each *tape sample*, assign a letter to the sample, and place the SAME letter on the *glue sample* paired with it. Also, write the date on the top sheet. Have your two scented products ready.

5. On the top sheet of the tape sample, write the primary use of your first scented product (e.g. body spray, conditioner, etc.), the name of the scent on the bottle, the first three ingredients (look on the bottle, may not be given.)



**Figure 1.** Example of Labeled Tape Sample. Glue sample will ONLY have bottom sheet labels (because top sheet will be cut and glued.)

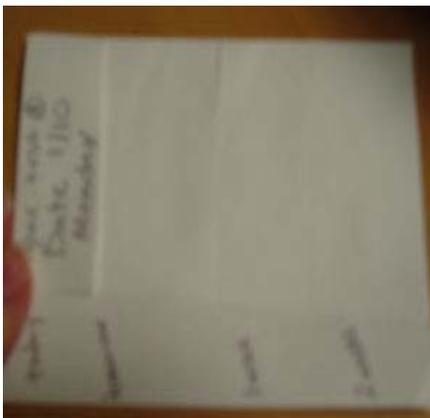
6. Smell the sample (assigned to this letter) and attempt to identify the strong smells in the scent using the previously mentioned “odor identifiers.” Write these down (labeled “Strong Smells” in Figure 1) in order beginning with the strongest and progressing to the weakest one you can smell - try to get at least three per scent!

[Tip: If you have trouble smelling a product (your nose gets tired), take a deep whiff of something relatively unscented like your shirt sleeve, a clean towel, etc. This should refresh your nose for more smelling! ]

7. Repeat for your other sample.

## B. Making Your Scented Samplers

Now, make your scented samplers (one glue and one tape sample per scent).



1. For each *glue sample*: Get some of the scent on a Q-tip and gently rub a small line on the bottom sheet in each section, try to use the same amount for each section.

2. Now we must cover the scented lines! Apply glue stick to the underside each strip (the cut side) labeled tomorrow, 3 days, 5 days and 1 week. Fold over and press the glued side to the paper against the scented line, starting from the bottom (1 week) and proceeding upwards to the other strips.

3. For each *tape sample*: Apply scents to the paper as you did for the glue samples, but make sure that the area is small enough to be covered by the tape.

4. Again we must cover the scented lines, but this time with tape instead of glued paper. Get four pieces of tape by cutting a piece that is as long as the folded paper is wide. Fold the left end of each piece to create a 1-2 cm tab (that isn't sticky.) Use this strip to cover the scent on one of the four sections. Repeat until all four sections are covered.

5. Save samples for use in the Comparing Scented Inserts activity.

### References:

1. How we smell: <http://www.chemistry.wustl.edu/~edudev/Smell/smell.html>

2. Primary Odors: <http://food.oregonstate.edu/sensory/nancy7.html>