

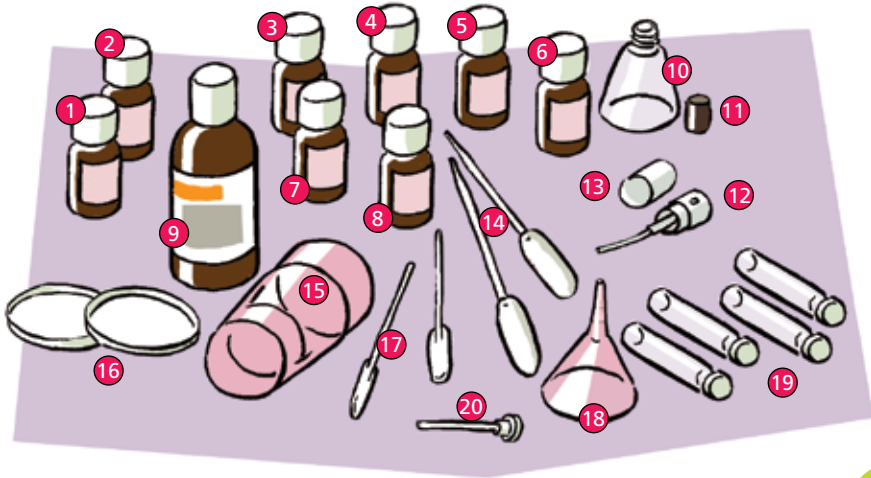
PERFUME

SCIENCE



Experiment Manual

KIT CONTENTS



SHOPPING LIST

No.	Description	Qty.	Part No.
Basic Perfume Oils (10 ml)			
1	"LEMONY"	1	770 420
2	"WOODY"	1	770 421
3	"FLORY"	1	770 422
4	"MUSKY"	1	770 423
Creative Perfume Oils (10 ml)			
5	"TROPICA"	1	770 424
6	"ORIENTA"	1	770 425
7	"MENTHA"	1	770 426
8	"MELLA"	1	770 427
9	"FINALIO"	1	770 412
10	Flacon, 10 ml capacity	1	701 360
11	Cap for Flacon	1	701 362
12	Atomizer	1	701 361
13	Cap for Atomizer	1	701 800
14	Dropper Pipette	2	232 134
15	Measuring Cup	2	065 099
16	Lid for Measuring Cup	2	061 160
17	Stirrer	2	700 831
18	Funnel	1	700 364
19	Mini Flacon, 2 ml capacity	4	701 760
20	Cap for Mini Flacon	4	701 801
21	Labels	1	701 790

Additional Items

You may need some of the following items to complete some of the experiments and projects. Please read each experiment before starting it, and make sure you have all of the items you will need for that particular experiment.

Common tools from around the house:

Scissors, Pencil, Ruler, Spoons, Cups, Knife, Paper towels, Book (old and heavy), Cooking pots (large and small), Jelly jars with lids (2), Markers or watercolors, Bowl or small plate, Sewing thread, Sewing needle, Sewing pins, Knitting needle, Cotton or nylon thread, Teaspoon, Cloth (silk or cotton), Large plate

Common materials from around the house:

Paper, Cotton pads or balls, Construction paper, Aluminum foil, Water (hot and cold), Thick Cardboard, Coffee filter, Small plastic bags

Special materials you may need to buy:

Yogurt (two different fruit flavors), Chamomile tea bag, Peppermint tea bag, Vegetable shortening or soft margarine, Fragrant rose petals (from florist or market), Lavender flowers (from florist or craft store), Flowers or flower petals (fresh roses, carnations, etc), Dried herbs, Chamomile flowers, Dried lemon peel

The right to technical alterations is reserved.

3. Fill the first measuring cup with peppermint tea and the second with chamomile tea and seal both measuring cups with their lids.

4. Let the cups sit for a couple of minutes. Then remove the lid from the measuring cups and sniff the tea. Can you smell the difference between the teas even with your eyes closed?

› **Why is this?** When they are heated, the ethereal oils from the peppermint and the chamomile are dissolved in the water, and the released fragrant oils can evaporate. Unfortunately, the heat of the water will partly damage the ethereal oils, so some of the fragrant material is lost. This method is therefore no longer used to extract fragrant material.

1.



When brewing tea, you are using the simplest and oldest way of extracting fragrances. In addition to the fragrances, the hot water also dissolves color and bitter material from the plant parts. Compare the colors: left peppermint and right chamomile.

2.



As soon as you lift the lid, you also uncover the secret. In which of the two cups is the peppermint and in which is the chamomile?

EXTRACTING FRAGRANCES WITH FAT

Another old method of fragrance extraction is the enflourage [French, *fleur* = flower]. In this method, fragrances are extracted from plants with the help of animal fat, such as pork lard. A sheet of glass with a wooden frame is greased with fat. Flower petals are pressed lightly onto the glass. The fat extracts the fragrant material from the plant over the next few days. This process is repeated until the fat can no longer absorb any more fragrance. "The fat is saturated," as a perfume chemist would say.

The resulting fat and fragrance mixture is called **concrète** [French, *se concrèter* = to become thick, firm]. Then, the flour oils are extracted from the fat with the help of alcohol. After that, the alcohol is evaporated, and the result is a clean ethereal oil called **absolu** [French, *absolu* = chemically clean, pure].

› **Materials from the kit:** Finalio, measuring cup

› **Additional materials:** Vegetable shortening (e.g. Crisco®), fragrant rose petals (*rosa centifolia*) or lavender flowers (*lavendula officinalis*) from the florist or market, corrugated cardboard, aluminum foil, knife, scissors, pencil, ruler, paper towel, an old book (weighing about 1 kg, or 2 lbs), small pots, water, jelly jar with lid

Preparation

1. Cut two pieces of cardboard, each about 4 x 4 inches.

2. Wrap a suitably-sized piece of aluminum foil tightly all the way around these. The cardboard must be covered by foil on both sides. All excess foil must be folded onto one side.

Warning Statement

Finalio is flammable. Observe the information of page 4.





1.

This is how you prepare the enfleurage: spread fat on cardboard covered with aluminum foil, and then press rose petals into the fat.

Experiment: Part 1

1. On each foil-covered cardboard piece, spread a layer of fat no thicker than 1/4 inch thick on the smooth foil side.
2. Press the rose petals (or lavender flowers) tightly together onto the fat.
3. Put the two pieces of cardboard together like a sandwich with the layer of fat and rose petals in the middle.
4. Put the "sandwich" on a double sheet of paper towel, and wrap the paper towel around it.
5. Put the heavy book on top of it.
6. After one week, check your enfleurage. Exchange the old flower petals with new ones, and let the fat extract the oils from the petals for one more week.
7. After the second week, your fat-fragrance mixture, or *concrète*, is ready.
8. Remove the petals from the *concrète*, and sniff the remaining fat. Does it smell? Now you can use the mixture for the next experiment...



2.

Just like with a real enfleurage, you can use alcohol (in our case, the Finalio-water mixture) to extract some of the rose fragrance from the fat.

Experiment: Part 2

1. Ask your parents for help with this.
2. Put the fat-fragrance mixture in a small pot.
3. Fill a larger pot halfway full of water and put the small pot inside it.
4. Heat the two pots carefully on a stove set to low heat, until the fat has melted and become a liquid.
5. Remove it from the heat and let the mixture cool a little.
6. After it has cooled a little, but is still liquid, transfer the fat into a glass jelly jar.
7. Make a mixture of 10 ml (2 teaspoons) Finalio and 30 ml (1/8 cup) water.
8. Pour the mixture into the jar of fat.
9. Put the lid on the jar, and let the mixture stand in a warm spot for a week.
10. Shake it every now and then.
11. Now test the fragrance. The Finalio-water mixture should smell lightly of roses. You have successfully separated out the fragrant oils.

DID YOU KNOW...

... WHICH PARTS OF PLANTS EXPENSIVE FRAGRANCES COME FROM?

PLANT PART

Flower petals
Leaves, stems
Grasses
Roots
Mosses
Wood
Needles
Resin
Seeds
Fruit pits
Fruit rinds

FRAGRANCE

Rose, Jasmine, Tuberose, Narcissus, Bitter Orange
Geranium, Peppermint, Sage, Thyme, Bitter Orange
Tarragon
Iris, Angelica
Oak Moss
Sandalwood, Rosewood, Cedar wood
Spruce, Pine, Cypress
Myrrh, Oleoresin (incense)
Cardamom, Pepper
Anise, Nutmeg, Coriander
Bitter Orange, Lemon, Bergamot

