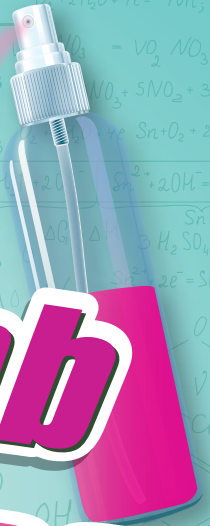


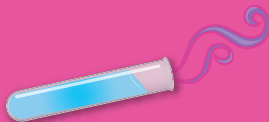
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Dear parents and guardians

Through play, children develop different cognitive skills. Scientific studies show that when we are having fun or making discoveries during an experiment, a neurotransmitter called Dopamine is released.

Dopamine is known to be responsible for feelings like motivation, reward and learning and that's why experiences are related to positive feelings. So, if learning is a positive experience, it will stimulate the brain to develop various skills.

Therefore, Science4you aims to develop educational toys that combine fun with education by fostering curiosity and experimentation.

Find out below which skills can be developed with the help of this educational toy!



The educational feature is one of the key strengths of our toys. We aim to provide toys which enable children's development of physical, emotional and social skills.

Find out more about the Brain Activator in Science4you toys at:

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Science4you

1st Edition, Science4you Ltd.

London, United Kingdom

Author: Ana Garcia

Co-author: Suzana Roque and Joana Gomes

Scientific review: Ana Garcia and Daniela Silva

Revision: Catarina Pires and Annkathrin Grüneberg

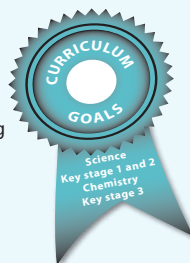
Project management: Ana Garcia

Product development: Ana Garcia

Design management: Daniela Silva Carmo

Design: Filipa Rocha and Telma Leitão

Illustrations: Catarina Ribeiro



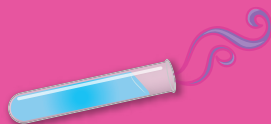
This book was produced in accordance with the following key stages and curriculum goals of subjects:

- Science: KS1, KS2;

- Chemistry: KS3.

Super Lab Perfumes





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SAFETY RULES

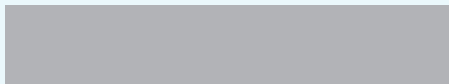
- Read these instructions before use, follow them and keep them for reference.
- Keep young children and animals away from the experimental area.
- Store this experimental set out of reach of children under 8 years of age.
- Clean all equipment after use.
- Make sure that all containers are fully closed and properly stored after use.
- Ensure that all empty containers and/or non-reclosable packaging are disposed of properly.
- Wash hands after carrying out experiments.
- Do not use any equipment which has not been supplied with the set or recommended in the instructions for use.
- Do not allow chemicals to come into contact with the eyes or mouth.
- The made products (perfums) should not be used anymore if they change their appearance, colour or fragrance.
- Contains fragrances that may cause allergies (3-(4-tert-Butylphenyl)-propanal, (R)-p-Mentha-1,8-diene, (E/Z)-3,7-Dimethyl-2,6-octadienal, (2E)-2-Benzylideneoctanal, 2-Methyl-3-(4-tertbutylphenyl)-Propanal, 3,7-Dimethyl-6-octenal, Benzyl salicylate and 3,7-Dimethyl-6-octen-1-ol).

GENERAL FIRST AID INFORMATION

In case of eye contact: Wash out eye with plenty of water. Seek immediate medical advice if necessary.

If swallowed: Wash out mouth with water and drink some fresh water. Do not induce vomiting. Seek immediate medical advice.

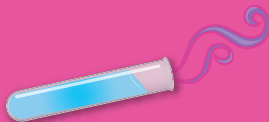
Write on the provided blank space the telephone number of national poison information centre or local hospital. They may provide you with information about measures to take in case of intoxication.



In case of emergency dial:

USA 911 | UK 999 | Australia 000 | Europe 112

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LIST OF CHEMICALS SUPPLIED

Baking soda / Sodium bicarbonate
CAS # 144-55-8

Citric acid
CAS # 77-92-9



Warning

Hazard statements:

H319 Causes serious eye irritation.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Liquid glycerin 80%

INGREDIENTS: GLYCERIN, AQUA

Sea salt / Sodium chloride
CAS # 7647-14-5

Blue cosmetic colouring (CI 42090)

INGREDIENTS: FOOD BLUE 2, METHYLISOTHIAZOLINONE, METHYLCHLOROISOTHIAZOLINONE, DIMETHYLOL GLYCOL

Pink cosmetic colouring (CI 45100)

INGREDIENTS: ACID RED 52, METHYLISOTHIAZOLINONE, METHYLCHLOROISOTHIAZOLINONE, DIMETHYLOL GLYCOL

Vanilla fragrance

Hazard Statements:

P412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P103 Read label before use.

Contains 3-(4-tert-Butylphenyl)-propanal. May produce an allergic reaction.

Peach fragrance



Warning

Hazard statements:

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P261 Avoid breathing gas.

P280 Wear protective gloves.

Response:

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

Contains alpha-Hexyl cinnamaldehyde, Benzyl salicylate and 3,7-Dimethyl-6-octen-1-ol. May produce an allergic reaction.

Lemon fragrance



Danger

Hazard Statement(s):

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P261 Avoid breathing gas.

P280 Wear protective gloves.

P301+P310+P331 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.

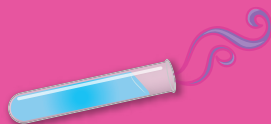
P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Contains (R)-p-Mentha-1,8-diene, (E)-3,7-Dimethyl-2,6-octadienal, alpha-Hexyl cinnamaldehyde, 2-Methyl-3-(4-tertbutylphenyl)-Propanal and 3,7-Dimethyl-6-octenal. May produce an allergic reaction.







KIT CONTENTS



Description:

Quantity:

1. Pasteur pipettes	_____	6
2. Wooden spatulas	_____	6
3. Decorative stickers sheet	_____	1
4. Round paper filters	_____	3
5. Plastic test tubes with lid	_____	8
6. Straws	_____	8
7. Test strips	_____	10
8. Protective gloves	_____	2
9. Large measuring cups	_____	2
10. Small measuring cups	_____	3
11. Plastic spatula	_____	1
12. Spray bottles	_____	2
13. Wooden sticks	_____	5
14. Funnel	_____	1
15. Test tube rack	_____	1
16. Apple and cinnamon tea bag	_____	1
17. Green tea bag	_____	1
18. Red berries tea bag	_____	1
19. Sea salt	_____	1
20. Sodium bicarbonate	_____	1
21. Citric acid	_____	1
22. Liquid glycerine	_____	1
24. Blue cosmetic colouring	_____	1
23. Pink cosmetic colouring	_____	1
25. Lemon fragrance	_____	1
26. Peach fragrance	_____	1
27. Vanilla fragrance	_____	1



1. The senses

Our ability to communicate with the world is related to our sensory organs.

1.1. Sense of hearing

When we listen to music we are using our sense of hearing. Our ears allow us to use this sense.

Our ears allow us to listen to the sounds around us, such as people talking, but also other less pleasant sounds like an engine motor of a motorbike or a car horn.



Image 1. Sense of hearing.

1.2 Sense of taste

When we delight ourselves with a delicious chocolate cake, we are using our sense of taste.

Through the taste buds located on our tongue we can taste flavour and recognise if the food is sweet, salty, bitter, sour or umami.



Image 2. Sense of taste.

DID YOU KNOW...

That each time you try a new food you enrich and improve your taste?

1.3. Sense of touch

Our sense of touch is present all over our skin and it allows us to perceive and recognize shapes and textures. Mostly we use our hands to investigate/feel/touch things better.



Image 3. Sense of touch.

1.4. Sense of smell

Each time you are trying a new scent and discovering its source you enrich your knowledge about the world and improve your sense of smell. With your Super Lab Perfumes you will discover new fragrances and stimulate your sense of smell.

DID YOU KNOW...

That anosmia is the term used to describe someone that has lost its taste of smell?

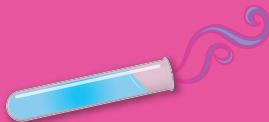


Image 4. Sense of smell.

Primary colours are called primary because they are pure, which means that it is not possible to create these by mixing other colours.

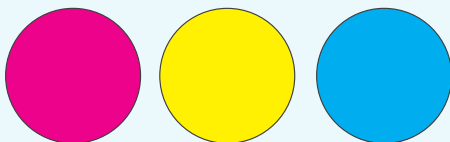


Image 6. Primary colours.

1.5. Sense of sight

Our sense of sight allows us to see. Our eyes are the organs that help us to distinguish colours and shapes.

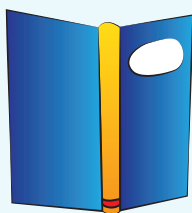


Image 5. Sense of sight.

With our eyes we are able to see the colourful world that surrounds us. We can see plenty of colours such as yellow, green, blue, violet or red and many others.

b) Secondary colours

Secondary colours are made by mixing two primary colours. There are three secondary colours: **orange**, **green** and **violet**.

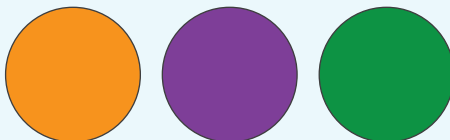


Image 7. Secondary colours.

DID YOU KNOW...

That you can make new colours by mixing yellow, magenta and cyan? With your Super Lab Perfumes you can mix these colours and create new ones!

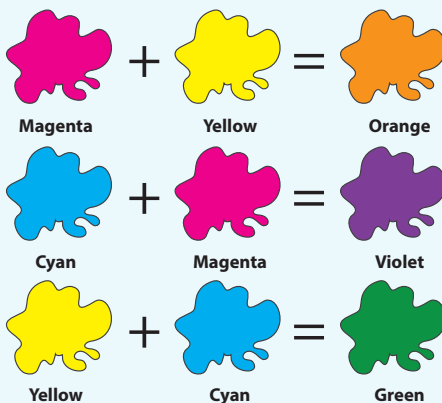


Image 8. Creating secondary colours.

a) Primary colours

Primary colours are extracted directly from nature, and can be combined to create a wide range of colours. There are three primary colours: **cyan**, **magenta** and **yellow**.

c) Tertiary colours

Tertiary colours are the result of the mixture of a primary colour with one or two secondary colours.

Tertiary colours are all other colours such as brown, pink, turquoise, etc.

With only three primary colours (yellow, magenta and cyan) you can create any other colour and make super colourful experiments!



Images 9 and 10. Colourful solutions.



Image 11. Perfumes.

2. The world of perfumes

Perfumes are a complex mixture of organic compounds, alcohol and water. The organic compounds are called fragrances.

We call fragrances to the basic smells that we try to put together in order to create a perfume.

Perfumes are used to provide a pleasant and long-lasting scent to our bodies and different objects.



DID YOU KNOW...

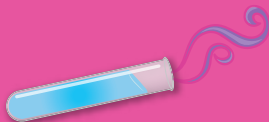
That perfumes are one of the most popular gifts in the world?

With this kit you will be able to create your own perfumes.

3. The history of perfume

It is almost certain that the origin of perfume is straightly connected to religion. It was used as a purification of the soul and an offering to the Gods (as a sign of devotion).

If we analyse the word itself in several languages, "parfum" in French, "profumo" in Italian, "perfume" in English, etc., we will notice



that it derives from the Latin word “fumus” which reminds us of the clouds of scented smoke from ceremonies to honour the Gods.

In the ancient civilisations of the Near East, particularly in Egypt, the first references to perfume were found. Archeologists found alabaster vases for perfume which date back from the third millennium before Christ, and paintings with everyday life scenes showing perfume rituals.



Image 12. Painting showing a perfume scene.

DID YOU KNOW...

That Cleopatra loved perfumes and other natural cosmetic recipes?

Cleopatra was considered as one of the first women to wear perfume in the “art of seduction”.



Image 13. Illustration of Cleopatra.

The culture of perfume in the ancient Egypt was so deeply rooted that there were perfume laboratories in the temples, just for the preparation of fragrances used during the rituals.

For example, in the laboratories of the Temple of Horus, archaeologists have found a recipe that describes the production of scented candles. These candles were made from tallow soaked in aromatic herbs and were lighted as an offering to the statues of different Gods.

Perfumes also played an important role defining the social hierarchy.

The Egyptians had a very profound knowledge about trees and plants, so they were able to use various plants as ingredients for their perfumes. Out of cinnamon, cedar oil, myrrh and resins of different plants, they created delicate perfumes for the Egyptian aristocrats.

They used them to perfume their clothes or as scented bath oils to moisturise their skin. Some Egyptian women even had shallow earrings filled with perfume.

DID YOU KNOW...

That Cleopatra was so concerned with her beauty and moisturising her skin that she used to take a bath in donkey milk?

The Greek and Roman civilisations also turned perfumery into an art form.

DID YOU KNOW...

That Alexander the Great also introduced perfumes in the ancient Greek?

In the 4th century B.C, Alexander the Great introduced perfumes in Greece and the Greeks quickly embraced all kinds of scented products.

These products were very valuable, almost as valuable as food!

The Greeks created many fragrances, even several fragrances for specific body areas.



Image 14. Teofrasto.

Teofrasto, a Greek philosopher, wrote the first report of perfumes due to his great knowledge about trees and plants.

Botany is a part of biology which studies plants, namely their structure, classification, physiology, distribution and ecology. The scientists who study plants are called botanists.



Ancient Greeks also made the first reference to floral oils in the history of perfume.

Hypocrites the “father of medicine”, used scented concentrated oils to fight some diseases.

However, the Romans were the first civilisation truly concerned about daily life and personal hygiene, producing perfumes for every social class.



Image 15. Illustration of a roman bath.

Romans were so devoted to the art of perfumes that many body oils, incenses and colognes were produced during that period.

As mentioned before, the use of perfume was strictly connected to religious practices. Therefore, when Christianity arises (the religion that believes in Jesus Christ as the son of God), perfume stopped being used because it was considered to be a luxury which contradicted the principles of Christianity. Later on, the Arab civilisation started to perform experiments with perfumes.

The “Book of Perfume Chemistry and Distillation”, was one of the first books ever written about perfume. Al-Kindi, an Arab chemist wrote this book in the 9th century.

This book contained hundreds of recipes for scented oils and aromatic waters and 107 perfume methods as well.

Years later, Avicenna, a physiatrist and chemist of Persian origin, developed the flower oil extraction process.

This process allowed to extract essences of the most delicate flowers and aromatic herbs.

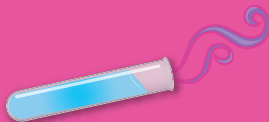


Image 16. Daisies.

DID YOU KNOW...

That the first popular fragrance was rosewater, considered as the most delicate one?



Image 17. "Lady with an Ermine", symbol of beauty.

During the 14th century, growing flowers for perfume essences grew into a major industry especially in France.

Consequently, France became the centre of perfume research and perfume trade. The use of perfumes and colognes was so widespread in France that the Court of Louis

XV, King of France, was known as "Le Cour parfumée" (The Perfumed Court) for its excessive use of perfume, sprayed on every object, particularly on fans, gloves, clothes and even on furniture.



Image 18. Louis XV.

DID YOU KNOW...

That the first perfume with its own formula was created in 1370 and was made for the Hungarian Queen Elisabeth? It was known as l'eau de "la reine de Hongrie" and it was a concentration of oils and essences. Napoleon spent about 60 bottles of jasmine essence a month for himself.

In the 19th century perfume became fashionable and Paris became the centre of the perfume industry.

Perfumes have evolved a lot since the 20th century. Nowadays, due to the development in organic chemistry a very large amount of perfumes is available for everyone.

DID YOU KNOW...

That rose and jasmine are considered the most used fragrances in perfumes?

To get a few grams of the flowers essence, it is necessary to collect a large amount of their blossoms. The fragile blossoms are collected until dawn to preserve their intensive scent.



Images 19 and 20. Rose and jasmine flowers. Considered as main fragrances and often used by perfumers.

DID YOU KNOW...


That a perfume can stay on our skin for four hours maximum?

4. The main raw materials of perfumes

Raw materials are in their natural state and are used in several production processes. They can be extracted or obtained directly from nature (forests exploitation, agricultural or mineral).

We can certainly say that it is essential to create the final product, for it is the first step of the production.

The processes to obtain the essences are very different. The treatment of the raw materials depends on the amount of extract which contains the raw material and the sensitivity of the essence we want to obtain.

The natural materials extracted from nature can have two origins:  animal (deer musk, honeycomb) or vegetable (e.g.lavender, patchouli, vetiver).

The perfume industry appeals to a very large variety of raw materials that might be found all over the world. Some of these raw materials are rare and very hard to find, making the final product very valuable.

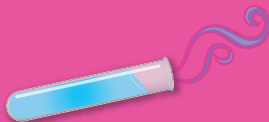
In the perfumes industry, raw materials are considered to be those from which it is impossible to extract the essence in form of oil. We can divide them into several groups:

Flowers – when we think about perfumes, immediately comes to our mind wonderful flowers in the springtime, with an amazing and powerful odour.



Image 21. Jasmine.

The most applied flower essences of a parfumeur are jasmine (France and Northern Africa), rose (France), orange blossom (France, Italy and Egypt), tuberose (Mexico), lily (Philippines), ylang ylang (India) and lavender (France).



Woods and barks – are warm and strong scents. Some of the most popular ones are sandalwoods of Mysore (India), Kenia cedar, Atlas cedar (Morocco), cinnamon bark (Ceylon and Madagascar) and birch bark (Russia and Canada).



Image 22. Atlas cedar.

Seeds – the most used seeds in the production of essences are coriander (Mediterranean countries), Tonka bean (Venezuela), ambrette (India and Antilles) and petitgrain (Italy).



Image 23. Seeds.

Moss – only one type represents this group: the oak moss. The oak moss is the base-note of all Cyprus perfumes.



Image 24. Moss.

Leaves – the most representative odour extracted from leaves is patchouli (“patchai” - green and “ellai” - leaf) that grows in tropical zones in Asia and Africa.



Image 25. Patchouli.

Aromatic herbs – the most popular herbs are thyme and peppermint.



Image 26. Thyme.



Citrus – the most common citrus essences are orange, lemon, bergamot and tangerine.



Image 27. Bergamot.

Resins – there are a large variety of resins of which the Oriental myrrh, Abyssinian opopanax, Siam benzoin and Persian galbanum are the most used in essence production.



Image 28. Persian galbanum.

Roots – vetiver root from Java is the most commonly used root by perfumers.



Image 29. Vetiver.

Products from animal origin – in this category are some fragrances that at the outset we might find not very pleasant. Still, these are used in perfume production, such as:

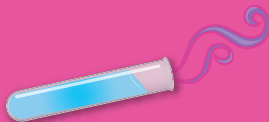
- **Ambergris** – is a substance produced in the cachalots darm. It can be collected drifting in the Indian Ocean and along the Peruvian seacoast;



Image 30. Cachalot.

- **Musk** – is originally extracted from the musk deer. Nowadays, musk from a gland of the Tibetan goats (Himalayas) is also used;

- **Civet** – is a fragrance extracted from a small, mostly nocturnal mammal native to tropical Asia and Africa.



As mentioned before, there is a large variety of raw materials used in the perfume production.

Currently there are many natural products and thousands of synthetic products used in the perfume industry, which allows to maintain and increase the perfume, oils and incenses production.

A synthetic product is similar to a natural one, but unlike the natural elements, synthetics are created in laboratories and therefore there is no need to extract them directly from nature.



5. The notes that compose a perfume

Notes are different fragrances/essences from a perfume and which may, or not, be identified by smell.

A perfume is made up of different notes. There are three types of perfume notes: top notes (head notes), middle notes (heart notes) and base notes (deep notes). The time of evaporation increases with every note.

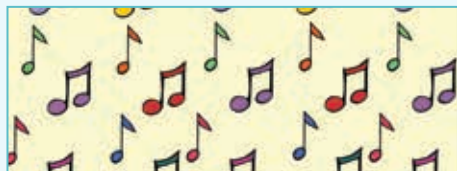


Image 31. Musical notes.

The top notes are the first ones we smell when we apply the perfume.

Top notes evaporate very quickly and that's why we can smell them only for a few minutes.

When the top notes have evaporated, we start to smell the middle notes of the perfume. Typically, there are combined smooth essences of flowers or fruits, such as lavender, jasmine, rose or lemongrass. The middle notes should cover the unpleasant smell of the base notes. They define the perfumes' character as the "soul" of the fragrance.

Of all three notes, base notes are the ones which last the longest, because their smell sticks to our skin allowing the people around us to smell these notes. The most commonly used essences for notes are musk, oakmoss, sandalwood or vanilla.

6. Classification of perfumes according to the concentration levels

Not everything that smells nice is considered to be a perfume.

The classification of perfumes can be made according to the essence concentration.

This way the perfume classification is as follows:

Parfum (Perfume) – when the essence concentration is between 20% and 40%;

Eau de parfum (Water perfume) – when the essence concentration is between 12% and 18%;

Eau de toilette (Toilet water) – when the essence concentration is between 8% and 14%;

Eau de cologne (Water cologne) – this is the one containing least amount of essence, with a concentration between 3% and 7%.

Now you can check if the perfumes that you have at home are real perfumes.



Image 32. Perfume classification.



7. The process of perfume production

DID YOU KNOW...

That before we discovered synthetic fragrances, the maceration (softening or crushing using a liquid) was the most commonly used technique to extract essential oils from raw materials?

However, this process had a disadvantage: a large amount of raw materials was needed.

There are three ways to make a perfume:

- Distillation;
- Extraction;
- Synthetic fragrances use.

Let's learn a little more about each of the three ways to make a perfume!

The main process that allowed to make perfumes in an initial phase was the maceration. As the word itself says, it is the process of crushing some substances and collect their essence.

Maceration consisted in mixing flowers with cooked and purified animal fats. As mentioned before, flowers are not the only substances used to make perfumes.

7.1. Distillation

The first distillations were performed by using a copper alembic still (just like the one in the image below).

Distillation is a technique used for getting aromatic compounds from plants. The raw material is heated and the fragrant compounds are re-collected through condensation of the distilled vapour.



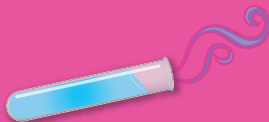
Image 33. Copper alembic still.

DID YOU KNOW...

That a solvent is a substance that allows another substance to dissolve in it?

7.2. Extraction

This technique uses water and a solvent mixture. Currently these solvents are volatile, meaning that they evaporate at room temperature, such as ethanol, most commonly known as alcohol.



The result of this evaporation is an initial wax that contains concentrated essential oils.

7.3. Synthetic fragrances

Synthetic fragrances are produced in a laboratory and they give off a lot of different smells. When combined together, they create a great variety of perfumes and colognes.

8. Olfactory families

The main categories in which we can divide perfumes are called olfactory families. The olfactory families are related to the fragrances extracted from certain products (flowers, woods, etc.).



Image 34. Olfactory families of perfumes.

The main olfactory families of perfumes are:

- **Citrus** – this olfactory family includes essential oils from fruit juices such as bergamot, lemon, orange and tangerine.
- **Fern** – is an olfactory family of perfumes, mostly for men, where the main essences are lavender, patchouli and oak moss.

- **Floral** – olfactory family from the late 20th century and directly inspired in nature. This family represents around 60% to 65% of perfume sales. The main essences come from several flowers, such as: jasmine, rose, orange blossom, geranium and ylang ylang.

- **Cyprus** – is considered a sophisticated perfume family, very little known, which is mostly used for women.

- **Woody** – this olfactory family creates warm perfumes by using very expensive raw materials. There are also synthetic compounds that allow to create other facets inside this fragrance group.

- **Oriental** – this olfactory family is characterised by the soft and velvet notes of vanilla essence. Among this olfactory family are perfumes that stick very well to our skin, because their smell lasts longer than the smell of other families.

- **Leather** – of all the olfactory families, this one is the less used. It has very specific notes and we can find this kind of fragrances mostly in male colognes.

DID YOU KNOW...

That floral perfumes are the most popular ones?
These represent around 60% of perfume sales.

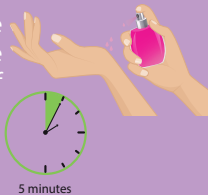


Image 35. Gerberas.

9. Experiments

Before using your perfumes, you should do a patch test first to make sure that they do not cause an allergic reaction.

1. After making your perfumes and before using them, put some drops on the inside of your wrist.



2. Wait 5 minutes.

3. Remove the perfume, washing the area with plenty of water and soap.

4. If there isn't any skin irritation, you may use your perfumes.

★ **Material included in the kit.**



Experiment 1

My first perfume of aromatic raw materials

INGREDIENTS: GLYCERIN, AQUA, PARFUM

ATTENTION: ask an adult for help.



What you will need

- Tea bag ★
- Liquid glycerine ★
- Small measuring cup ★
- Large measuring cup ★
- Funnel ★
- Filter paper ★
- Water
- Test strips ★
- Pasteur pipette ★
- Test tube with lid ★
- Test tube rack ★

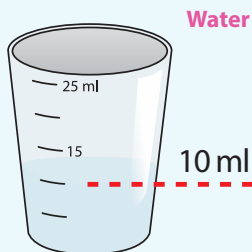
This experiment can be followed regardless the tea you choose to use.

Steps:

Attention: Some tea bags can stain so it is advisable to keep them away from clothes and delicate fabrics!

1. Ask an adult to open the tea bag and put half of its content into the large measuring cup.

2. With the small measuring cup, measure 10 millilitres (ml) of water.



3. Transfer the water into the large measuring cup with the tea.

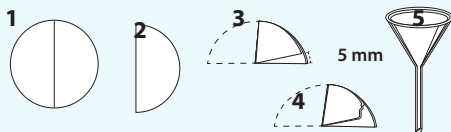
4. Mix the tea with the water and set it aside for 10 minutes, to make sure that the water is well impregnated with the tea.

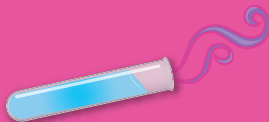


5. In this stage, if you want, you can add other elements to your perfume. According to your taste try, for example, adding cinnamon or some mint leaves.

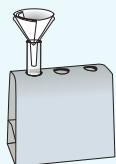
Filtration

6. Fold the round paper as shown in the picture and place it in the funnel.

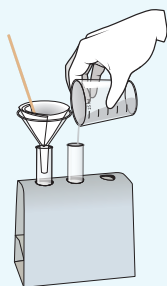
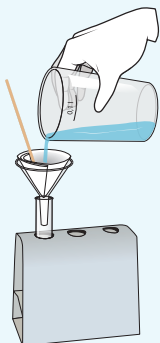




7. Place a test tube on the rack. Then, insert the funnel in the test tube.

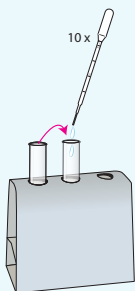


8. Carefully, pour the mixture of water and tea into the funnel. Use the wooden stick to guide the liquid.



9. With the small measuring cup, measure 5 ml of liquid glycerine. Transfer the glycerine to a new test tube.

10. With the help of a pipette, collect a small portion of the tea solution and add 10 drops of it to the test tube that contains the glycerine.



11. Put the lid on the test tube and shake it so the glycerine and tea solution mix together.

12. Your perfume is made! If you want you can decorate it with beautiful stickers!

13. Dip a test strip into the perfume. If you like the result, you may then use it.

Suggestion:

If you want to soften the scent, you can add more water.

If you want a stronger smell, you can add some more drops of the tea solution.

Attention: These perfumes are very delicate. You should save them in a fresh and dry area, where there isn't any direct sun exposure and remember to dispose of after a week.

Ideal Formulations

Perfume of aromatic raw materials (7.3 g)

Liquid glycerine - 6.8 g

Water - 0.5 g



Experiment 2

My first mixed perfume

INGREDIENTS: AQUA, PARFUM, BENZYL ALCOHOL, LINALOOL, HEXYL CINNAMAL, LIMONENE, BENZYL SALICYLATE, CITRONELLOL, CITRAL, BUTYLPHENYL METHYLPROPIONAL

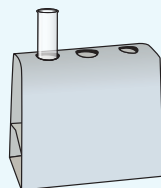
What you will need

- Test tube with lid ★
- Test tube rack ★
- 3 Pasteur pipettes ★
- Lemon fragrance ★
- Peach fragrance ★
- Vanilla fragrance ★
- Small measuring cup ★
- Funnel ★
- Test strips ★
- Water
- Spray bottle ★



Steps

1. Place a test tube on the rack.



Do you already know how to use a Pasteur pipette? During this experiment you will have to be able to pour drop by drop. If you can't handle the Pasteur pipette yet, follow the instructions on the next page and practice with water.

How to use a Pasteur pipette

Pipettes are used in laboratory to add liquids drop by drop. As so, they are measuring instruments. Before beginning the experiment you must practice on how to handle the Pasteur pipette, starting by filling in a cup with water.

1. Squeeze and hold the Pasteur pipette upper part of the Pasteur pipette. Place the tip of the Pasteur pipette in the liquid.
2. Release slowly the upper part of the Pasteur pipette. Observe the liquid being pulled into the Pasteur pipette.
3. Remove the tip of the pipette from the water and squeeze, slightly, the upper part. The drops will start coming out from the Pasteur pipette. Add the number of drops you wish.

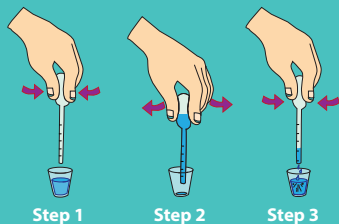




Image 36. Advices for the proper use of a Pasteur pipette.

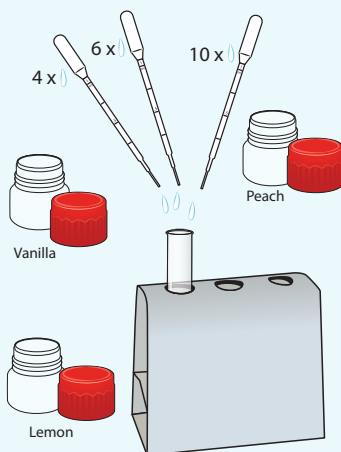
2. Let's mix 3 fragrances. Make sure you use a different Pasteur pipette for each fragrance.

3. Place the following number of drops into the test tube on the rack:

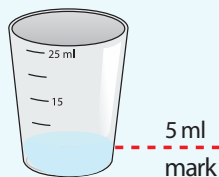
6 x  of Vanilla

10 x  of Peach

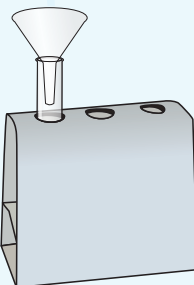
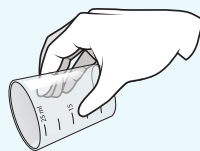
4 x  of Lemon

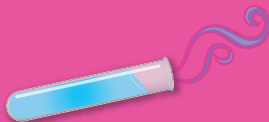


4. In the small measuring cup, measure 5 ml of water.



5. With the help of the funnel, add water to the test tube.





6. Place the lid on the test tube and shake it.

7. Use a test strip to smell it. If you like it, you can then start using it.



Do you want to take your perfume with you everywhere? Pour it into the spray bottle and use it whenever you want!



8. Your mixed perfume is made! Give it a name, write it down on a decorative sticker and put it on your perfume.

Suggestions:

- If you want to soften the smell, you can add more water;
- If you want to intensify the smell, you must duplicate the number of drops of each fragrance;
- If you want to create a secret perfume, add the drops you wish of each fragrance.

Ideal Formulations

Mixed perfume (6 g)

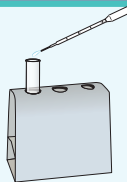
Water - 5 g

Peach fragrance - 0.5 g

Vanilla fragrance - 0.3 g

Lemon fragrance - 0.2 g

3. With the help of a Pasteur pipette, add X drops of your chosen fragrance.



The 'X' means that you can choose how many drops of your fragrance to add. The number of drops will depend, in part, on your taste, and also on the scent of your perfume and the fragrance you've chosen.

5. Dip one of the test strips into the perfume. If you like it, you may start using it.



Do you want to take your perfume with you everywhere? Pour it into the spray bottle and use it whenever you want to!

On the following chart you can find suggestions of mixtures. Have fun making fantastic perfumes.



4. Put the lid on the test tube and shake it. Your perfume is made!

Tea	Fragrance
Red berries	7 x Lemon
	5 x Vanilla
	6 x Peach
Apple and cinnamon	6 x Peach
	10 x Vanilla
Green	10 x Peach
	4 x Lemon

Attention: The perfumes are very delicate. You should save them in a fresh and dry area, where there isn't any direct sun exposure and remember to dispose of after a week.

Ideal Formulations

Perfume of aromatic raw materials and fragrances with red berries tea (8.2 g)

Liquid glycerine - 6.8 g

Water - 0.5 g

Lemon fragrance - 0.35 g

Peach fragrance - 0.3 g

Vanilla fragrance - 0.25 g

Experiment 3

My first perfume of aromatic raw materials and fragrances



INGREDIENTS: GLYCERIN, AQUA, PARFUM, BENZYL ALCOHOL, LINALOOL, HEXYL CINNAMAL, LIMONENE, BENZYL SALICYLATE, CITRONELLOL, CITRAL, BUTYLPHENYL METHYLPROPIONAL

What you will need

- Material from experiment 1
- Pasteur pipettes
- Spray bottle
- Test strip
- Fragrances



Steps

1. Repeat steps 1 to 11 of experiment 1.

2. Depending on the tea you have used, choose the fragrance you want to add to finish your perfume.

Perfume of aromatic raw materials and fragrances with apple and cinnamon tea (8.1 g)

- Liquid glycerine - 6.8 g
- Water - 0.5 g
- Vanilla fragrance - 0.5 g
- Peach fragrance - 0.3 g

Perfume of aromatic raw materials and fragrances with jasmine tea (8 g)

- Liquid glycerine - 6.8 g
- Water - 0.5 g
- Peach fragrance - 0.5 g
- Lemon fragrance - 0.2 g



Image 37. Rose tonic.



Experiment 4
Rose tonic

ATTENTION: ask an adult for help.

What you will need

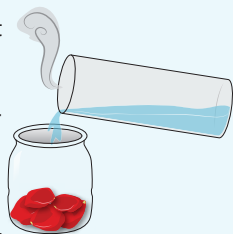
- Rose petals (20 g)
- Hot or boiling water (200 ml)
- Heat resistant container
- Strainer
- Large funnel
- Storing flask
- Cup



Steps

1. Place the roses in a heat resistant container.

2. Pour 200 ml of hot water over the roses.



3. Cover the container and set it aside for 1 – 2 hours.

4. Using the strainer, strain the liquid into a cup.



5. Use the funnel to transfer the liquid to the flask.



6. Save it in the fridge for a week.



DID YOU KNOW...

That rose tonics are quite popular in cosmetics? They are used for all types of skin. They have calming properties and help keeping the skin's balance.

Tip: As you know, there are different types of roses with different scents. Try making the tonic with different roses to compare the differences.



Experiment 5
Perfume your room

ATTENTION: ask an adult for help.

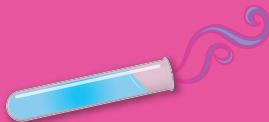
What you will need

- Rosemary, lavender or another plant
- Large measuring cup ★
- Wooden spatula ★
- 2 Flasks
- Strainer
- Virgin olive oil
- Wooden sticks ★
- Aluminium foil



Steps

1. Ask an adult to cut enough fresh rosemary to fill a flask.



2. Wash the rosemary with plenty of water and let it dry completely in open air for some days.



3. Now, fill the flask with olive oil until the rosemary is completely covered and close the flask's opening with aluminium foil.



4. Set the flask aside for at least two weeks.

5. With a strainer, strain the oil with the rosemary infusion to another flask.

6. Cover the flask's nozzle with aluminium foil.

7. With the wooden sticks, make holes in the foil and leave them to soak in the oil.



8. The perfume for your room is made! This will work as a natural air freshener, since the sticks absorb the oil and spread the scent into the air.



Experiment 6 Scented bath salts

INGREDIENTS: SODIUM CHLORIDE, PARFUM, AQUA, BENZYL ALCOHOL, LINALOOL, HEXYL CINNAMAL, LIMONENE, BENZYL SALICYLATE, CITRONELLOL, CITRAL, BUTYLPHENYL METHYLPROPIONAL, METHYLCHLOROISOTHIAZOLINONE, METHYLISOTHIAZOLINONE, DIMETHYL GLYCOL, CI 42090, CI 45100

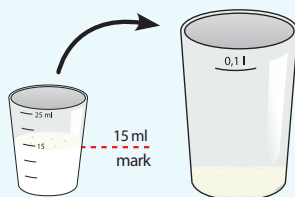
What you will need

- Sea salt ★
- Large measuring cup ★
- Small measuring cup ★
- Fragrance ★
- Cosmetic colouring ★
- Wooden spatula ★
- Pasteur pipettes ★



Steps

1. With the small cup, measure 15 ml of sea salt. Transfer it to the large cup and do the same again.



2. With the Pasteur pipette, add 8 drops of a fragrance you like.

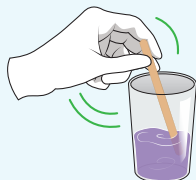


Tip: Use always the same Pasteur pipette for the same flask, this way you won't contaminate the different solutions.

3. Choose the cosmetic colouring that you want to use and add drops of the cosmetic colouring until you get the colour you wish.

Tip: You can also mix the two colours in same amounts, or in different concentrations, until obtaining the colour you like the most.

4. With the wooden spatula mix it well and your bath salts are finished!



Now you can use your bath salts directly during bath times or you can give them to someone as a gift! Don't forget to put a label on the flask so you don't forget what's in it!



Image 38. Bath salts.

Remember to wash all of the materials so that you can use them on the next experiment.

Note: You can repeat this experiment many more times with other colours and fragrances. You just need to follow exactly the same steps, however choosing another fragrance or another colour you like!

Ideal Formulations

Scented and coloured bath salts (17.95 g)

Sodium chloride - 17.3 g

Fragrance - 0.4 g

Cosmetic colouring - 0.25 g



Experiment 7 Fizzy bath bombs

INGREDIENTS: SODIUM BICARBONATE, CITRIC ACID, SODIUM CHLORIDE, PARFUM, AQUA, BENZYL ALCOHOL, LINALOOL, HEXYL CINNAMAL, LIMONENE, BENZYL SALICYLATE, CITRONELLOL, CITRAL, BUTYLPHENYL METHYLPROPIONAL, METHYLCHLOROISOTHIAZOLINONE, METHYLISOTHIAZOLINONE, DIMETHYLOL GLYCOL, CI 42090, CI 45100

ATTENTION: ask an adult for help.

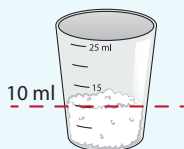
What you will need

- Fragrance ★
- Small measuring cup ★
- Cosmetic colouring ★
- Sodium bicarbonate ★
- Large measuring cup ★
- Wooden spatula ★
- Citric acid ★
- Pasteur pipettes ★
- Plastic spatula ★



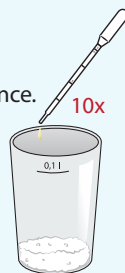
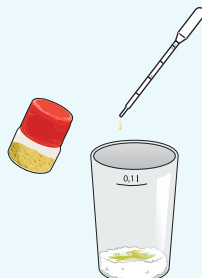
Steps

1. Put on your protective gloves and make sure your work surface is clear.

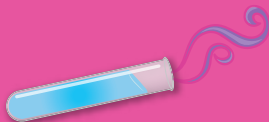


2. With the small measuring cup, measure 10 ml of citric acid.

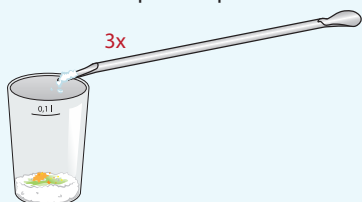
3. Add about 10 drops of a fragrance.



4. With the Pasteur pipette, add drops of cosmetic colouring until you get the colour you want.

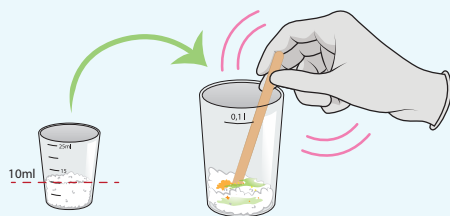


5. Ask an adult for table salt and add 3 mini flat spoons. Use the plastic spatula.



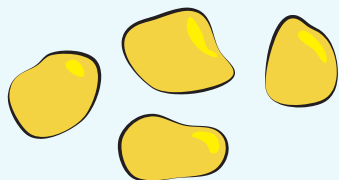
6. Mix it well with the wooden spatula.

7. With another small measuring cup, measure 10 ml of sodium bicarbonate. Then add it to the large measuring cup and mix it with the wooden spatula.



8. The dough must be dry, however slightly sticky. If it is too dry add some drops of water.

9. With small amounts of dough, make small balls with your hands. Place the balls in a container and leave space in between them so they don't get stuck to each other.



10. Let them dry overnight.

11. Now you can use your fizzy bath bombs in the bathtub to have fun. You just need to put them in water, and they will start to fizz!

Ideal Formulations

Scented and coloured bath bombs (23.05 g)

Sodium bicarbonate - 11.4 g

Citric acid - 9.9 g

Sodium chloride - 1 g

Fragrance - 0.5 g

Cosmetic colouring - 0.25 g



Image 39. Fizzy bath bombs.

Note: You can repeat this experiment many more times with different colours and fragrances. You just need to follow all the steps but this time choose another fragrance and colour you like!



Experiment 8

Perfumed chromatography

ATTENTION: ask an adult for help.

What you will need

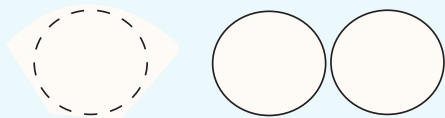
- Coffee filter papers
- Scissors
- Coloured markers
- Water
- Fragrance ★
- Pasteur pipette ★



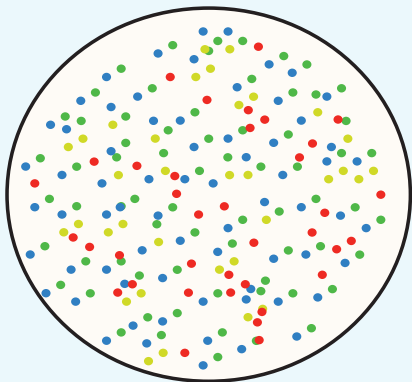
- Straw
- Stapler
- Napkin

Steps

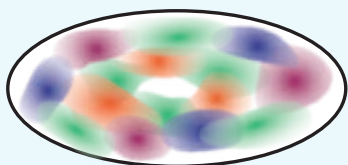
1. With the help of an adult, cut out the coffee filter paper into two circles.



2. Overlap the circles and with the coloured markers, draw several dots on the filter, in a circular arrangement. Under the filter paper you must place an absorbent paper or a plastic so that the table doesn't get dirty.



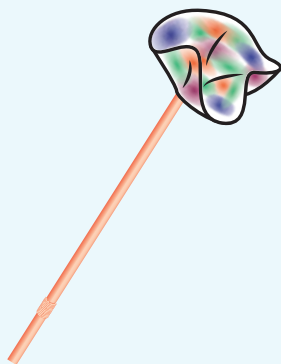
3. Cut a piece of absorbent paper, make a small wrap with it and then dip it in water. Wilt the absorbent paper wrap, wet the filter paper until it is completely wet.



4. Let the paper filter dry for a while.

5. Choose the fragrance you like the most and add some drops of it to the filter, with the help of the Pasteur pipette.

6. When it's dry, shape it in a flower and attach it to a straw. Ask an adult to staple it.



7. Offer your flower to someone special.



Experiment 9 Perfumed bookmark

What you will need

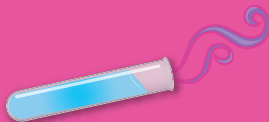
- Fragrance ★
- Pasteur pipette ★
- Flowers and leaves to dry
- Newspaper sheets or blotting paper
- Cardboard
- Glue
- Coloured ribbon/raffia



Steps

1. Choose and collect the flowers and leaves you want to dry. You can just dry the flower or the flower and its stem and leaves.

Super Lab Perfumes



2. Get a large, old book, and ask at home if there is any yellow pages book. Open it in the middle.



3. Separate two newspaper sheets (if you can obtain blotting paper, it will work better).

4. Place the flowers in between two paper sheets and put them in the middle of the book.



5. Close the book and to speed the process, place other books on top of it, to make it heavier.



6. Set it aside for 1 to 2 weeks.

7. Once this is done, you can collect your dried flowers.



8. Cut out a rectangular with about 5 cm x 25 cm of the cardboard. This will be the base for your bookmark.

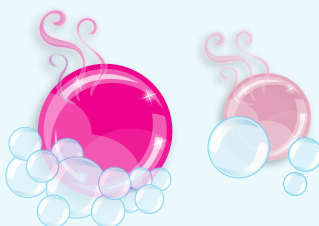
9. Glue your dried flowers on the bookmark, decorating it as you like.

10. At the top of the bookmark make a hole (with a hole punch) and pass through it one of the ends of the ribbon. Choose the ribbon that best adapts to your bookmarker, it can be raffia, green, pink, red satin ribbons, or other. Put together both ends of the ribbon and make a knot.



11. Now it is time to add a perfume to your bookmark. You can add some drops of a fragrance, with the Pasteur pipette, or use a perfume you've already created in previous experiments.

Surprise someone special with a perfumed bookmark!





Experiment 10 Perfumed painting

With this experiment you will make perfumed paint.

ATTENTION: ask an adult for help.

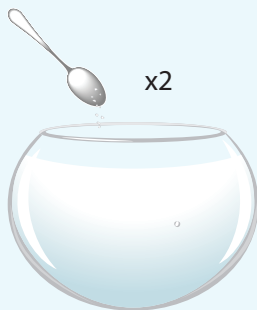
What you will need

- Flour
- Washing-up liquid
- Cosmetic colouring ★
- Bowl
- Paper sheets
- Scissors
- Spoon
- Small measuring cup ★
- Brush
- Fragrance ★
- Pasteur pipettes ★

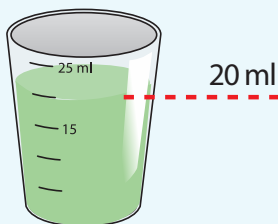


Steps

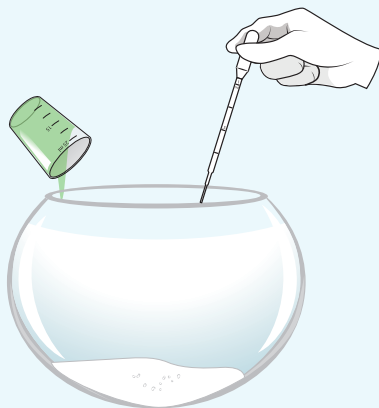
1. Put 2 spoons of flour into a bowl.



2. In the small measuring cup, measure 20 ml of washing-up liquid.

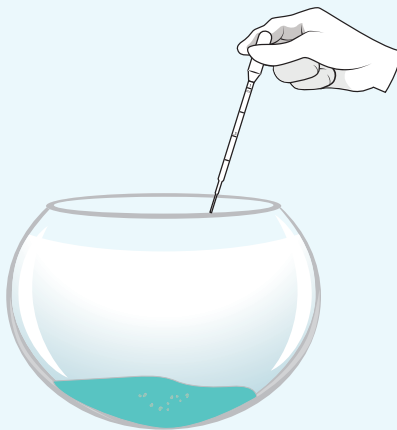


3. Transfer the washing-up liquid to the bowl with the flour. Add some drops of a cosmetic colouring you like.



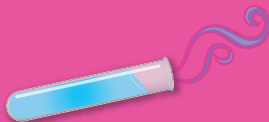
4. With the spoon, mix it all well.

5. With the Pasteur pipette add some drops of your favourite fragrance and mix it all again.



6. Repeat the experiment for other colours.

7. With the brush, make perfumed drawings and surprise someone special!



Experiment 11 Perfumed massage oil

INGREDIENTS: OLEA EUROPEA FRUIT OIL, PARFUM, BENZYL ALCOHOL, LINALOOL, HEXYL CINNAMAL, LIMONENE, BENZYL SALICYLATE, CITRONELLOL, CITRAL, BUTYLPHENYL METHYLPROPIONAL

What you will need

- Virgin olive oil
- Fragrance ★
- Pasteur pipette ★
- Large measuring cup ★
- Wooden spatula ★
- Small measuring cup ★



Steps

1. Measure 20 ml of olive oil in the small measuring cup and then transfer it to the large cup.
2. With the Pasteur pipette add some drops of your favourite fragrance and mix it with the spatula.
3. Now you have made your very own perfumed massage oil!

Ideal Formulations

Perfumed massage oil (20.25 g)

Olive oil - 20 g
Fragrance - 0.25 g



Image 40. Massage oil.

Olive oil is the oldest massage oil in the world. It works as an anti-wrinkle, moisturiser, relaxing oil and it is used to soften skin's impurities and make them easier to be removed. It improves the skin's elasticity, gives shine to your hair and it is perfect for baths and relaxing massages.



Image 41. Oil massage.



Experiment 12 Coloured and perfumed sand

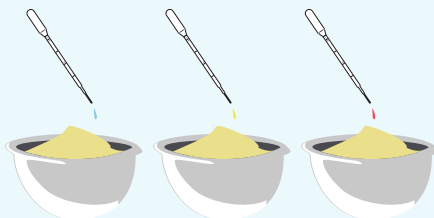
What you will need

- Sand
- Cosmetic colourings ★
- Fragrances ★
- Pasteur pipettes ★
- Bowls
- Spoon
- Flask
- Absorbent paper



Steps

1. Separate the sand into several bowls.
2. In each bowl, add drops of different cosmetic colourings, according to the amount of sand you have. Use different Pasteur pipettes to the different cosmetic colourings. Mix the sand and colouring with a spoon.

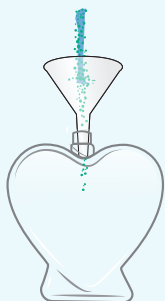


3. The sand has to dry first. For that, put the sand on absorbent paper, so that it absorbs any excess colouring.



4. Again with a Pasteur pipette add some drops of your favourite fragrance. You can add the same fragrance to all of the colours, or different ones. Let it dry a little more.

5. With the help of the funnel, put the coloured and perfumed sand into the flask. Try getting a flask with different shapes, so that it's even more spectacular!



6. You can make incredible patterns! Have fun with your coloured and perfumed sand.



Experiment 13 Smelling game

This experiment is great to test your family or friends' sense of smell!

What you will need

- Blindfold/handkerchief for the eyes
- Fragrances ★
- Elaborated perfumes
- Dry flowers
- Other perfumes
- Test strips



Steps

1. Choose all the items for the game, this is, all fragrances and perfumes that are going to be used. Arrange them on a table and cover them up so that the players cannot see them.
2. Choose who the first player is and blindfold his/her eyes.

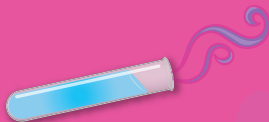
The game will begin!

3. Dip a test strip in the first fragrance/perfume. Put it underneath the nose of the player and ask them to try and guess what the smell is.
4. Repeat the previous step for all fragrances/perfumes.

On a sheet of paper, note down how many correct smells each player guesses.

Find out who has the best sense of smell!





10. Quiz

1. Perfumes are a mixture of fragrances, alcohol and:

- a) Lemon juice
- b) Water
- c) Milk



6. The European centre of perfume and cosmetics manufacturing was first established in:

- a) Portugal
- b) France
- c) England



7. Avicenna, a doctor and chemist, introduced the process of:

- a) Extraction
- b) Distillation
- c) Maceration



2. It is said that perfumes had a religious origin, as purifiers or offerings to:

- a) Gods
- b) Animals
- c) Humans



8. The maximum duration of a perfume on our skin is:

- a) 10 minutes
- b) 5 days
- c) 4 hours



3. The word perfume had its origin in the Latin word:

- a) *Fumus*
- b) *Perfus*
- c) *Fraganci*



4. One of the first people to use a perfume as 'the art of seduction' was:

- a) Marie Curie
- b) Einstein
- c) Cleoptara



5. One of the first fragrances to become popular was:

- a) Rosewater
- b) Jasmine
- c) Eucalypt



10. The most popular perfumes are:

- a) Fruity
- b) Floral
- c) Oriental

9. In how many categories are the notes of a perfume separated?

- a) 7
- b) 3
- c) 2

- 1-b) 2-a) 3-a) 4-c) 5-a)
- 6-b) 7-a) 8-c) 9-b) 10-b)

Answers:

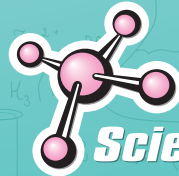
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