PHARMACHEMICAL IRELAND
Focused on a Healthy Future

# Got'Cha R & D Cosmetics

## Aims of This Company

(a) To learn about the chemicals in cosmetics.
(b) To research how to make some cosmetics.
(c) To make cosmetics in the laboratory.
(d) To examine how these manufactured cosmetics work.

## Objective

A booklet will be published by the company targeted at the public who need details on the chemicals in the cosmetics we have researched.

# Job Descriptions

| | |
|---|---|
| **Designer** | Ciara Doyle<br>Serena Stanley |
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# List of Experiments:

- To make eye make-up remover and compare it with Simple eye make-up remover.
- To make a sample of Talcum powder and compare it with name brand talcum powder.
- To make a sample of simple ointment.
- To make Skin freshener and compare it to commercial skin freshener.
- To make skin antiseptic lotion and compare it to Dettol antiseptic lotion.
- To make a sample of soap and compare it to several popular brands.
- To make a sample of ladies perfume and compare it to popular name brand perfume such as Burberry and Chanel.
- To make aftershave and compare it to other popular aftershaves such as Lynx and Joop.
- To construct a model of a soap model.
- To make bath bombs.
- To use chromogenic agar to show growth inhibition of bacteria.
- To show how sun cream acts as a barrier for UV light.
- To show how sun cream blocks UV light.

# Products Manufactured

Talcum Powder
Skin Freshener
Skin Cleanser
Lip Balm
After Shave
Perfume
Simple Ointment
Soap
Camomile Lotion
Bath Bombs
Almond Bath Oil
Eye Make Up Remover

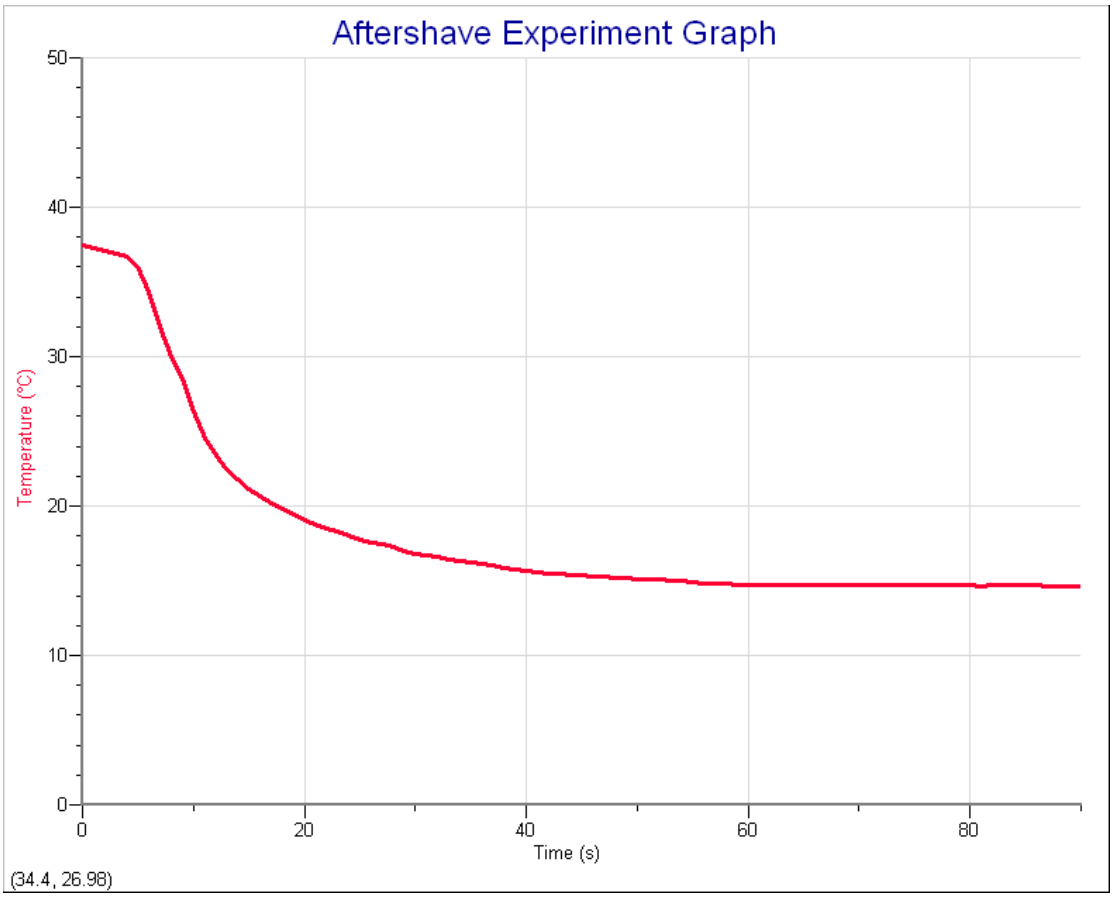
**Title:** Aftershave

**Aim:** To prepare a sample of aftershave

**Apparatus:**

**Method:**

1. Using a funnel pour 30 cubic centimetres of mentholated spirits and 3.5 ml of glycerine into a bottle.
2. Shake for one minute.
3. Label the bottle aftershave.
4. Using logger pro and a temperature sensor examine how aftershave has the cooling effect on the skin.
5. See the graph below.



# Title: Lip balm

**Apparatus:** Vaseline
Beeswax
Orange Essential Oil
Vitamin E
Container
Teaspoon
Tablespoon
Pestle and Mortar

## Method:

1. Put a tablespoon of Vaseline into a container.
2. Add 2-3 drops of beeswax to the Vaseline.
3. Melt them together.
4. Add 3-4 drops of the orange essential oil to the Vaseline and beeswax that are now melted together.
5. Next take the Vitamin E, and using the pestle and mortar, grind the tablets down to powder and add about a teaspoon to the mixture.
6. Mix them all together.
7. Quickly pour into a container as it sets very quickly.

**Result:** We observed that the lip balm set very well and also gave off a nice smell. It also worked just as good as lip balm that can be purchased in chemists.

**Conclusion:** We conclude that the lip balm we made was a success and it showed that when you combine things and use correct procedure it is possible to
Make your own lip balm that works very well.

**Experiment:** To make a sample of talcum powder

**Apparatus:** Balance
Beaker
Container with tight fitting lid
Flat bottle stopper
Flour sieve
Measuring cylinder
Stirring rod

**Chemicals:** Calcium carbonate
French chalk
Magnesium carbonate
Magnesium stearate
Magnesium sulphate
Perfume essence
Soft soap

**Method :** Mix together French chalk,calcim carbonate, pure talc powder, magnesium carbonate and magnesium stearate in a large container that has a tight fitting lid and add a few drops of perfume essence. Pass the mixed powder through a sieve using a flat bottle stopper to press the mixture through the sieve.

**Experiment:** To make a sample of skin cream ointment

**Apparatus:**
Balance
Beakers 250 $cm^3$
Bunsen burner
Tripod
Gauze
Measuring cylinder
Stirring rod
Thermometer

**Chemicals:**
Glycerine
Lanette wax
Lanolin
Perfume essence

**Method:** Melt the wax (12g) and lanolin (5g) together to 70° C. Heat the water (83$cm^3$) and glycerine (5$cm^3$) to 70 °C. Pour it onto the melted wax with vigorously stirring until cool.Add a few drops of perfume essence.

**Fact:** Human skin is subjected to `drying out` by water loss and loss of the natural oils of the skin, namely sebum. This can be fixed by daily cleansing.

**Title:** To make a skin freshener

**Apparatus:** Measuring cylinder 10 $cm^3$

**Chemicals:** Ethanol
Glycerin
Rose water
Witch hazel

**Method:** Pour the components of witch hazel (60 cm3), glycerine pure, (5cm3) ethanol (10cm3 and rose water or just distilled water into a suitable bottle. Shake well for exactly ten minutes.

**Result:** The skin freshener we made was similar to a brand name product such as Clearasil.

**Conclusion:** The experiment was successful because there was no real difference between our freshener and the one made by Clearasil.

**Title:** To use chromogenic agar to show growth inhibition of bacteria

Chromogenic agar contains two enzymes, which are sensitive to Ecoli and Coliform Bacteria. The agar is pink with coliforms and purple with Ecoli. These are indicator organisms which if present could suggest that more pathogenic organisms can survive in this medium example a river water sample.

## Method:

1. Prepare the medium by dissolving 6 grams of chromogenic agar in 100 ml of water.
2. Sterilise in autoclave for 15 minutes at 120 celsius.
3. Pour the plates aseptically.
4. Allow the agar to cool.
5. Before the agar solidifies add 2 ml of river water and rotate the plates slowly.
6. Place in incubator upside down for 48 hours at 21 degrees.
7. Remove wells from the plates with a hot cork borer.
8. Fill the well with different samples of soap solution, example same mass of soap with disinfectant property and a soap with a high perfume property. A student can also soak same area of a filter disc in different filter papers.
9. Replace in incubator for 24 hours at 21 Celsius.

## Result

Growth inhibition areas around the well appear. This indicates that the soap is removing the bacteria.

## Conclusion

The importance of washing our hands before a meal with soap is shown. Different soaps have different disinfectant properties.

**Title:** To make a soap sample.

**Apparatus:**

Hotplate
Water bath
Quick fit flask
Liebig condenser
Beaker
Thermometer
Cotton wool
Retort stand

**Chemicals:**

Lard or sunflower oil
Sodium hydroxide pellets
Ethanol
Saturated sodium chloride solution
Anti-bumping chips
Water
Salt

**Method:** Place 10g of lard or 12cm$^3$ of sunflower oil in a 200cm$^3$ quick fit flask. Add 6g of sodium hydroxide and 60 cm$^3$ of ethanol to the flask. Add several anti-bumping chips to the flask and set up the reflux apparatus. Heat the mixture over a water bath for about 30 minutes so that it boils gently. Remove the ethanol by distillation. Dissolve the residue in a minimum of hot water (approx. 15cm$^3$). Add this solution to the brine. The soap should precipitate out. Filter the soap. Test the soap

# Experiment: To make Bath Bombs

**Apparatus:** 1 and half cups of baking soda (a normal kitchen cup)

1/2 cup of citric acid,
A few drops of witch hazel,
Any colouring you like,
Any scented oil.

## Method:

1. Mix the baking soda and the citric acid together.
2. Add a very small amount of water about 1/10 of a teaspoon full.
3. Add the colorant and the scented oil of your choice.
4. Finally add the witch hazel while stirring all the time for about 10 minutes.

**Result:** We found that making a bath bomb was a simple procedure and could be easily constructed in your own home. We tested the bath bomb and it worked just as well as any manufactured bath bomb.

**Conclusion:** The manufacture of the bath bomb was a success and it worked very well.

# Experiment: To make and compare two types of make-up remover.

## Aims:

To make a sample of eye make-up remover and compare it with a simple eye make-up remover

## Apparatus:

Almond oil
Castor oil
A clean beaker
Funnel
Table spoon
Cotton wool
Eye-liner
Simple eye make-up remover

## Method:

1. Put two tablespoons of almond oil into the beaker
2. Add two table spoons of castor oil to the almond oil
3. Mix the almond oil and the castor oil very well together
4. Transfer the oil to a container from the beaker using a funnel

## Results:

Get an eye-liner pencil and put it on your hand
Take a piece of cotton wool and put some the experiment oil onto the eye liner
Rub the back of your hand to see will the eye-liner come off

Now use the simple eye make-up remover and repeat steps 1-3

Record the results of both your experiments and compare results

## Conclusion:

Both the sample eye make-up remover and the manufactured make-up remover worked just as well as each other.
They both removed the eyeliner quickly and easily.

# Title: To make Almond Bath Oil

**Aims:** To prepare a sample of almond bath oil.

**Apparatus:** Almond oil,
Geranium oil,
Bread soda,
Olive oil,
Cup,
Tablespoon,
Teaspoon,
Beaker,
Container,
Funnel,

**Method:**

1. Pour a cup of almond oil into a beaker.
2. Add a teaspoon of geranium oil to the almond
3. We were supposed to use liquid

Castile shampoo but we looked for it in the local chemist, health store and hairdressers but none of them knew what it was. So we looked it up in the dictionary and it said that castile soap was made from soda and olive oil so to substitute this we put a tablespoon of olive oil into the beaker along with a small amount of bread soda.

4: Mix all 3 well together.

5: Then transfer, the oil into a container using a funnel.

**Result:** We tested the bath oil and it worked very well. It left my skin soft and smelt really nice too.

**Conclusion:** You can make your own bath oil very easily that works just as well as bought bath oils.

## Title: To Make Rose, Daffodil, Lavender water..

**Apparatus:** Petals from each of the flowers,
Boiling water,
Leibig condenser
Bunsen burner

## Method:

1. Take the petals from the flower and place them in a bag. Then put them in a refrigerator over night.
2. Soap the petals in water for 15 minutes in the morning
3. The solution of flower water is now ready for distillation.
4. The distilled water will have a smell.
5. Lilac and Rose had a nice smell.

# References

Science at Work Series Cosmetics

Griffin Cosmetics Kit Shell International Petroleum Co,