

The Four Chocolateeers

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Project brief:

To develop one or more novel chocolate products with a unique selling point (something that makes it different from similar products currently on the market), that is consistent with the Whittaker's range and brand values.

Your product must not contain any palm oil - in the chocolate or in any of the ingredients you use. Ideally no artificial flavours or colours should be used; we prefer natural.

Your product could:

- be targeted at primary school children, teenagers, adults or the elderly
- be targeted at diabetic consumers
- be designed for a special occasion
- have a soft centre.

Our Analysis of the brief:

- Novel chocolate products with a unique selling point - We have tried to use teenage women and upwards which is unique. We also want to fundraise for Cancer society which is also novel. Then our flavour ideas are also new, and are different to what's already on the market.
- No artificial flavours or colours used - We kept this in mind in our brainstorming of ideas and chose ideas which will look natural.
- Consistent of Whittaker's range and brand values - Looked through their website very carefully and got a clear understanding of their policies and aims.

Initial Brainstorming Ideas

Our team started with many wacky and innovative ideas. Through long discussion we ended up ruling out some creative ideas for logical reasons but we do have final ideas which we all love. Here are ALL our ideas which we rejected:

- Diabetic target market
- Children target market
- Tiramisu flavour (cream, coffee, biscuit etc.)
- Other novel products such as...Ice-cream
- Chocolate coated fruit/nuts (most likely berries)
- Tea chocolate (e.g. green)
- Red-velvet chocolate

Target Market

WOMEN - We already wanted to target women as women are easy for us to access (being a girl's school) and we thought they are the ones who would want a less fattening chocolate (more than males at least). Our unique selling point isn't to make HEALTHY chocolate as we believe it is almost too hard and disappears the purpose of chocolate. Our unique selling point is that by putting in fresh flavours of fruit and giving the rich chocolate a new taste, we give chocolate a twist that isn't heavy and makes it less unhealthy (as we are providing health benefits through natural super fruit flavours).

We then learnt more about the science of chocolate (applying science into the making of chocolate which actually involves quite a lot of technicalities - conditions have to be just right to make a high quality chocolate as Whittaker's is looking for)

Our consultant from Whittaker's showed us how to temper chocolate and what point to mix flavours in. It was important she came as we needed to know the critical food controls before we made chocolate ourselves. We all had a turn at tempering the chocolate and now understand the process. Our independent variables are both what flavours we put in and how much we put in. We needed to do some trials for testing the flavours, both together and separately. Then some more for how much to put in. This is all for modifying and improving and making final prototypes for testing on people.

Chocolate for Testing:

After two trial sessions where we trialled 28 flavours (see report), we had officially decided that the top four flavours we were going to use for taste testing on our target market would be (only 1 flavour was chosen from second trials making 4 flavours in total):

1. Plain Pomegranate liquid with 200g of dark chocolate
2. 12 (0.24%) drops of Pomegranate
3. Passion fruit liquid, Passion fruit powder and Guava with 200g of dark chocolate
5 drops of passion fruit liquid (0.1%), 6 drops of Guava (0.12%) and one full teaspoon of passion fruit powder
4. Guava liquid and Green kiwi fruit powder with 200g of dark chocolate
8 drops of guava (0.16%) and two teaspoons of green kiwi fruit powder (1.25%)
5. Chilli liquid and Guava liquid with 200g of dark chocolate
2 drops of chilli (0.04%) and 8 drops of guava (0.16%)

THE IDEAS WE DID CONFIRM as our final ideas which we would research and present to Megan to decide on one:

Main target market was women. This is because we belong to a girl's school so they are easy to access for all kinds of market research. By using this target market we take advantage of the opportunity that our school presents to us. We aren't just doing teenage women, we are doing older women as well. We want the product to be enjoyable for all women in their moments alone, at a women-only party and so on. We want it to be luxurious and rich so that a small portion is 'just enough to satisfy' (our concept idea) as women don't like to feel overly greedy about chocolate.

- White chocolate mocha - This idea is basically an outer coat of white chocolate with an inside which is a chocolate mocha mousse. (combining the chocolate and coffee flavour)
- Berry Mousse - Contradicting the target market a little as this is aimed towards the cancer society. We plan to use blueberries, boysenberries and so on to make a dark purple and blue colour to create the inside mousse. (the outside will be either milk or dark)
- Marble - Texture idea. We want to try and make a chocolate which swirls white, dark and milk chocolate so we get that swirled marble effect.
- White forest - This is similar to the black forest chocolate but more elegant for women as we are using white chocolate as the outside. We plan to have bits of cherry, biscuit and a creamy sort of centre.

We also thought of another idea a bit late (after the surveys had been conducted).
• A tropical fruit chocolate: Either with a soft centre sauce or just the flavouring in hard chocolate; we want to add a passion fruit or mango or guava flavouring to the chocolate

After we met Megan we decided on two potential projects to go ahead with; below are our refined briefs. This gave us two ideas even if one proves too difficult.

1. To create a low-sugar Whittaker's chocolate using natural sweeteners.
2. To create a Whittaker's chocolate with the fruit flavouring of guava. (super fruit)

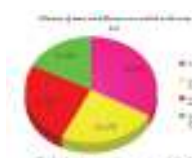
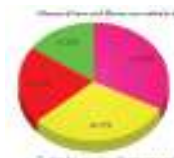
Note: Both to be made with dark chocolate. Megan will help us source guava flavourings and natural sweetener so that the ingredients match Whittaker's brand values.

Later on the 5th May we finally decided not to do the low-sugar Whittaker's chocolate as it was too difficult to source natural sweetener. On top of this, we would have had to make the chocolate in the factory meaning we would not have much involvement in the process. So using the information from our consultant and our own judgement, we have modified and improved our final solution idea. So we decided to make a Whittaker's chocolate with a fruit flavouring of guava (which is known as a super fruit) along with experimenting with a few other flavours such as flax seeds, sesame seeds, coconut and chilli. We also decided to experiment with other super fruit flavours (OUR FINAL PROJECT IDEA) Our idea is to target this at women who want a refreshing change from the usual rich chocolates you find; this is more light and tropical and different to other flavours making the rounds on the market. There is no guava chocolate that has been known making our product unique. Working with flax seeds/sesame seeds also give the chocolate a really nice touch; using ingredients which others haven't tried before.

Data and results from Taste Testing:

The most popular chocolate by a large leap was Pomegranate so this will be our final choice of chocolate. Consumers said the fruit was a nice idea and had a nice flavour. Some said having dark chocolate was a good idea and it had a good texture. They also liked the subtle sweet flavour of it and the floral smell. They felt the flavour worked well with the chocolate. Many said it was unique, decadent and aromatic.

Overall, are improvements to consider are using milk chocolate (even though we thought it was too sweet) to make it more smooth and more sweet but then reduce the amount of flavouring in it too.



After discussion on what improvements to make, we rejected the idea of using milk chocolate however we have decided to reduce the inclusion from 12 drops to 10 drops. This is reduction of the inclusion from 0.24 to just 0.20.

Conclusions:

We feel that we have stuck to our target market of women during this project. Women enjoyed our chocolate thoroughly as we noticed all through surveying. We stuck to this target market throughout when testing (both teenage and adult women) and also during packaging. We used heart shaped chocolates and used a simple silver, pink and green colour scheme to keep it elegant.

A large refinement our final prototype had which wasn't in our briefs was the pomegranate flavouring. This was thanks to our mentor as we received many flavours other than guava as well (one of which was pomegranate) which allowed us to trial and taste other flavours as well. Because of this, though we did have guava in our flavours until the final surveys, pomegranate ended up being the most popular with our target market as well. We never got around to trying flax/sesame seeds though we did try pear and mango pieces and chilli (which was one of the finalists). We did end up creating a product that was different from rich chocolates you usually found targeted at women. This flavour was indeed much more refreshing, light and tropical than other flavours making the rounds on the market. It is also very sweet and tasty. There is no pomegranate chocolate out there that we know of.

Throughout this challenge, we believe we have followed the brief in all the aspects of making our chocolate novel, not using artificial colours or flavours and keeping our chocolate fresh and high-quality while still sticking to the Whittaker's brand values. Though we no longer want to fundraise for cancer society, we believe our chocolate product is still novel. The new flavour idea of pomegranate in chocolate is sweet and fragrant, and has a fruity feel which has hardly worked in other chocolates before. This chocolate also has the flavour directly in it...we actually did not have a soft centre or pieces of pomegranate but the flavour was in the chocolate throughout which was unique to other fruit flavours of chocolate.

Thankyou:

We want to say thank you to NZIFST (Jenny Dee) and the Royal Society (Jessie McKenzie) for organising the product development challenge, sponsorship and judging. Also we want to thank our mentor Megan Howard, Megan got us all the ingredients and taught us how to make the chocolate. Without her, we wouldn't have been able to make such a great product. Some final thank yous go to our teachers Gabrielle Gunn, John Denton and Wendy Carroll who have been there for us from the start. Ms. Gunn and Ms. Carroll gave us countless hours of supervision and valuable advice. Mr. Denton was a big help with developing our poster.

Sponsorship:

Our sponsorship was from the NZIFST Nutrition Special Interest Group (Ann Hayman (chairperson) and Jenny Dee)



Instructions:

1. Measure out 100g of chosen chocolate on the scales/weights
2. Make a hot water bath (hot water in a large jug)
3. Place broken up pieces of chocolate into the (preferably) metal jug, sitting in the bath
4. Stir and mix with a rubber spatula until chocolate is melted and glossy making sure NO WATER gets into the chocolate mix. Has to reach a certain temperature depending on type of chocolate (see graph below)
5. Take metal jug out of water bath and wipe down the water on the jug on bench
6. Get chosen flavour out with a pipette.
7. Always place one drop at a time into the melted chocolate mix. (in a regular pipette, each drop is 0.02%g)
8. Mix in flavour. Taste test each time you put in a drop. Note down final inclusion (e.g. if you dropped in 5 drops then you put in 0.1 per 100g)
9. Once happy with flavour, get the ice bath/cool water ready
10. Replace the hot water with the cold water in the bath
11. Keep stirring, scraping down EVERYTHING off the sides of the metal jug as chocolate on the sides cool down the fastest. Mix hard and fast.
12. Use the radar gun to keep checking temperature (see picture below for cooling temperature)
13. Once temperature has cooled to the required degree, quickly pour into moulds
14. By this stage the chocolate should still be glossy and flows easily out of the metal jug into the moulds. Tap/shake the mould hard and fast so that the chocolate spreads into the mould and there are no air bubbles.
15. Place moulds in the fridge and leave to set for about 30 mins

