



DIY LEATHER KIT

Project 2 - Report

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APPROVAL SHEET

Industrial Design Project 2
“DIY Leather Kit”

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MDes Product Design 2015-17
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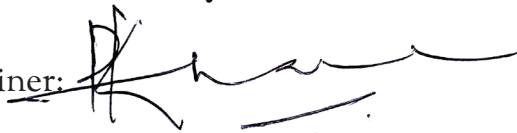
is approved for the partial fulfillment of the requirement for the post graduate degree in Industrial Design.

Prof R Sandesh
Project Guide



External Examiner: Sreekanth
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29.5.19

Internal Examiner:



Chair person:



DECLARATION

I declare that this written submission represents my ideas in my own words and where others ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.



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INTRODUCTION



Leather is a unique commodity that links grass root level of villages with high societies and traditional practices with emerging technologies. For many developing countries, leather and leather manufacturers constitute an indispensable and dependable source for export trade and foreign exchange earning. For India, leather is a high priority industrial sector and foot wear exports, an extreme focus area. India has, just four decades since independence made significant gains from the leather trade, progressing from the status on an exporter of 90% plus raw hides and skins to that of an exporter and predominantly leather product manufacturer.

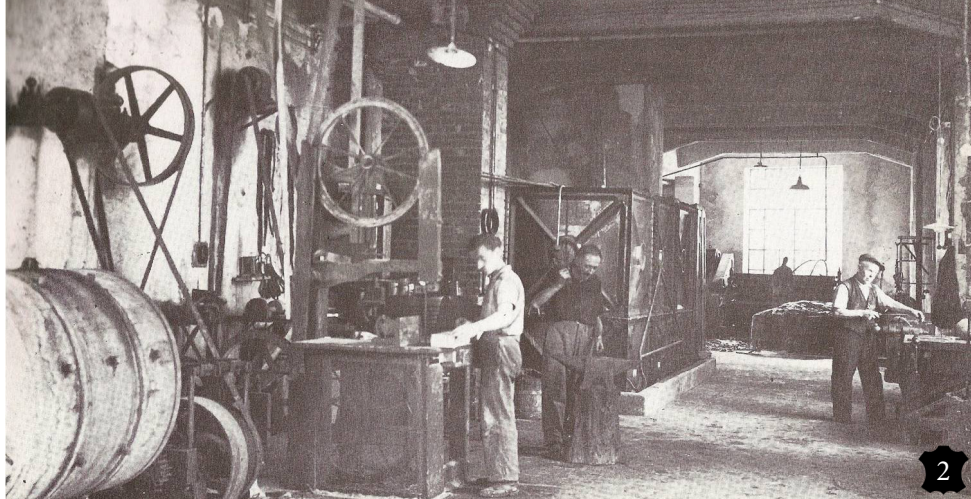
Buoyed by good past performance and encouraged by expanding world market for leather articles, India is on move for increasing its market share from the present of around 3%. Earning foreign exchange apart such trade expansion would mean generation of substantial employment, skill building, and entrepreneurship development and widely spread socio-economic benefits.



ABOUT LEATHER

HISTORY

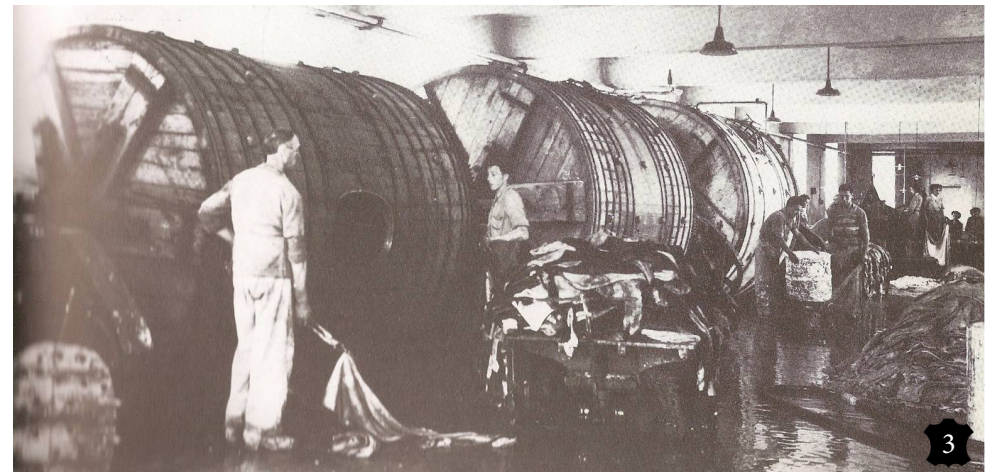
Leather is one of man's earliest and most useful discoveries. Our ancestors used leather to protect themselves from the elements. Primitive man hunted wild animals for food, then made clothing, footwear and crude tents from the hides. Like then, hides used today are a by-product. Animals are raised for the meat, dairy and wool industries, not for their hides. Roughly half of all leather produced today is used to make shoes, and about 25% for clothing. Upholstery demands only around 15% of the total product.

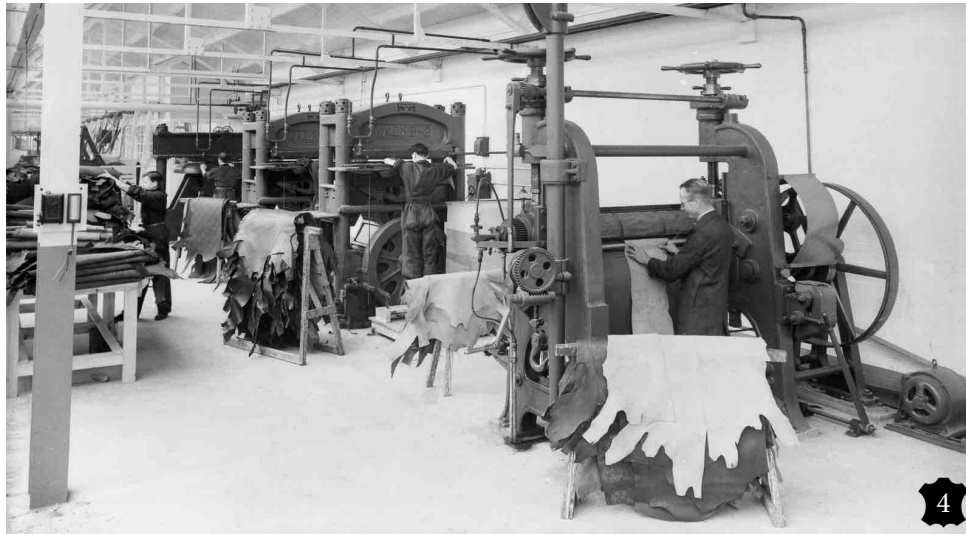


Wall paintings and artifacts in Egyptian tombs dating back to 5000 B.C. indicate that leather was used for sandals, clothes, gloves, buckets, bottles, shrouds for burying the dead and for military equipment. The ancient Greeks are credited with developing

tanning formulas using certain tree barks and leaves soaked in water to preserve the leather. This was the first record of vegetable tanned leather, which became a well-established trade in Greece around 500 B.C. Vegetable tanned leathers are still produced today and remain an active ingredient in modern tannages. The Romans made extensive use of leather for footwear, clothes, and military equipment including shields, saddles and harnesses.

Due to its durability and comfort, leather has been used for seating throughout the history of transportation and furniture. It has always been the ideal material for making saddles and tack, as well as footwear. During the Middle Ages, leather became the cover of choice for dining chairs, because it was easy to maintain and did not absorb the odor of food.





The spread of industrialization in the 18th and 19th centuries created a demand for new kinds of leathers, such as belting leathers to drive machinery. The invention of the automobile, the demand for softer, lightweight footwear with a fashionable appearance, and a general rise in the standard of living created a demand for soft, supple, colorful leather. The traditional vegetable tanned leather was too hard and thick for these requirements and thus, the use of chromium salt was adopted and chrome tanning became the standard for modern footwear, fashion and upholstery leathers.

Modern technology has allowed for innovation in the leather industry, as the development of chemicals and sophisticated processing methods have greatly expanded the aesthetics and feel of

leather as well as the possible applications. Leather continues to be the material of choice, not just for commercial and residential furniture but for automotive, aviation and marine applications as well.



WHAT IS LEATHER?

Leather is an ancient, durable material created through a process of tanning animal rawhide to preserve it and make it pliable when dry. Many features of natural leather make it superior to synthetic products including durability, comfort, beauty, suppleness, and resilience. In addition, leather's ability to patina and absorb body oils continues to enhance the appearance and makes it more beautiful over time.



WHERE DOES LEATHER COMES FROM?

While there is an assortment of exotic animal hides that can be used for leather, more than 99% of all leathers in the world come from four different animals:

- 65% cows
- 15% sheep

- 11% pigs
- 9% goats

In fact, less than 0.2% of leather comes from any other type of animal.

WHAT MAKES LEATHER USABLE IN THE MANUFACTURING PROCESS?

These characteristics - texture, durability, comfort, grain, cost, maintenance, water resistance, weight, strength, scratch resistance, pliability, appearance, softness - make leather usable in the manufacturing process.

HOW IS LEATHER PROCESSED?

①

CURING :

Hides, the term applied to animal skins used in leather production, must be preserved in order to prevent deterioration. These preservation methods often involve salting, freezing, chilling, or the use of chemicals.

②

SOAKING :

Once the hide has been cured, it left to soak in water for several hours – sometimes even days. The objective in this step is to rehydrate the hide, as well as to remove any excess salt or dirt. For instance, unwanted deposits of dirt may have occurred during transportation.

③

PAINTING :

Do not let the term confuse you. When describing how leather is made, painting refers to removing wool from sheepskins using sulphides.

④

LIMING :

While liming has a number of purposes, the primary function of this step is to remove any unwanted hair from the hide through the introduction of alkali. Once the hair has been removed, we are left with raw animal skin. This is more commonly referred to as a pelt.

⑤

FLESHING :

As the term suggests, fleshing is the process of passing the pelt through a machine that removes any tissue from the flesh side. In some instances, a pelt will also be split into layers at this stage.

⑥

DE-LIMING :

This step involves the graduate neutralization of alkali in the pelt. It is important that this is done gradually, as a rapid change in acidity could result in tissue distortion.

⑦

BATING :

Enzymes are applied to the pelt, causing it to flatten and relax.

⑧

PICKLING :

Tanning requires pelts to be mildly acidic; therefore, pickling involves the application of weak acids or salt solutions. If a pelt is not to be tanned for several months, a strong solution may be applied to act as a preservative.

⑨

DE-GREASING :

Just prior to tanning, a pelt must have any excess grease removed with water or a mild solvent.

⑩

TANNING :

Tanning chemically alters the collagen structure of a pelt, such that it is protected against chemicals, moisture, and microorganisms.

11

SPLITTING:

In this step, a machine is used to slice leather into two layers. One of the resulting layers will be without a grain surface. This piece can be used to produce suede or have an artificial grain surface applied to it.

12

SHAVING :

With the piece that has a grain surface, another machine is used to shave the non-grain side. This is how leather is made to a desired level of thickness.

13

NEUTRALISATION :

This step in how leather is made is done to remove residuals from any of the previous chemical applications. Additional tanning materials may also be applied to create a particular style or texture in the finished product.

14

DYEING :

Depending upon the intended use for the finished leather, any number of colours may be applied at this stage. This is how leather is made in black, red, brown, and even white varieties.

15

FATLIQUORING :

This process involves lubricating the leather with oil to ensure it is both flexible and soft. This is especially important when producing leather for fashion, as the absence of oil will cause the leather to become hard as it dries out.

16

JAMMING :

Moisture must be taken out of the leather before it will be ready for production. Almost half of the water is removed through a number of different machines.

17

SETTING OUT :

The leather is now stretched and the grain surface is smoothed out. In so doing, the moisture remaining in the leather is further reduced.

18

FINAL DRYING :

Leather is generally dried until less than 20% water content remains.

19

STAKING & DRY DRUMMING :

To ensure that the leather is soft and flexible, it is further massaged in a staking machine. This process separates the fibres. Once complete, the leather is placed inside a rotating drum for extensive tumbling.

20

BUFFING & BRUSHING :

The flesh surface of the leather is now totally removed through buffing to produce a softer feel, or simply to reduce the

overall thickness. A thorough brushing happens thereafter to remove any dust accumulated during buffing.



FINISHING :

Finishing occurs in leather production to ensure even colour, remove any defects on the grain surface, correct the level of gloss, and to add a protective and water resistant surface.



FINAL GRADING :

Prior to sale to a manufacturer, the tanner must grade the colour intensity and uniformity of the leather, as well as its feel, softness, thickness, and texture. Any naturally occurring defects, such as scratches, must also be noted during the final grading.



MEASUREMENT :

The final product is now complete! This

is how leather is made from start to finish.

All that remains in this step is to measure the area of each individual piece, as leather is sold by area. To ensure complete accuracy, measurements are done by machine.

LEATHER PROCESSES IN PICTURES

How leather is made hasn't changed much over the past several thousand years.

That being said, the entire process of making leather available for manufacturing is certainly not simple. In fact, it takes an average of 10 working days to turn hides into leather.

Skilled artisans – known as tanners – are highly knowledgeable, and they perform their duties with the utmost care. The process of leather production is lengthy and complicated, which helps to explain the high retail price tag associated with leather goods.

From a salted hide to a high quality piece of leather, this will show you exactly how leather is made:



CURING PROCESS

Curing process where the leather is being cured by salting.



CURING PROCESS

Salt is used to avoid from putrefaction by dehydration.



SOAKING PROCESS

Cured leather is soaked in the water to wash away the salt and remove dirt, dung and blood on the leather.



10

FLESH REMOVAL PROCESS

This is a manual process where worker is shaving the the flesh from the surface of the hide using special knife



11

LIMING PROCESS

Hides are soaked in an alkaline solution by pit-based operation to remove inter fibrillary and Keratin proteins, promote swelling of collagen and splitting of collagen fiber bundle.



12

DELIMING AND BATING PROCESS

Deliming process remove alkaline from the pelt and deswell the fibres. Bating process removes unwanted hide components to impart softness, stretch, and flexibility to the leather.



13

PICKLING PROCESS

Pickling is a pre tanning process for the penetration of tanning material.



14

CHROME PROCESS

Chrome-tanned leather tends to be softer and more pliable than vegetable-tanned leather, has higher thermal stability, is very stable in water.



15

DRYING PROCESS

Drying Process semi finished hides are put on the wooden rack for drying.



16

WET BACK PROCESS

Semi-processed leather is rehydrated using water. Process involved are re-tanning process, neutralization, dyeing process and re-tanning process.



17

DRYING PROCESS

Drying Process is where the leather is dried to various moisture levels (commonly 14–25%).



18

DRYING PROCESS

The area where drying process is done.



19

AFTER DRYING PROCESS

Staking is the mechanical softening of the leather after drying.



20

FINISHING PROCESS

A series of coatings is placed on the surface of the leather. These coatings are designed to protect the leather and produce surface effects pleasing to the eyes and hands.



21

POLISHING PROCESS

This process smooths the surface of the leather.



EMBOSSING PROCESS

Embossing is done to print the required pattern on the hides.



MANUFACTURING

The finished leather will be sent to the manufacturing line for leather product making.



MANUFACTURING

Manufacturing line for leather product making.

DIFFERENT TYPES OF LEATHER

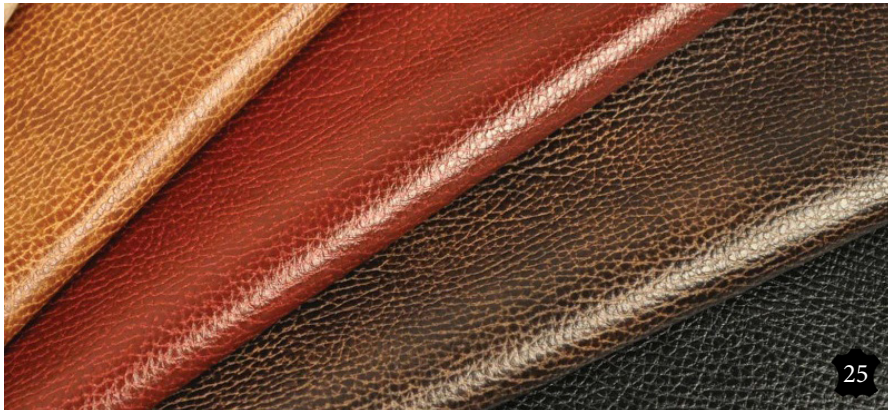
1. **FULL GRAIN LEATHER :** The defining characteristic of full grain leather is its natural appearance; it hasn't been finished to cover any imperfections, thus creating a very natural look.

Full grain leather is often used as upholstery on furniture. It is extremely durable and scratch resistant, and lot of people think it actually looks better with age and wear.

It has a distinctive smell that most people will recognize. Further, it has been treated to protected against stains.

Full grain is the most expensive of all the different types of leather available.

2. **TOP GRAIN LEATHER :** In some cases, the surface of full grain leather may be smoothed by sanding to correct obvious imperfections. This is know as top grain leather.



Due to the sanding process, top grain leather will generally have a finishing coat applied to the surface.

3. **SPLIT GRAIN LEATHER :** If an animal hide is especially thick, it may not be practical for most manufacturing applications. As a result, split grain leather may be produced.



This process involves splitting the leather in two pieces. It results in a greater surface area of leather to work with it, but also causes added stress to the hide itself; therefore, split grain leather is usually treated with chemicals to restore its original strength and durability. Split grain leather will almost always be buffed to create textures since one entire side of the hide is missing.

Split grain leather is less expensive, but it is also thinner and more fragile than full grain or top grain leather.

4. **SUEDE LEATHER :** If the buffing process described above under split grain leather is applied to both sides of the hide, it becomes known as suede leather.

Suede is characterized by its soft and fuzzy surface. For this reason, it is most often used for shoes and clothing.

Because it originates from split grain leather, it is much more affordable than full grain or top grain leather. It is worth noting, however, that suede is not resistant to spills, stains, and liquids. It is not as durable as other different types of leather.

5. **REGENERATED LEATHER :** If leather is required for a surface that will get lots of wear, or possible spills, regenerated leather is often the preferred choice.

It is easiest to recognize regenerated leather by its smooth, matte, and plastic-like finish. It is produced by compressing low grade animal hides into a strong and hard surface. Regenerated leather is then treated with a thick layer of polyurethane for added durability.

Regenerated leather is not usually considered genuine leather due its finish.

6. **FAUX LEATHER :** For both ethical and pricing reasons, fake leather – known as faux leather – is a highly popular option, especially in clothing and jackets.



Because faux leather is entirely man-made using synthetic materials, it is in many cases more durable and weather resistant than the other different types of leather. It can also be colored and styled into a plethora of different options.

As a possible downside, faux leather does not come from renewable sources, so it does create some additional environmental considerations.

That being said, faux leather is considerably cheaper than any type of genuine leather, and it often looks so much like the real thing that most people aren't able to tell the difference.

USES OF LEATHER

There are many different uses for leather as it is a versatile material. It is both durable and fashionable, and therefore its applications are nearly endless.

- **BINDING** : Leather is often used to bind or finish books.
- **CLOTHING** : It is often used to make clothing, including pants, skirt, raincoats, and jackets.
- **CUIR BOUILLON** : Cuir bouilli, French for boiled leather, was historically used to create body armor and flasks.
- **SADDLES** : In fact, leather has been used for all types of equestrian related products, including horse hoof boots.
- **FOOTWEAR** : Fashionable footwear is one of the most common



- uses for leather, including boots, shoes, slippers, and more.
- **FURNITURE** : Couches, chairs, recliners, and even automotive interiors are made from leather.
- **GLOVES** : From fashionable winter gloves to durable work gloves, leather is often used.
- **WATCHES** : Leather wrist watch straps are very common, as well as bangles and other jewelry.
- **SPORTS** : Leather has a number of uses in sports, such as producing footballs and baseball gloves.
- **BAGS** : Satchels, backpacks, wallets, and purses are all made from leather.
- **CASES** : A case for your eyeglasses or a protective enclosure for your smartphone may be made from leather.
- **HOLSTERS** : Leather is commonly used to make arrow quivers, knife sheaths, and gun holsters.



- **ACCESSORIES** : Leather is commonly used to manufacturer personal accessories, such as belts.

FIELD VISIT

The Khadi and Village Industries Commission (KVIC) is a statutory body formed by the Government of India, under an Act of Parliament, 'Khadi and Village Industries Commission Act of 1956'. It is an apex organisation under the Ministry of Micro, Small and Medium Enterprises, with regard to khadi and village industries within India, which seeks to –

“plan, promote, facilitate, organise and assist in the establishment and development of khadi and village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary”

Dharavi Mahila Audyogik Utpadak Shahakari Sanstha Ltd. is a leather factory in Mumbai, approved by KVIC. It's run by the president of the factory – Manda A Agawane. On the field visit, we talked about leather, its types, manufacturing processes, marketing, and product ranges. I visited the leather factory to observe the labour work and machines used for leather making products. Bags, wallets, jackets, trolleys, laptop bags, keychain, belts are leather products manufactured here and marketed by KVIC.





LEATHER PRODUCT APPRECIATION

PRODUCT APPRECIATION :

“It’s about looking at a product from all points of view and looking for unique features. It’s not about looking at beauty or aesthetics, rather objectively critiquing it for its qualities seen as well unseen or tangible as well as intangible”

- Prof R Sandesh

JAWAJA LEATHERS



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- From processing of raw skins to the finishing of the product, every process is done without the use of any machine in the houses of the craftsmen

- The use of new techniques considerably reduces the odour of leather while it is prepared; therefore the craftsmen are able to work at their homes from start to finish
- Leather products are stitched with leather strips instead of threads
- The leather stitches have a characteristic diamond shape that adds to the understated elegance of these leather products



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KOLHAPURI CHAPPALS

- A style of open-toed, T-strap sandal which originated from Kolhapur, a southern district in the state of Maharashtra
- Originally made from buffalo-hide and thread
- No nails are used, stitching used leather cords and punching are done by hand
- Present day - vibrant and brighter colours, more embellishments



- Famous patterns are used

LEATHER OF RAJASTHAN



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- Embossed patterns and embroidery on the leather
- They are very well-known for the quality of workmanship and the variety and richness of design. They are entirely hand-crafted and are measured with the fingers.
- The simplest form of the jooti has a plain leather upper form, stitched to a plain sole. There is no difference between the right and the left foot and the jooti takes the shape of the wearer's foot.
- The ornamentation is with silk or metal embroidery or beads and the designs are done in appliqué'd with thin leather pieces of different colours. This work is called as kashidakari. Jootis are also dyed in various colours and have brass eyelets adorning them. The soles have designs or patterns stitched with thread or appliqué'd with small leather pieces of different shapes.
- Jaipur is the main centre for this craft and the mojris are made so daintily that they can be rolled into a little ball.
- The designs are delicate and the colours are subtle.
- The embroidery in Jodhpur has patterns which has bolder shades and interesting contrasts.

BATIK LEATHER - SHANTI NIKETAN



- Embossed patterns and batik work on leather

- Available in a wide range of colours, patterns and sizes with traditional motifs, a Shantiniketan bag displays the rich cultural heritage of India gracefully
- The vegetable tanned skins used in production have the quality of permanently retaining the embossed imprint of motifs or batiks
- Lacquer finish to avoid mould or fungus



HIDESIGN



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- All leathers are vegetable tanned in company owned tanneries in India using seeds and barks from local Indian forests

- Solid brass buckles are sand casted at company's own buckle factory using fine local river sand
- Embossed leather
- Vegetable tanning, ecology and handcraftsmanship are the hallmarks of Hidesign



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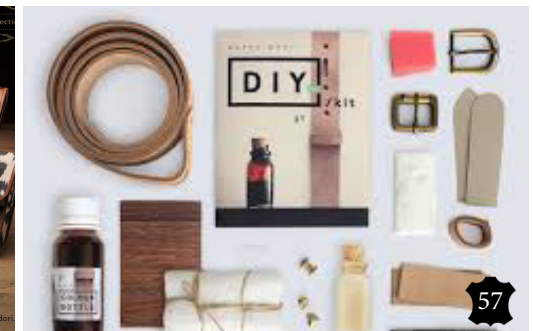
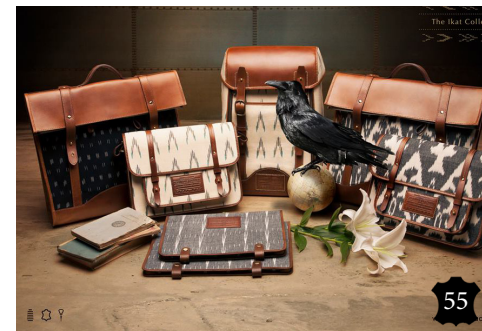
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NAPPA DORI



- Brought Indian aesthetics to a global product range
- Embellishments adorn materials in subtle sophistication, carefully balanced to make a distinct statement that whispers elegance

- An expression of fine individuality
- Graphics - a reflection of India
- Leathers with other material



LEATHER PRODUCTS WORLDWIDE



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66



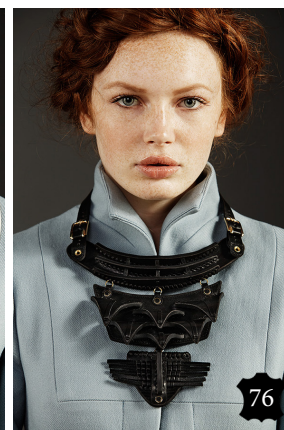
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DESIGN BRIEF



Based on the research, the design brief was -

DIY LEATHER KIT AS A SOUVENIR

DIY means Do It Yourself. According to the Oxford Dictionary, it means the activity of decorating, building, and making fixtures and repairs at home by oneself rather than employing a professional

So, this design brief aims at making Do-It-Yourself leather kit which can be gifted for

1. Executives
2. IITB students/faculties
3. Menstruating girls

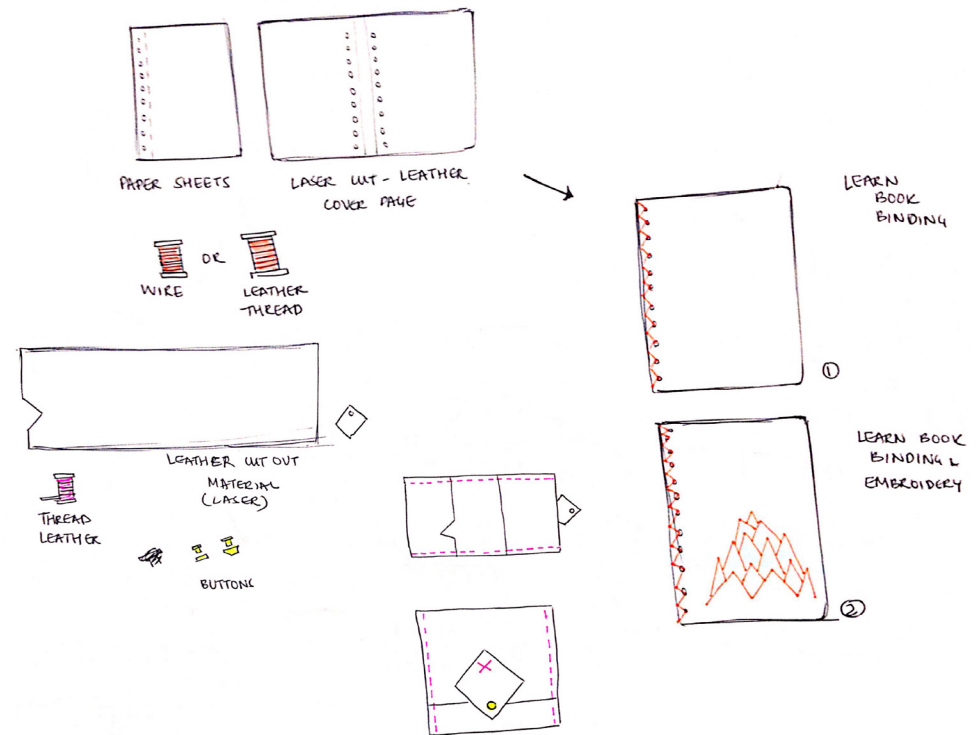
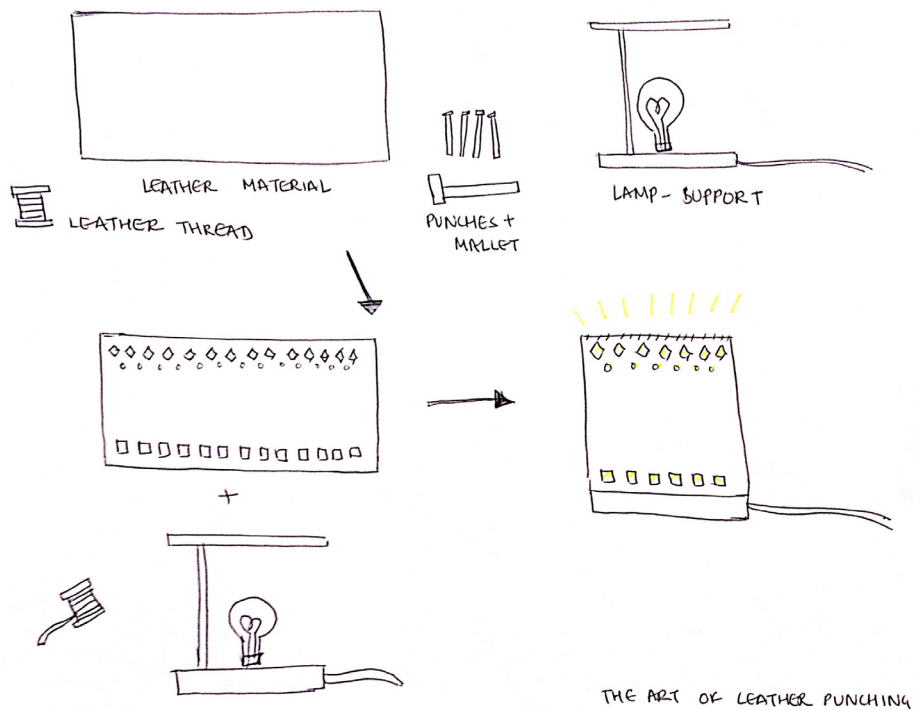
Leather material is an opportunity to work with, as hardly anyone had made it by hand.



IDEATIONS

Ideation 1

- Started off with basic design thinking, for example, DIY book binding and DIY lamp
- Needed to move on to advanced thinking
- Needed to look at the range aspects - family and common features

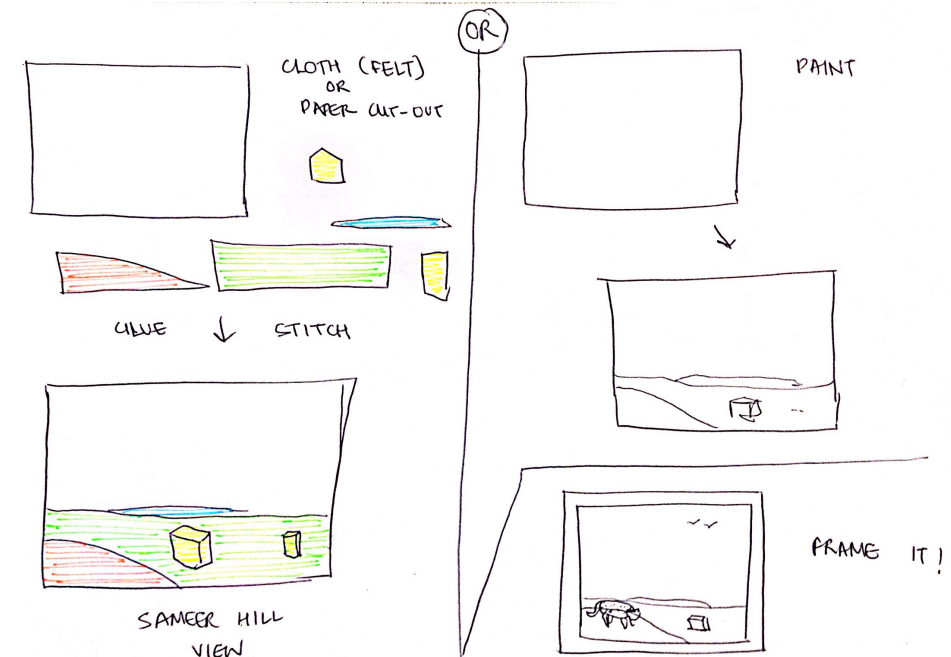
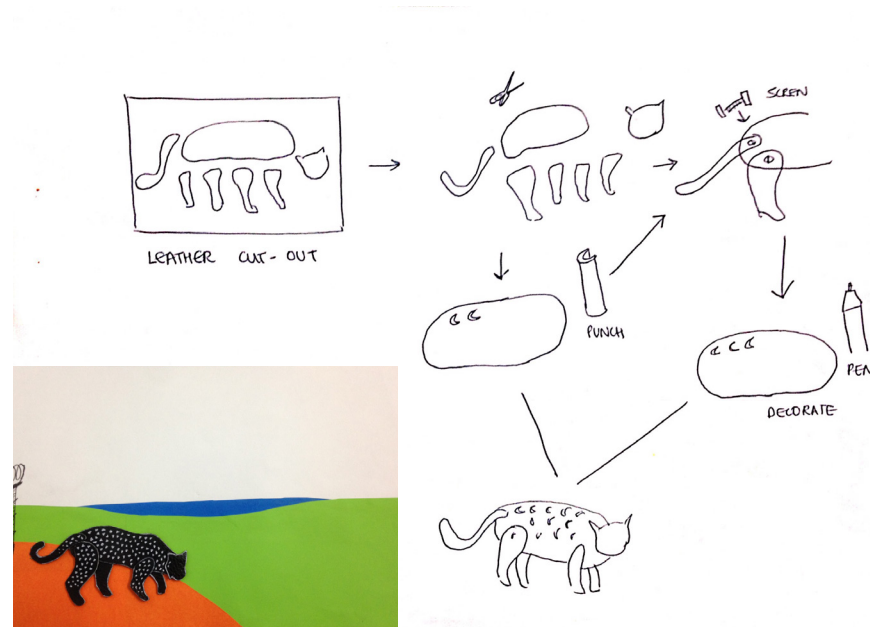


- The initial design brief was DIY Leather Kit for IITB shop

Ideation 2

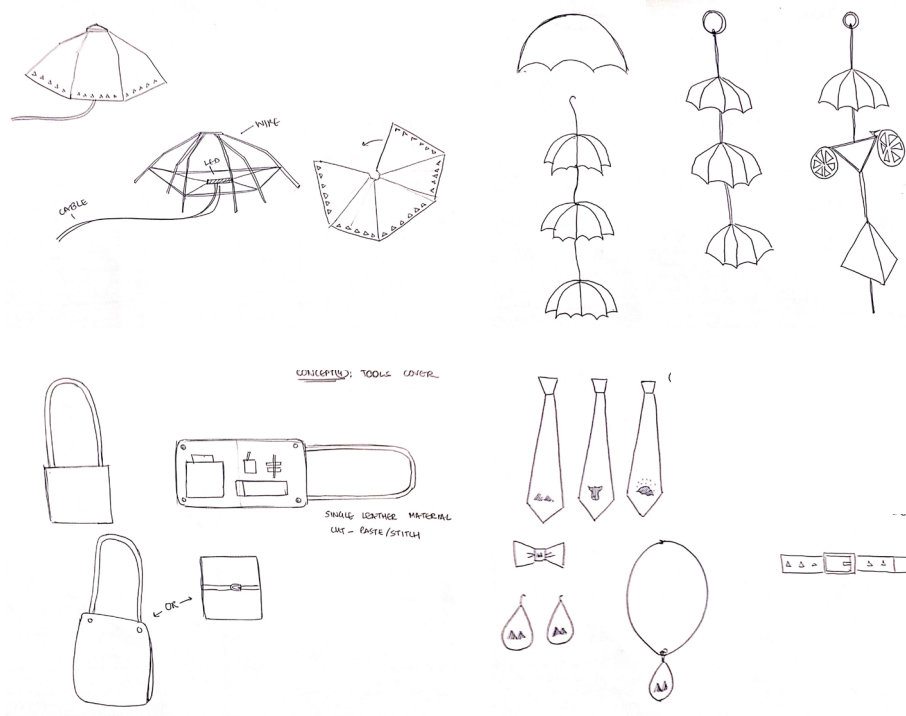
Themes of IIT B

- Leopard
- Sameer hill
- Powai lake
- Umbrella
- Cow
- Cycle
- Rain



- Ideation 2 : The one frame has all memories from IIT B. The leopard is roaming around Sameer Hill. The Powai Lake can be seen from Sameer Hill
- There were too many memories in one frame
- It was mainly 2D idea, so I needed to make 3D product ideas

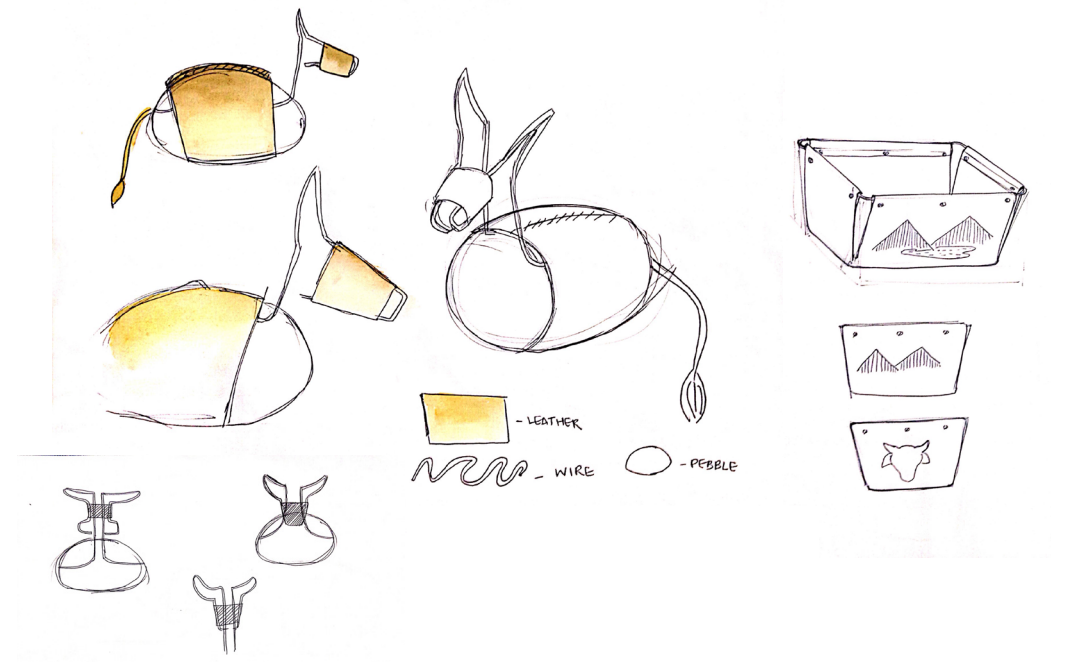
Ideation 3



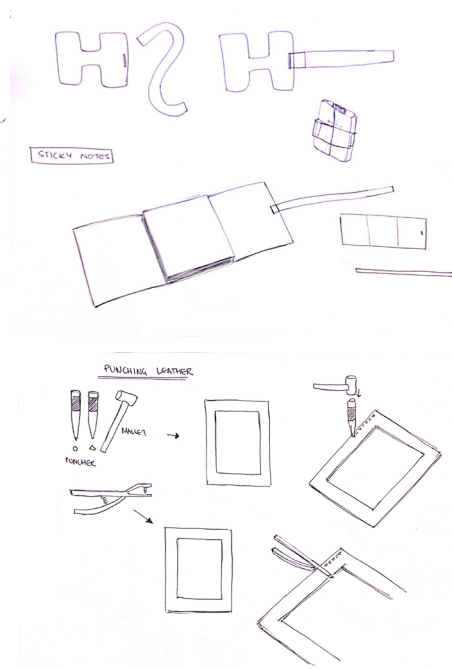
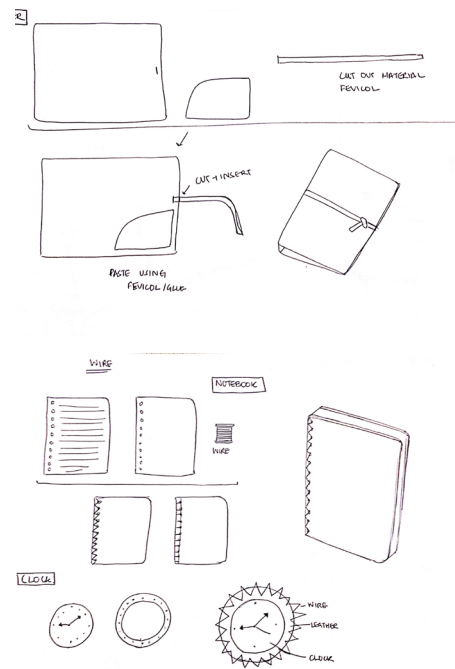
- After last ideation, I moved on make 3D product ideas
- I made product ideas which is inspired from the themes of IIT B , such as umbrella as lamp, cows as paper weight, containers

which embroidery of Sameer Hill, hanging umbrella/cycle, ties and jewellery

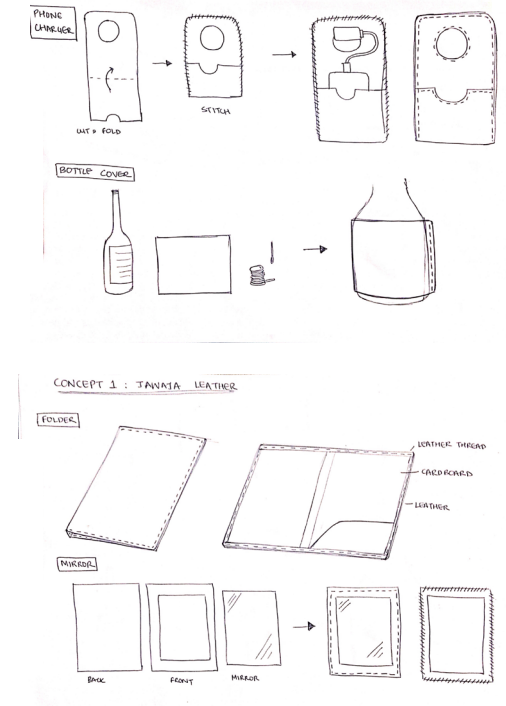
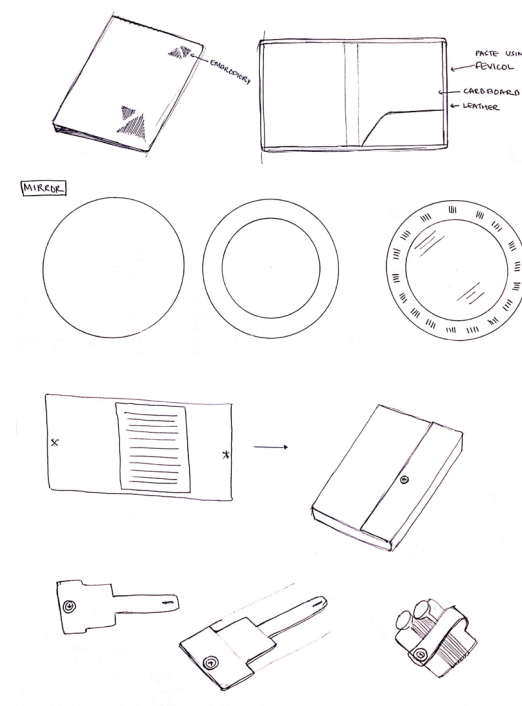
- Designing just for IIT B shop was limiting the ideations, in which I was unable to get good ideas



Ideation 4



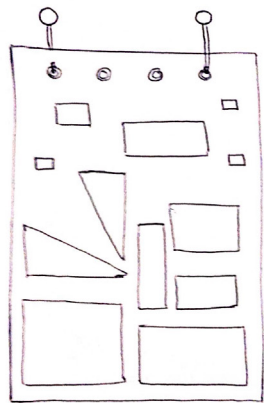
- Removing the idea of making souvenir just for IIT B shop to explore further



- Explorations on creating unique features for the product ideas

Ideation 5

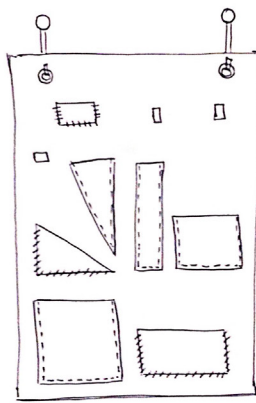
WALL HANGING DESK ORGANISER



LEATHER + LEATHER
OR
LEATHER + WOOL FELT

FEVICOL (PASTING)

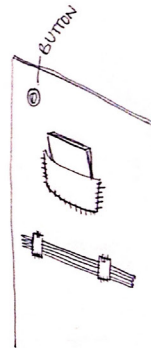
DIY



LEATHER + WOOL FELT

STITCH (LEATHER THREAD)

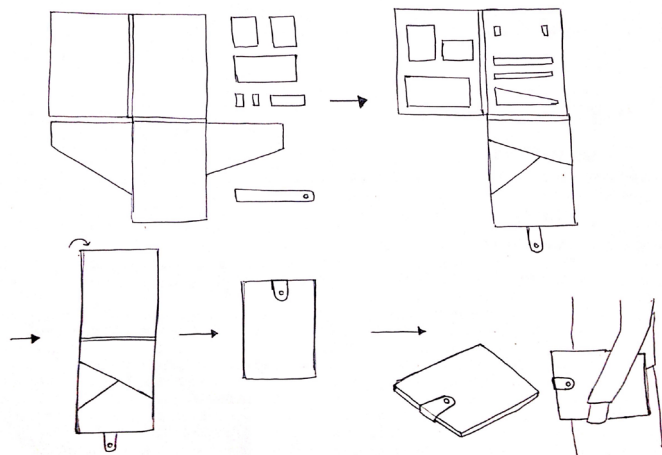
DIY



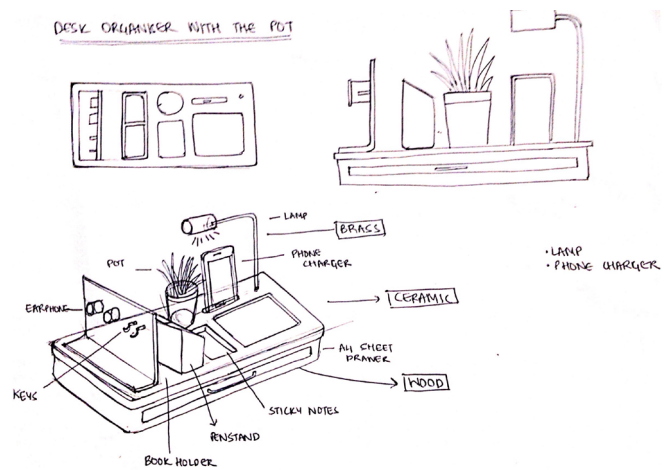
- Desk Organisers

- Creating unique features and styles
- Combining with different materials





DESK ORGANIZER WITH THE POT

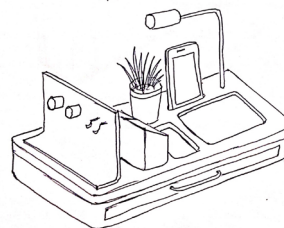


ALL THINGS IN ONE

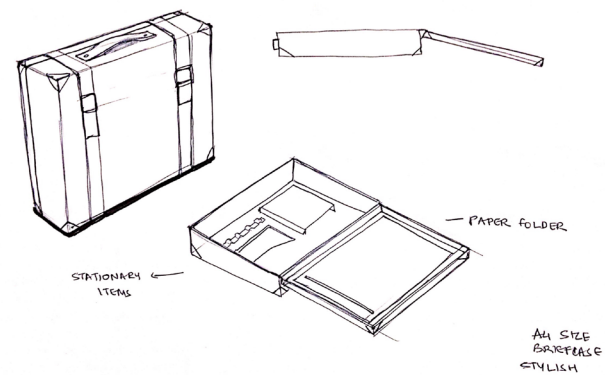
- LAMP
- PHONE CHARGER
- A4 SHEET PRIMER
- STICKY NOTES
- PENSTAND
- POT
- PHONE HOLDER
- KEYS
- BOOK HOLDER

MATERIALS

- CERAMIC
- METAL (BRASS)
- WOOD



BRIEF CASE AS DESK ORGANIZER





CONCEPTS

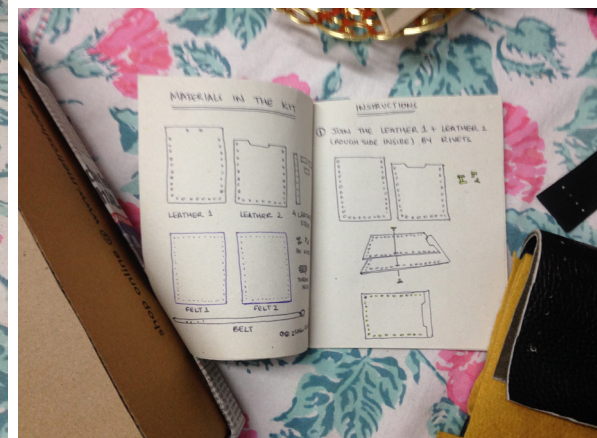
Concept 1:

“Cuero Chest”
a portable DIY Desk Organiser

The “Cuero Chest” a DIY portable desk oragniser, designed for all especially kids. This product can be gifted by everyone. It’s designed for people who doesn’t have a proper desk space, is always travelling and is fed up of two separate desk oragnisers at different locations.

“Cuero Chest” is exciting to make your own personal portable desk organiser, which is easy to carry. It can carry A4 sheets and stationary items.

In this concept, you have a cardboard kit consisting of materials, buttons, thread, needle, and the manual book. The manual book will help you to make desk organiser by your own hands. The next page will show you the outcome of the product.





The Outcome



Top View



The Handle



Open the Belt



A4 Folder with Pencil Rolling Wrap



Pencil Rolling Wrap



*A4 Folder can be separated from
Pencil Rolling Wrap*

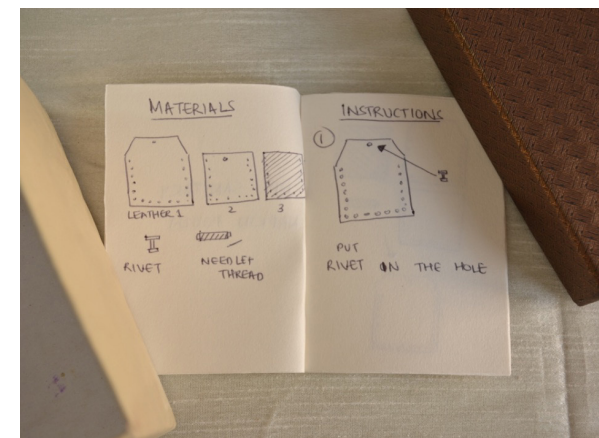
Concept 2:

“sa-n-ap”
a DIY Sanitary Pad Case

“sa-n-ap” is a DIY sanitary pad case. It is designed for every woman, can be gifted by everyone – mother, father, friend, relative and so on.

In the past, talking about sanitary napkin and period were a taboo. But now, the situation is slowly changing. All woman are open about it, especially with men.

In this concept, take this one big example – this kit is especially made for school girls, who is about to hit puberty. This can be distributed by schools, to educate young girls about menstruation and sanitary pads. This will also boost girls’ confidence about themselves. Not just to educate them, these young girls will have fun ways to make their own personalised sanitary pad case.





The Outcome



Not only one pad, medicine and undergarment can be kept inside the kit



Can take it with you anywhere!

Concept 3:

Customised Tool Bag

The tool bag is designed for different types of people such as -

- Engineers
- Doctors
- Industrial designers
- Textile designers
- Automobile designers
- Hairdressers

This tool bag customised according to their needs.



A top-down view of a rustic wooden table with various objects. In the upper left is a closed notebook with a textured reddish-brown cover and the word 'hand&craft' embossed on it. To its right are three circular coasters: one with a reddish-brown center and 'hand&craft' embossed, one with a light beige center and 'Gift card' embossed, and another with a reddish-brown center and 'hand&craft' embossed. Below these is a circular cardboard tag with a metal ring and a rectangular tag with a metal ring and handwritten text. A light-colored pencil lies diagonally across the lower right. Several nuts and pinecones are scattered on the table. The text 'THE FINAL CONCEPT' is overlaid in large white serif font on the left side.

THE FINAL CONCEPT

DIY SANITARY PAD CASE

Discussion of sex and more particularly menstruation are taboo in the Indian milieu. Schools shy away from imparting sex education. In this situation, even mothers find it difficult to explain these topics to their pre-pubertal daughters. So, this concept would introduce these topics to the target audience in an interesting way because while assembling DIY sanitary pad case, girls would also go through the enclosed booklet and learn about menstruation. On another level, office going women feel embarrassment while going to the toilet to change their sanitary pads. A bulky purse in the hand says it all. So, this would be useful for women of all ages. India has around 3.5 crores girls between ages 10 and 13, add to it the number of working women and you can imagine the market for this concept. This concept is unique because there is no product like this either in the Indian market or the international market.

Hence, this concept was finalised.

User Feedback 1 - About the concept

DIY Sanitary Pad Case

Hello, you!

So, I am working on a semester project and it's about the DIY Sanitary Napkin Pouch. It's made for every woman, can be gifted by everyone, especially dads, boyfriends, husbands!

Sanitary Napkin Pouch is a small bag in which you keep your 1-2 pads inside and take it anywhere. Usually, women keep the pads in an envelope, newspaper, or secretly sneaks the pad from the bag into the jean/kurta pocket.

So, why the DIY kit. Let me give you an example. In school, teachers usually explain (though basic) about period to young girls who are about to hit puberty. So, the school can distribute the kit box to all girls, in which girls can have fun time making their own pouch and get a better understanding about menstruation from the period book that they will be provided.

Please go down, to understand the concept.

*** Required**

1. This is the DIY Sanitary Napkin Pouch Kit Box (How mouthful!
:P)



I took an online survey on DIY Sanitary Pad Case, which I received 40 responses – 38 women and 2 men.

Screenshot of an online survey

DIY Sanitary Pad Case Survey

Hello, you!

So, I am working on a semester project and it's about the DIY Sanitary Napkin Pouch. It's made for every woman, can be gifted by everyone, especially dads, boyfriends, husbands!

Sanitary Napkin Pouch is a small bag in which you keep your 1-2 pads inside and take it anywhere. Usually, women keep the pads in an envelope, newspaper, or secretly sneaks the pad from the bag into the jean/kurta pocket.

So, why the DIY kit. Let me give you an example. In school, teachers usually explain (though basic) about period to young girls who are about to hit puberty. So, the school can distribute the kit box to all girls, in which girls can have fun time making their own pouch and get a better understanding about menstruation from the period book that they will be provided.

Please go down, to understand the concept.

1. This is the DIY Sanitary Napkin Pouch Kit Box



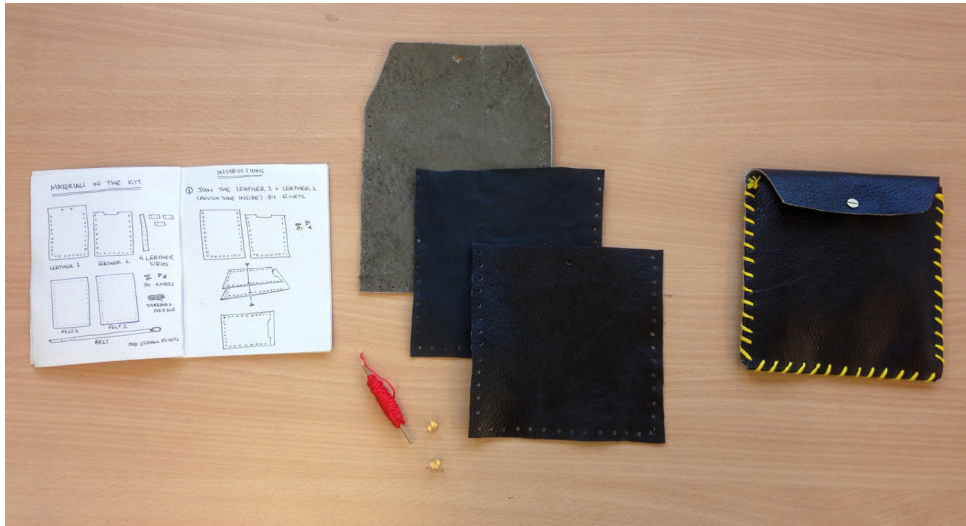
2. Opening the kit box



3. Inside the kit box, consists of the manual book, materials, sanitary napkin, medicine sample and the period book



4. The manual book will help you on how to make a sanitary pad case (complete product on the right one), with materials and tools provided.



5. This sanitary napkin pouch not only can keep pads, but medicines, undies, handkerchief and other important items as well



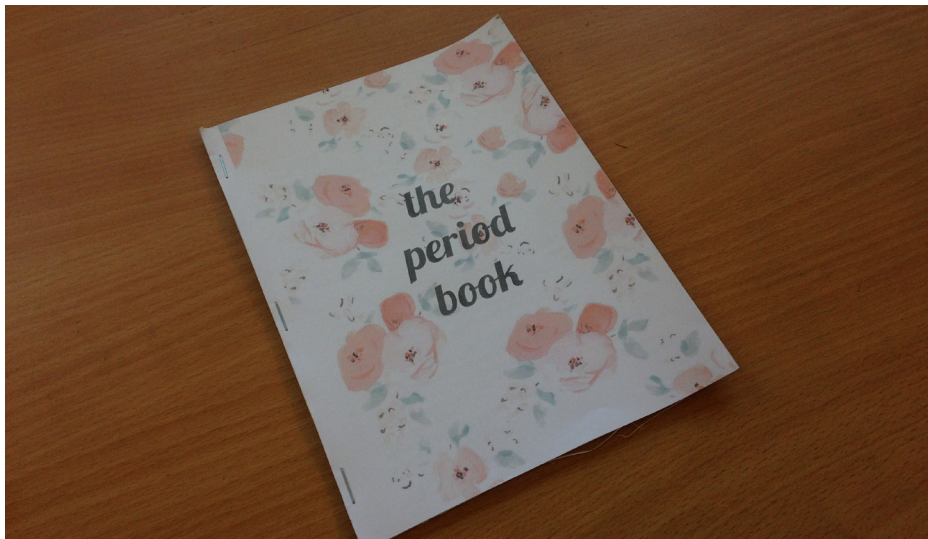
6. Leather material was chosen as it's classy and it feels like a purse or wallet, and people won't find out that you're on periods.



7. Can be kept everywhere, be it bag, purse, drawer, anywhere!



8. The period book to educate young girls about menstruation and puberty.



- So, what do you think of the idea?
- What will you need in the sanitary napkin pouch?
- Any suggestions?
- Are you willing to buy it for yourself, or your friends, or daughter, or any woman you know?
- Name
- Age
- Occupation

So, what do you think of the idea?

- Idea is very cool. I like the pouch size. But I'd want to make it more fun. Like why to hide the fact that you are on your period. The pursue currently conceals the fact that you are on your period. Why not celebrate it! Just a suggestion :)
- Nice idea but leather would turn out to be too expensive plus leather is not a good option since it involves killing of animals
- Great. It wont any longer be an embarrassment to carry a sanitary pad.
- It's an excellent idea. Still promotes hiding the fact that you are on your period, which I'm not a fan of. However it is a step in the right direction. :)
- It is a really great idea, and is very thoughtful for young girls who have to hide their sanitary Napkins In school. With this, they can carry it around.
- I find this wildly helpful, and I really like this concept.
- Idea is good, More pouch design tools can be provided as more designs can come out and hence the playful experience. Manual can have unique and attractive pouch making procedures.
- Being a guy, I don't have first hand experience, but I feel that this could be an excellent idea. However, some more features, if designed and added, can make it a much more wholesome product.
- It's definitely a great idea for a country like India where talking about periods or letting someone know (especially a guy)that you have your periods is a big taboo.
- Great initiative. The book will definitely help young girls.

What will you need in the Sanitary napkin pouch?

- Napkins offcourse/panty liners, tissue paper may be, hand sanitizer
- Will keep home keys, mobile , besides sanitary. It actually looks multi purpose .
- It Should be handy with a zip which can also be used to carry small cash.
- Period essential commodities

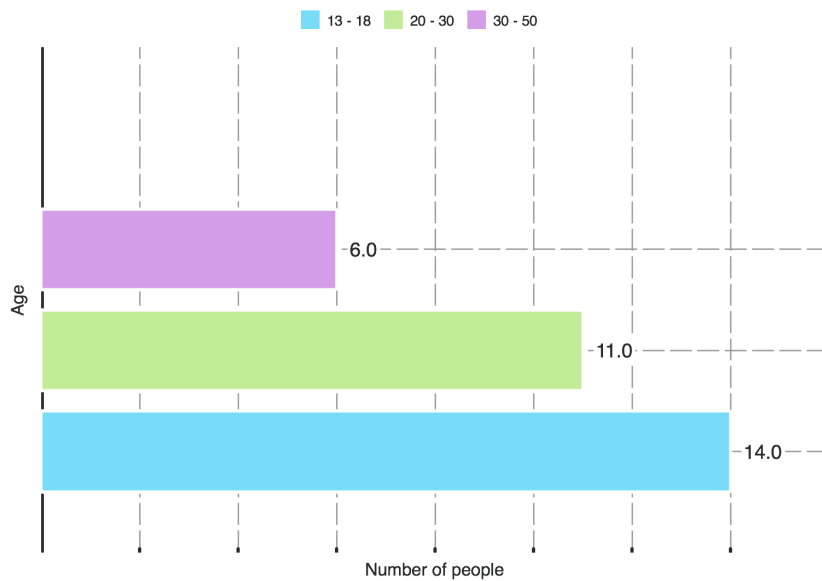
- Tampons and cramp medicine. Many girls are active and need to be educated on the usage of tampons.
- In Addition, few chocolates and a sanitizer, and newspaper for disposal
- From my experience as a trekker who has been in the mountains in teams having female trekkers, and from what I learned about the urban life when I consulted some of my female family members and friends, I think a major and more significant issue is of the disposal of used sanitary napkins. While adding such a feature could be cumbersome, it could make your product much more valuable and the project more meaningful.
- Other than carrying fresh sanitary pads, for someone like me travelling around where there are no safe and clean disposal ways, I carry my used pads in a bag with a refreshner in it and I come home and dispose it. May be if you think of better ways, would be helpful for people like me.

Any suggestions?

- The pouch has the capability to remove the negative stigma that is there in society revolving around periods. Those possibilities can be explored :)
- Yeah, maybe it can be more smaller and have a chain with it (like a purse) to carry
- Try using leatherite or a cheaper material
- How about give a string to hold it from shoulders ? Because when you carry a small pouch in a wash room , it can give an idea that you are carry a pad. A long string can eliminate that thought .
- Can be given some feminine colours like pink or mauve.
- Could always try using back pockets of jeans and crosstitch them together to make a pouch. Looks pretty classy too.
- Keep a separate column for sanitisers
- The awareness should be spread in every educational institution especially all girls institutions.
- If you can make the pouch smaller, it would be perfect

- Maybe no waste origami can be used for pouch design so girls can change designs at anytime they want. Make it more playful.
- More improvement on the product utility
- Good for a start. Can expand it to have more colors/personalization for each girl.
- Include a tampon slot

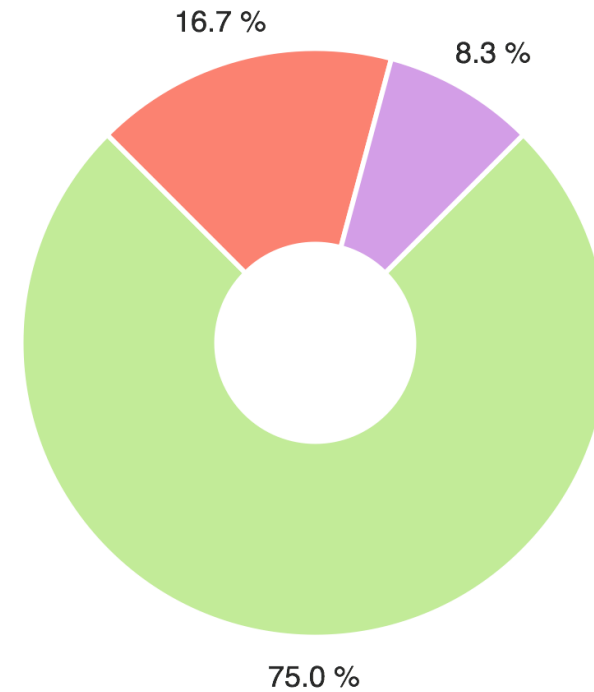
Age



Willingness to buy

Are you willingly to buy it?

Yes No Maybe



User Feedback 2 - About the pad case designs

I took an online survey on DIY Sanitary Pad Case Designs, back to the same people which I received 20 responses – 18 women and 2 men.

DIY Sanitary Pad Case Designs

Hi again! First of all, I would like to thank you for your feedback and I really appreciate it a lot! Now, I need your feedback on the pouch designs. Remember that they are just concepts - not finished product. So, once the design is finalised with maximum votes, it will be refined into a finished product with more features. Of course, with proper size, better material, threading, cutting, colours, everything will be refined! :) So, let's vote!

* Required

Design 1 *

A simple pouch in which you can keep sanitary napkin, medicine, undies, newspaper in it



	1	2	3	4	5	
Bad	☐	☐	☐	☐	☐	Good

Screenshot of an online survey

DIY Sanitary Pad Case Designs

Hi again! First of all, I would like to thank you for your feedback and I really appreciate it a lot! Now, I need your feedback on the pouch designs. Remember that they are just concepts - not finished product. So, once the design is finalised with maximum votes, it will be refined into a finished product with more features. Of course, with proper size, better material, threading, cutting, colours, everything will be refined! :) So, let's vote!

Design 1 :



Design 2 :



Design 3 :



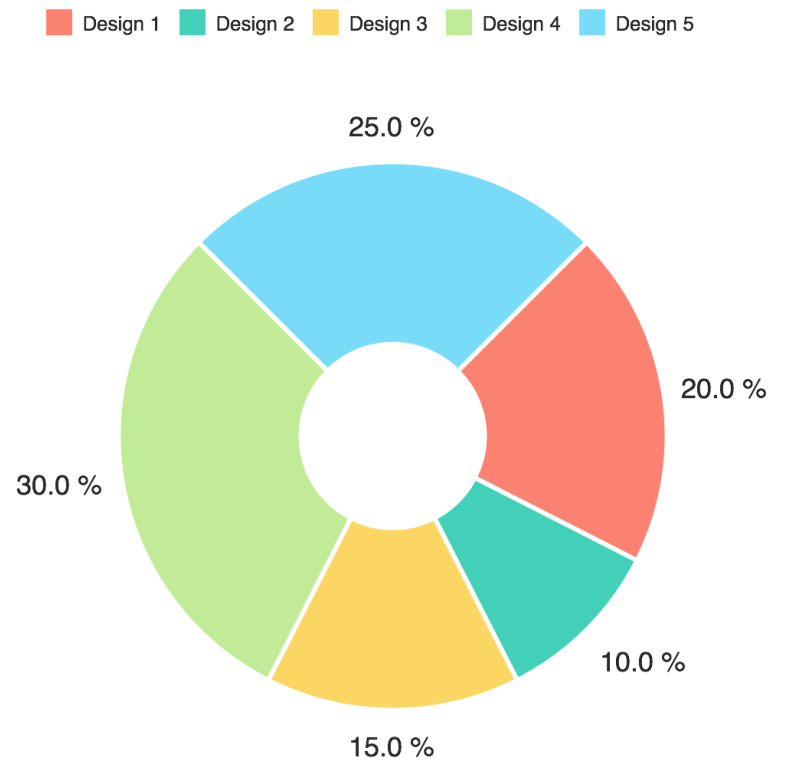
Design 4 :



Design 5 :



DIY Sanitary Pad Cases



THE FINAL PAD CASE DESIGN



From the online survey taken earlier, 30% of people has selected this design for its form, style and language.

Pad Case Design 1

Pulled up Oil Leather was used with nylon thread and rivet



Pad Case Design 2

Pulled up Oil Leather was used with nylon thread and rivet



Pad Case Design 3

Pulled up Oil Leather was used with leather thread and rivet



Pad Case Design 4

Colour explorations in Leather. Pulled up Oil Leather was used with fabric, nylon thread and rivet



Pad Case Design 5

Colour explorations in Leather. Pulled up Oil Leather was used with nylon thread and rivet



Pad Case Design 6

Colour explorations in Leather. Pulled up Oil Leather was used with fabric, nylon thread and rivets



Pad Case Design 7

Colour explorations in Leather. Pulled up Oil Leather was used with nylon thread and rivets



Pad Case Design 8

Colour explorations in Leather. Pulled up Oil Leather was used with fabric, nylon thread and rivet



Pad Case Design 9

Colour explorations in Leather. Pulled up Oil Leather was used with nylon thread and rivets





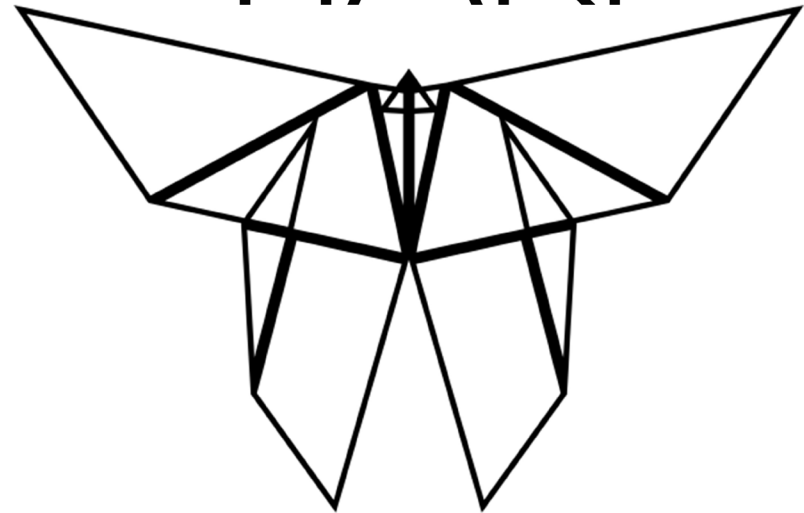
BRANDING



LOGO DESIGN

Logo Design 1

TIAKI



For the branding, I decided to name the product as “Tiaki”, which in Maori language, means to care for, look after, guard (guardian, trustee). I have used this name as it represents the product, on how the sanitary pad case can help you in difficult situation anywhere, be it office, school, party, gym, tourist places, just anywhere.

For the logo, I have decided to use guardian wings.





Logo Design 2



Logo design was further explored with colours and colour combinations.

Logo Design 3



Once the pad case design with colour was finalised, I tried to bring three colours – turquoise, white and brown into the logo. The guardian wings was still used.

In this logo, I have used the product name “Tiaki” in dashed font to represent DIY in the product.





Logo Design 4



I have tried to use “figure and ground” expression in this logo.

In the first picture, brown lines denote guardian wings. But, in the second, brown lines also means girl’s hair with pink line as a smile, which show the femininity of the product.

Logo Design 5



Using “figure and ground” expression in the logo, the green parts denote guardian wings. The wings rising upwards have a second meaning – coming out of her situation confidently and facing the world with pride.

I made the logo as simple as possible to make leather embossing easier.





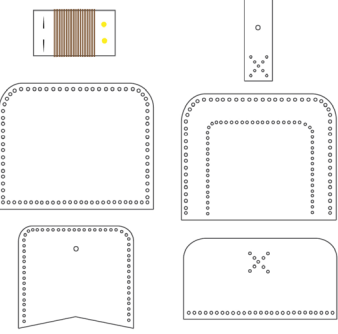
MANUAL BOOK DESIGN

Manual Book Design 1



DIY SANITARY PAD CASE MANUAL BOOK

MATERIALS



Sanitary Pad Case is a small pouch which is designed especially for carrying sanitary pads.

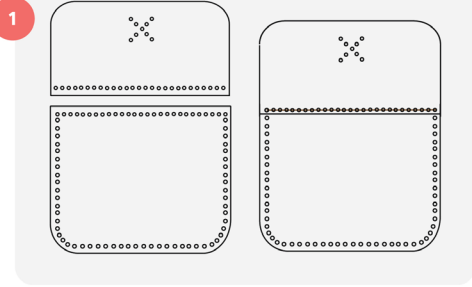
One can discreetly carry this sanitary pad case to the classroom restroom or office restroom.

You can also use it as a mini wallet, or keep other necessities such as medicine and undergarment.

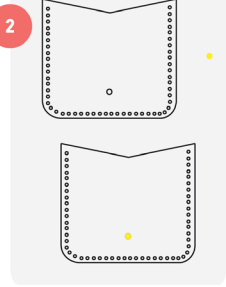
This book is to guide you in making DIY sanitary pad case. On the right is a list of items you will find in this box to make your own sanitary pad case. Follow the instructions carefully and be a proud owner of the Tiaki Case!

5 Cut Out Leather, 2 Rivets, Thread and Needle

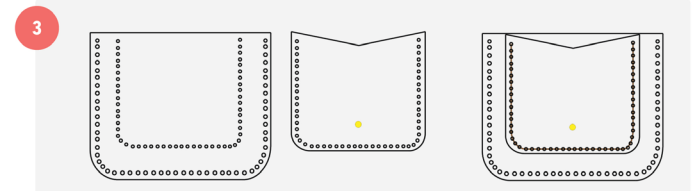
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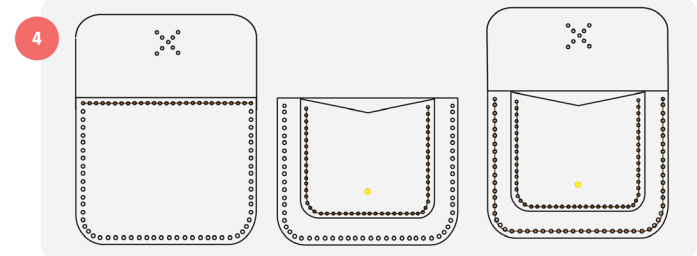
2



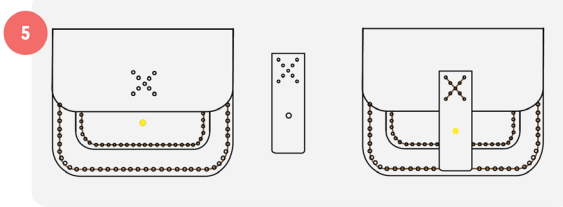
3



4

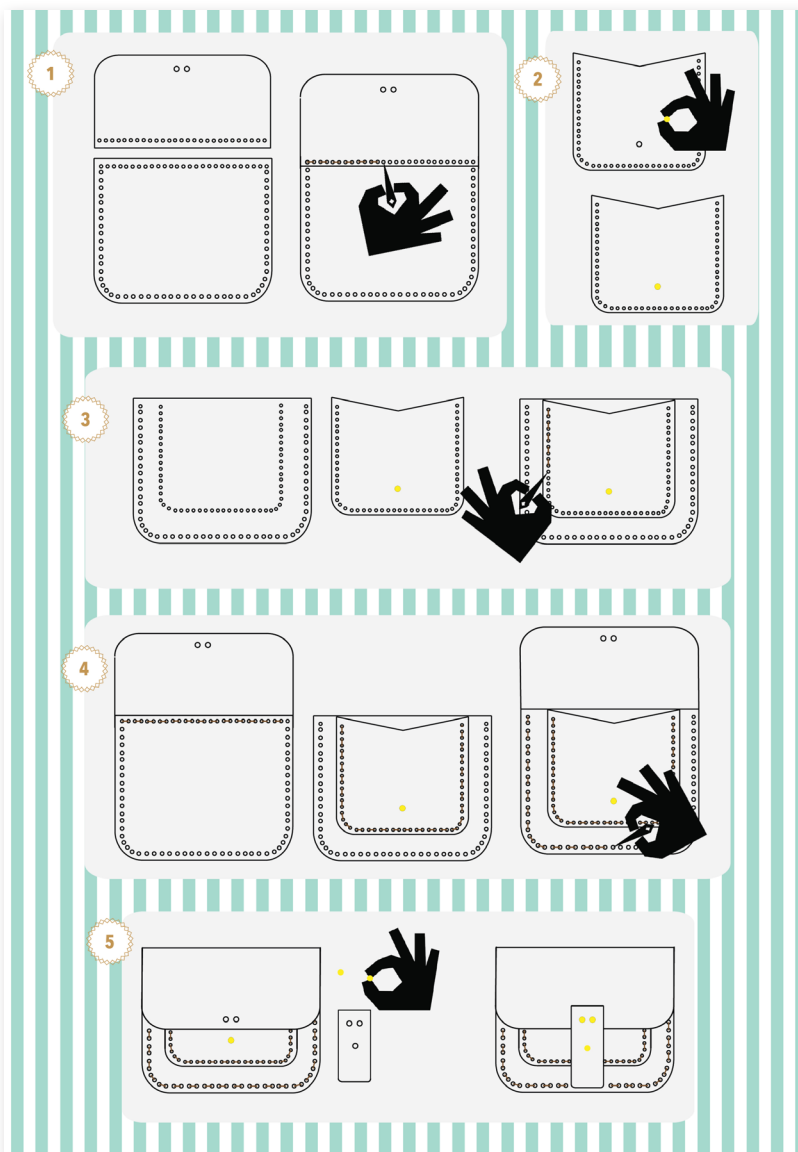


5



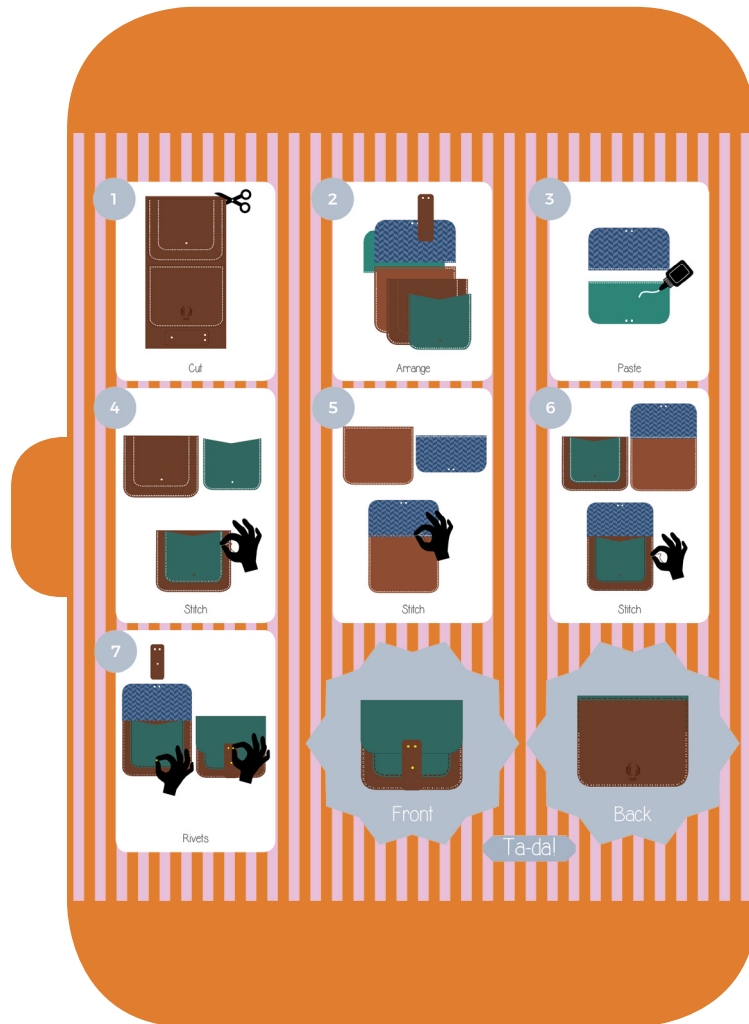


Manual Book Design 2



Using colours, I tried to make more meaningful visual instructions with hand gestures more meaningful

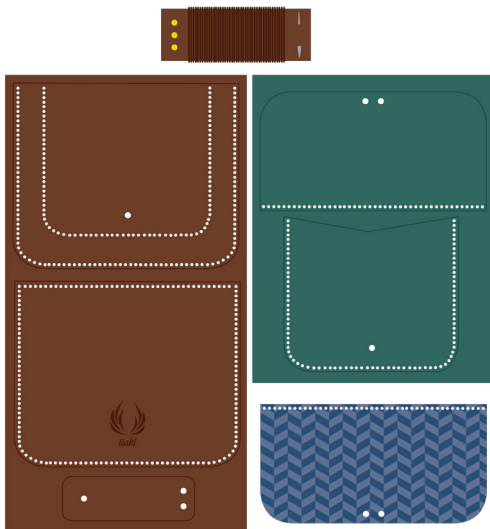
Manual Book Design 3



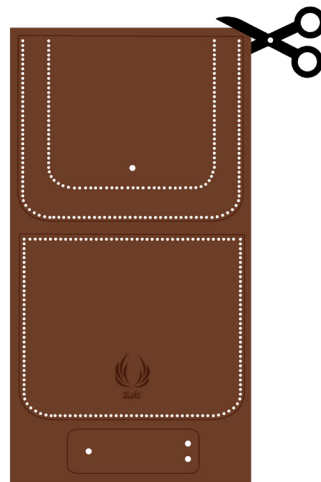
Instead of a separate manual book, the instruction will be printed inside the kit to save paper cost



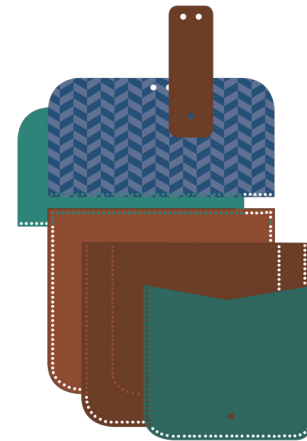
Manual Instructions in Details



Materials



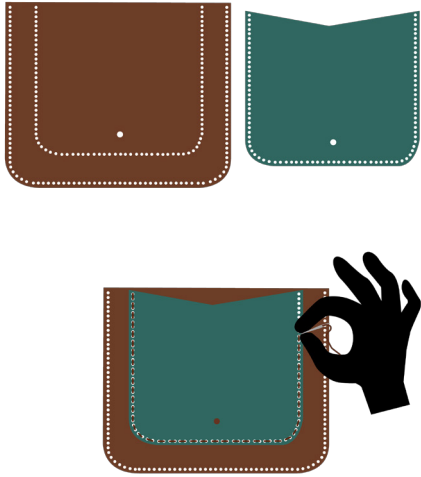
Cut



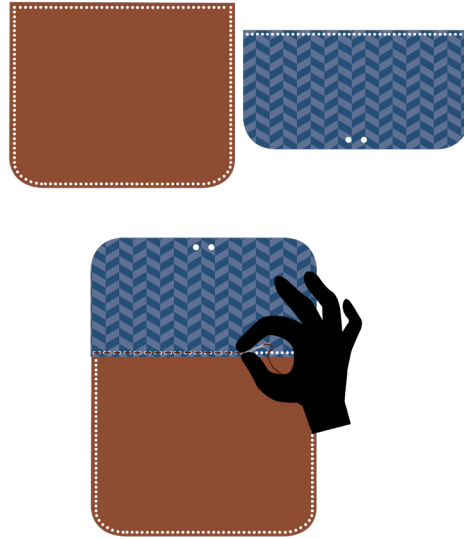
Arrange



Paste



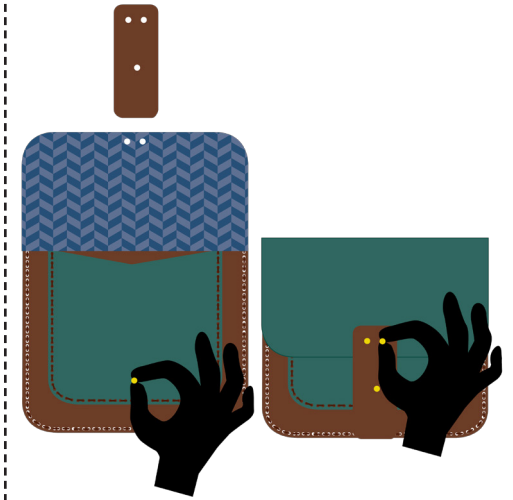
Stitch



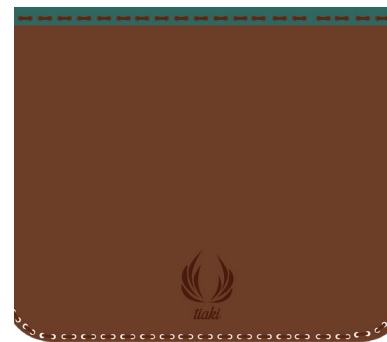
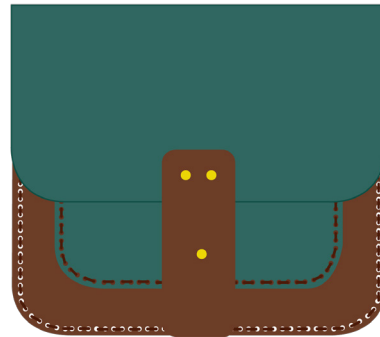
Stitch



Stitch



Rivets



Final Outcome



BROCHURE

Brochure Design 1



ALL ABOUT PERIOD

PUBERTY

Girls between the ages of 8 and 13 and boys between the age of 10 and 15 undergo many physical and emotional changes as they grow up from being a child to eventually becoming an adult. This period of adolescence, with all the changes that happen during this time, is referred to as puberty.

A few examples of such changes noticeable in girls are development of breasts, appearance of pubic hair and the beginning of menstruation. With respect to boys, appearance of facial and pubic hair, deepening of voice and development of muscles are examples of such changes.

It is important to remember that the time of onset of puberty and its completion varies at an individual basis.

EMOTIONAL CHANGES THAT OCCUR DURING PUBERTY

1. Feeling overly sensitive
2. Feeling uncertain
3. Looking for an identity
4. Peer pressures
5. Conflicting thoughts
6. Mood swings
7. Feeling conscious about self
8. Getting sexual feelings

EMOTIONAL CHANGES THAT OCCUR DURING PUBERTY

1. Development of breasts
2. Appearance of hair in the armpit
3. Widening of hips and appearance of pubic hair
4. Onset of menstruation
5. Growth spurt

MENSTRUATION

Every month a sexually mature female's ovary releases an egg cell that travels towards the uterus through the Fallopian tube. The uterus prepares for a possible pregnancy by developing a uterine lining made of tissue and blood vessels. This lining is called endometrium.

If the egg is not fertilized and pregnancy does not occur, the uterine lining is shed and it exits the body through the vagina as a mixture of blood and tissue over a course of 3 to 7 days. This is called menstruation (pronounced: mens-troo-A-shun) or a period. The cycle starts over again with an egg that begins to mature in one of the ovaries. This cycle is called menstrual cycle and is generally 25 to 35 days long.

WHEN DOES MENSTRUATION START AND STOP?

A girl may experience her first period between the ages of 9 to 14. The exact age at which this happens is variable and differs from one person to another. A sexually mature girl menstruates once in every 29 to 31 days.

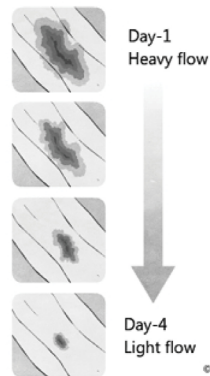
During pregnancy the uterine lining is utilized to nourish the baby in the uterus and hence menstruation does not happen. It starts again after the baby is born.

Menstruation ceases between the ages of 40 to 50 varying on an individual basis. This marks the end of the fertile phase of a woman's life and is known as menopause.

HOW LONG DOES MENSTRUATION LAST?

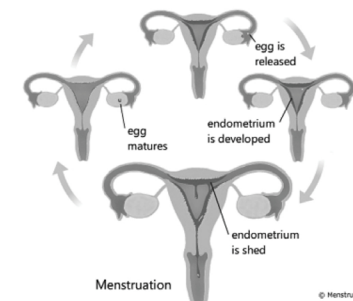
On an average a period lasts between 3 to 5 days. It is normal for a girl to have irregular periods in the beginning. During this time, the duration of her

periods may vary from as short as 2 days to as long as 7 days. It can take up to a year for periods to become regular.



WHAT IS THE LENGTH OF A MENSTRUAL CYCLE?

On an average a period lasts between 3 to 5 days. It is normal for a girl to have irregular periods in the beginning. During this time, the duration of her periods may vary from as short as 2 days to as long as 7 days. It can take up to a year for periods to become regular.



HYGIENE

When girls begin to menstruate, they need to take a few steps to deal with their menstrual flow and to maintain general hygiene. The following are some general measures that can help you continue your daily routine without being interrupted by your periods:

- Managing menstrual flow to prevent menstrual fluid from soiling the clothes.
- Maintaining proper hygiene and cleanliness.
- Eating a balanced diet to provide the body essential nutrients.
- Maintaining an active lifestyle while avoiding stress and tension.
- These measures are known as menstrual management.

WHAT IS SANITARY PAD?

Sanitary pad, which is also known as sanitary napkin or menstrual pad, is a thin pad made of absorbent material that absorbs the menstrual fluid during menstruation. Some sanitary pads are disposable and are meant for single use only. Most sanitary pads available in the market are disposable ones. Reusable sanitary pads are mostly cloth pads that can be washed, dried and reused over a number of times.

Sanitary pads come in different shapes and sizes, with different capacity to absorb for days of heavy and light menstrual bleeding. You will have to experiment with different kinds of sanitary pads to know which one best suits your needs

HOW TO USE A SANITARY PAD?

Sanitary pad is worn between the vulva and the underwear. Most sanitary pads come with easy to follow usage instructions. In most cases pads have adhesives that stick to the panties, while others have wings that wrap under the panties to keep the pad in place. Sanitary pads are generally changed

after every 4 to 8 hours to avoid it from getting over soaked.

CLEANING REUSABLE SANITARY PAD

If you are using a reusable sanitary pad, then after each use, it should be soaked in cold and mildly salty water. If you use hot water, then it can cause the blood to set in and leave a permanent stain. After soaking, it should be properly washed and dried in the sun. Sun rays are natural sterilizers that kill germs and bacteria.



HOW TO DISPOSE A USED SANITARY PAD ?

Sanitary pad should never be flushed down the toilet because it may clog the drainage system and lead to flooding of the toilet. After use, a disposable sanitary pad or a tampon should be wrapped in a news paper or waste paper and put in a garbage bin.



Disposing sanitary pad or a tampon



It is also necessary to dispose of the contents of the garbage bin promptly because if the sanitary pad or a tampon is left in the garbage bin for a long time,

then the menstrual fluid on these disposed products may get contaminated with germs and emit a foul smell. Hence, first it is necessary to keep the garbage bin covered to prevent the foul smell from spreading in your house and secondly, the contents of the garbage bin should be disposed of promptly to prevent spread of diseases by flies and other insects that gather around these garbage bins.

WHAT SHOULD A GIRL DO WHEN SHE GETS HER FIRST MENSTRUATION?

Memories of first menstruation – whether good or bad – are unforgettable. As we have mentioned before, if you're prepared for your first period and have the requisite information about menstruation before you have your first period, you should be able to handle it without fear or embarrassment. However, if you don't know much about menstruation, your first step should be to not panic because menstruation is normal for every healthy woman.

When you get your first period, you should talk about it with your parents or any other adult that you can trust, such as an elder sister or a teacher.

They will support you and provide you with necessary information and sanitary products to manage your periods.



HOW CAN A GIRL OR A WOMAN STAY PREPARED FOR HER MENSTRUATION ON A REGULAR BASIS?

The key to dealing with menstruation is to be prepared for it. This involves predicting when you will have your next period and then, making preparations for it in advance. Four measures that you should keep in mind to be prepared for your next period are as follows:

1. Keeping track of your menstrual cycle

2. Keeping a sanitary pad or tampon handy
3. Staying healthy and confident

KEEPING TRACK OF MENSTRUAL CYCLE

You can keep track of your menstrual cycle by marking the days when you're having your period on a calendar every month. In this way you can, not only know how many days your period lasts, but you will also stay informed on the length of her menstrual cycle.

The length of the menstrual cycle can be calculated by counting the number of days between the first day of your period and the first day of next period. If you have access to a computer or a smart phone, then you can use a variety of software and applications to keep track of your menstrual cycle. In the beginning you may experience irregular periods and it might take several months for your periods to become regular.

KEEPING A SANITARY PAD OR A TAMPON HANDY

It is impossible to predict the exact time and the situation when your period may begin. Hence it is a good idea to keep a sanitary pad or a tampon handy at least when you are expecting your period in a few days. Tampons and even the slim sized napkins are

small enough to easily fit in a purse.

In case you also experience abdominal cramps during menstruation, you might also like to keep a few, over the counter, pain relievers handy. These measures will ensure that your period does not come in the way of your daily routine.

STAYING HEALTHY AND CONFIDENT

Staying healthy and confident is as important as any other measure that you can take to be prepared for menstruation. Leading a healthy and stress free life can keep your the menstrual cycle regular and uniform. On the other hand, a stressful and unhealthy lifestyle can disrupt your menstrual cycle and you will not be able to predict when you will have your next period. A balanced diet consisting of adequate amounts of essential nutrients and feeling confident is essential for your physical and mental well being.

WHAT ARE GENERAL HYGIENE MEASURES NECESSARY DURING MENSTRUATION?

You can take the following hygiene measures during

menstruation:

- Take a bath or shower at least once a day.
- Use clean undergarments and change them regularly.
- Change pads or tampons regularly.
- Wash the genital area with plain water (no soap) after each use of toilet and even after urination.
- Keep the area between the legs dry, otherwise you may experience chafing.
- It is very important to remember that vagina has its own self cleaning mechanism and an external cleaning agent like deodorant or soap should not be used inside it.

USEFUL APPS TO TRACK YOUR PERIOD

You can use the following apps to easily track and update your period -

- Clue
- Period Tracker

Reference - Menstrupedia
www.menstrupedia.com

Brochure Design 2



ALL ABOUT PERIOD

WHAT IS PUBERTY?



Girls between the ages of 8 and 13 and boys between the age of 10 and 15 undergo many physical and emotional changes as they grow up from being a child to eventually becoming an adult. This period of adolescence, with all the changes that happen during this time, is referred to as puberty.

A few examples of such changes noticeable in girls are development of breasts, appearance of pubic hair and the beginning of menstruation. With respect to boys, appearance of facial and pubic hair, deepening of voice and development of muscles are examples of such changes.

It is important to remember that the time of onset of puberty and its completion varies at an individual basis.

EMOTIONAL CHANGES THAT OCCUR DURING PUBERTY

1. Feeling overly sensitive
2. Feeling uncertain
3. Looking for an identity
4. Peer pressures
5. Conflicting thoughts
6. Mood swings
7. Feeling conscious about self
8. Getting sexual feelings

PHYSICAL CHANGES THAT OCCUR DURING PUBERTY

1. Development of breasts
2. Appearance of hair in the armpit
3. Widening of hips and appearance of pubic hair
4. Onset of menstruation
5. Growth spurt



WHAT IS MENSTRUATION?

Every month a sexually mature female's ovary releases an egg cell that travels towards the uterus through the Fallopian tube. The uterus prepares for a possible pregnancy by developing a uterine lining made of tissue and blood vessels. This lining is called endometrium.

If the egg is not fertilized and pregnancy does not occur, the uterine lining is shed and it exits the body through the vagina as a mixture of blood and tissue over a course of 3 to 7 days. This is called menstruation (pronounced: mens-troo-A-shun) or a period. The cycle starts over again with an egg that begins to mature in one of the ovaries. This cycle is called menstrual cycle and is generally 25 to 35 days long.

WHEN DOES MENSTRUATION START AND STOP?

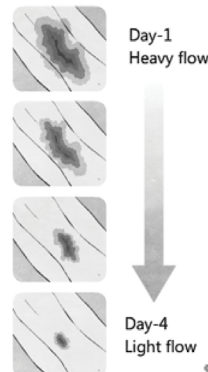


A girl may experience her first period between the ages of 9 to 14. The exact age at which this happens is variable and differs from one person to another. A sexually mature girl menstruates once in every 29 to 31 days.

During pregnancy the uterine lining is utilized to nourish the baby in the uterus and hence menstruation does not happen. It starts again after the baby is born.

Menstruation ceases between the ages of 40 to 50 varying on an individual basis. This marks the end of the fertile phase of a woman's life and is known as menopause.

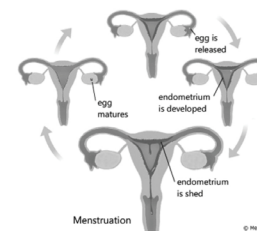
On an average a period lasts between 3 to 5 days. It is normal for a girl to have irregular periods in the beginning. During this time, the duration of her periods may vary from as short as 2 days to as long as 7 days. It can take up to a year for periods to become regular.



WHAT IS THE LENGTH OF A MENSTRUAL CYCLE?



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HYGIENE



When girls begin to menstruate, they need to take a few steps to deal with their menstrual flow and to maintain general hygiene. The following are some general measures that can help you continue your daily routine without being interrupted by your periods:

- Managing menstrual flow to prevent menstrual fluid from soiling the clothes.
- Maintaining proper hygiene and cleanliness.
- Eating a balanced diet to provide the body essential nutrients.
- Maintaining an active lifestyle while avoiding stress and tension.
- These measures are known as menstrual management.



ALL ABOUT PERIOD

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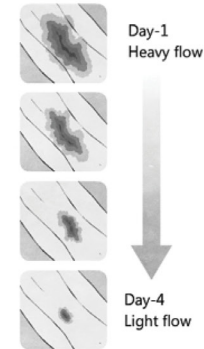
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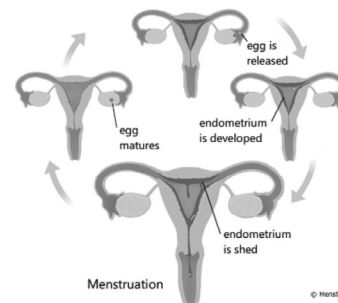
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SANITARY PAD

Sanitary pad, which is also known as sanitary napkin or menstrual pad, is a thin pad made of absorbent material that absorbs the menstrual fluid during menstruation. Some sanitary pads are disposable and are meant for single use only. Most sanitary pads available in the market are disposable ones. Reusable sanitary pads are mostly cloth pads that can be washed, dried and reused over a number of times.

Sanitary pads come in different shapes and sizes, with different capacity to absorb for days of heavy and light menstrual bleeding. You will have to experiment with different kinds of sanitary pads to know which one best suits your needs

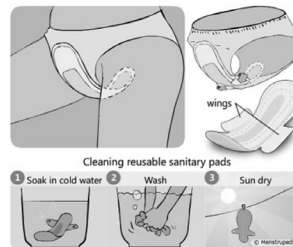
HOW TO USE A SANITARY PAD?

Sanitary pad is worn between the vulva and the underwear. Most sanitary pads come with easy to follow usage instructions. In most cases pads have adhesives that stick to the panties, while others have wings that wrap under the panties to keep the pad in place. Sanitary pads are generally changed after every 4 to

8 hours to avoid it from getting over soaked.

CLEANING REUSABLE SANITARY PAD

If you are using a reusable sanitary pad, then after each use, it should be soaked in cold and mildly salty water. If you use hot water, then it can cause the blood to set in and leave a permanent stain. After soaking, it should be properly washed and dried in the sun. Sun rays are natural sterilizers that kill germs and bacteria.



HOW TO DISPOSE A USED SANITARY PAD ?

Sanitary pad should never be flushed down the toilet because it may clog the drainage system and lead to flooding of the toilet. After use, a disposable sanitary pad or a tampon should be wrapped in a news paper or waste paper and put in a garbage bin.



Disposing sanitary pad or a tampon



It is also necessary to dispose of the contents of the garbage bin promptly because if the sanitary pad or a tampon is left in the garbage bin for a long time.

The menstrual fluid on these disposed products may get contaminated with germs and emit a foul smell. Hence, first it is necessary to keep the garbage bin covered to prevent the foul smell from spreading in your house.

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ALL ABOUT PERIOD

WHAT IS PERIOD?

The uterus and ovaries are internal organs that all girls have. The uterus opens out through the vagina. The ovaries are where the eggs are stored. When you reach puberty, every month one egg is released from the ovaries into the fallopian tube. When you become a lady and are ready to have babies, the egg becomes a baby and lands into the uterus. To make it comfortable for a baby, the uterus gets lined with blood and tissue. As you are too young to have a baby now, the egg and all the blood and tissue get dumped through your vagina. This is one of the biggest parts of growing up in girls and is called Periods. Periods have many names such as Chums,

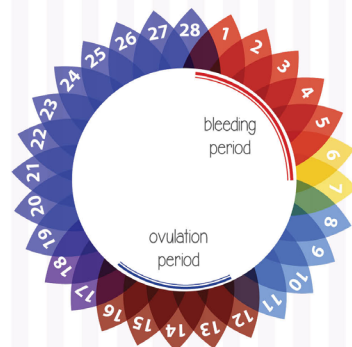
Hello there!

It's the time when you are entering into your puberty phase, and you will feel lots of changes in your body and moods. There will be lots of curiosity and confusion in your mind.

So Tiaki book period is the solution to your every question. Just read it carefully, this book guide you all about the period. If you're still little confused, discuss about this with your mother or elder sister or any older woman with whom you're close with .

Auntyji, and etc.

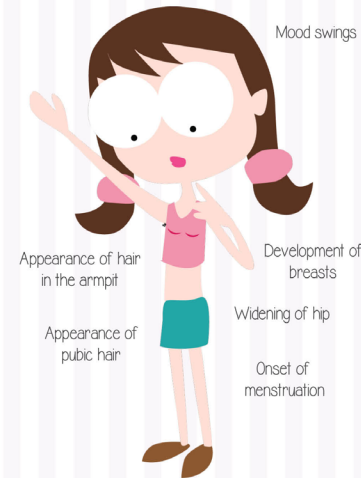
It happens for 3 to 8 days and every 21 to 38 days. In the beginning this might not be regular, but there is no need to fret. There are special period products that will help you to handle your periods. They will be your buddies for a long time.



WHAT IS PUBERTY?

You have been growing from the day you were born and you have learnt many things since, like walking, talking and taking care of yourself and much more. The phase of growth when you become an adult from a child is called puberty. Your body starts showing the signs of puberty between 7 to 13 years of age.

When you reach a certain age, a small pea-sized gland in your brain called Pituitary releases a substance called "Hormones" that travels through your blood and tells the different parts of the body to start developing in to an adult.



NORMAL DAY VS PERIOD DAY



PERIOD CALENDAR

Using a calendar to mark your period cycle, you will need a calendar and pen

Step 1:

Mark the first day of your cycle with a pen. You can mark it with "O"

Step 2:

Continue to mark the days during period which lasts 3 to 7 days.

Usually your next period will start around 28 days from the beginning of your last period. However, it could fluctuate between 21 to 36 days.

Mark the period cycle every month to understand your body's rhythm.

JAN							FEB						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29						

MAR							APR						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					

MAY							JUNE						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					



Or, if you own a mobile phone, you can download period tracker app. Clue is one of the best period tracker app.



SANITARY PADS

They come in many sizes, widths and thicknesses. Most of them come with a sticky tape at the back that can be fixed on to your panties. Some come with wings that fold over the crotch of the panties so that they don't crumple or bunch up. You might need different types for low flow days, nights and day me. A trip to a local super market with your mom will give you a fair idea of the options and you can figure out what works best for you. Some types of sanitary pads could cause skin rashes, so keep a look out for that.

Caution: Make sure you change the napkins every 4 hours or sooner. If you keep them for longer, bacteria starts thriving and that can cause bad odour and other problems.

Dispose: Make sure you wrap up the used napkin in the cover they come in or some old paper and throw it into a bin. Do not flush it down the pot as it will block the pipes.

How to change sanitary pads - www.wikihow.com/Change-a-Sanitary-Pad



TIAKI

Tiaki - DIY sanitary pad case
A small DIY sanitary pad case that you can carry with you at all times in your backpack or purse. There is room in this for

1. some old newspaper that can help junk used sanitary pads,
2. a period panty just in case period comes as a surprise
3. a couple of sanitary pads to change every 4 hours
4. bringing back soiled pan es if any.
5. medicine to relieve your cramps or migraine

With the Tiaki, a trip to the rest room is less embarrassing and convenient.





PACKAGE DESIGN

Pacakge Design 1



Exploration in the package design, with the gift look for women
 Negative point : It's not stackable and easy for delivery so, this idea was rejected.

Package Design 2



Simple packaging box design for its stackability and easy delivery system
Different graphics in all boxes.



THE KIT

The Kit Design 1



“Tiaki”, which in the Maori language means to care for, look after or guard, is a DIY kit to educate pre-pubertal girls about menstruation and to help women of all ages to avoid embarrassment during their menstrual cycle.

The kit contains 5 pieces of pre-cut leather, an instruction manual and a booklet on menstruation.



The material can be assembled in 5 steps. Assembly of the materials is simple, involving only some stitching and riveting. After assembly, the material takes the shape of a pouch which can accommodate a sanitary napkin, a panty, medicines and cash. Being small and being specifically designed for this purpose, Tiaki can be used to carry these things unobtrusively. Tiaki is useful for women of all ages and is a perfect gift for young girls who will learn about personal hygiene and menstruation in an interesting way while assembling the Tiaki DIY kit.

THE FINAL KIT DESIGN



“Tiaki”, which in the Maori language means to care for, look after or guard, is a DIY kit to educate pre-pubertal girls about menstruation and to help women of all ages to avoid embarrassment during their menstrual cycle.

The kit contains 2 leather sheets, a fabric, needle, thread, rivets, sample sanitary pad and sample medicine.



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The final pad case design

SWOT Analysis

Strengths:

Discussion of sex and more particularly menstruation are taboo in the Indian milieu. Schools shy away from imparting sex education. In this situation, even mothers find it difficult to explain these topics to their pre-pubertal daughters. Tiaki would introduce these topics to the target audience in an interesting way because while assembling Tiaki girls would also go through the enclosed booklet and learn about sex and menstruation. On another level, office going women feel embarrassment while going to the toilet to change their sanitary pads. A bulky purse in the hand says it all. So Tiaki would be useful for women of all ages. Tiaki is unique because there is no product like Tiaki either in the Indian market or the international market.

Opportunities:

The components of the Tiaki kit are quite cheap which can easily be mass produced reducing the cost further. India has around 3.5 crores girls between ages 10 and 13, add to it the number of working women and you can imagine the market for Tiaki. Briefly put, Tiaki is an inexpensive product with a vast market. A small online survey revealed that 75% of the respondents would buy it. Since Tiaki is a unique product, it would also enjoy the first mover's advantage.

Weaknesses:

Because of inherent taboos products like Tiaki are not advertised openly. Such products are hardly ever mentioned in polite society. Their virtues and defects are never debated. So marketing of Tiaki will not be very easy. Secondly, the DIY nature of the product may not appeal to busy office goers.

Threats:

The DIY nature of Tiaki may not appeal to busy office goers. An assembled variant may be introduced at a suitable time. Lunatic fringes may oppose Tiaki because it breaches a long standing taboo.

Business Canvas

Customer Segments: Tiaki is primarily aimed at pre-pubescent and pubescent girls numbering around 3.5 crores in India. Tiaki would also be marketed to urban office going women.

Value Propositions: The main utility of Tiaki is to provide authentic information about menstruation to young girls who are menstruating for the first time. Tiaki would empower young girls to handle menarche in a dignified and elegant manner. For older women, Tiaki would provide freedom from embarrassment in public places during menstruation.

Channels: Since Tiaki is an educative and socially useful product, NGOs would be involved in propagating it in schools and workplaces. Such NGOs would also sell it. Tiaki would also be marketed through on-line retailers.

Customer Relationships: NGOs involved in the propagation of Tiaki would have a continuous interaction with customers. Moreover, a website “Tiaki” would provide information and also handle grievances.

Revenue Streams: Tiaki would provide value for money. While Tiaki would retail for around Rs.500, comparable (in size) ladies wallets retail at Rs.899 at Amazon.

Key Resources: Not many resources are required. Raw leather is freely available in Dharavi. Similarly, tools, rivets, thread and fabric are also freely available. The text for the accompanying booklet has been finalised.

Key Activities: Leather has to be cut in different sizes. The fabric

also has to be cut correspondingly. Holes have to be made in the leather. Initially, dies would be used for this purpose. Later on, industrial cutters would be used. Initially, an awl or pricking fork would be used for making holes. Later on, a dremel in a drill press accessory with a 1/16 or 1/32 drill bit would be used.

Key Partnerships: Partnership with a leather worker’s co-operative for manufacturing. Partnership with NGOs for propagation and sales. Partnership with online portals like Amazon and Flipkart for sales.

Cost Structure:

Leather - Rs 200

Tools - Rs 20

Rivets - Rs 15

Package - Rs 20 (paper + laser cut)

Thread - Rs 10

Fabric - Rs 10

Booklets - Rs 20

Labour: Rs 50

Total Manufacturing Cost - Rs 345

Advertisement, transportation and incidental cost - Rs 100

Total cost: Rs 445

Profit: The market price would be kept at 500. Thus profit on each piece would be Rs 55 i.e. 12.35%

Value Proposition

The intrinsic value proposition of Tiaki is women's empowerment. It imparts sex education and awareness and a tool to young girls so that they can handle the changes in their body at the time of puberty in a better manner. For older women, Tiaki provides freedom from the embarrassment associated with menstruation.

The value proposition of Tiaki was discovered by personal experience and to some degree by peer discussions. At the time of puberty, my mother gave me a detailed lecture on what puberty entailed and how should I handle the physiological and social changes associated with puberty. At the same time, I found my friends and classmates at a complete loss vis-a-vis the sudden changes in their bodies. The only information my friends had came from hearsay which resulted in unsavoury situations like not using pads and spoiling panties during menstruation. Then there was the real danger of boyfriends and relatives taking undue advantage of their ignorance. After ten years, when this topic came to mind, I found the situation on the ground to be the same. When Tiaki was envisioned, I conducted an online survey among my friends and relatives. I was not surprised when I found that 75% of the respondents found Tiaki to be useful product.

The target audience for Tiaki is young girls between the ages of 10-13, who are on the verge of menarche or puberty. Tiaki is intended to be gifted to pre-pubertal girls by their mothers, aunts or older sisters – just as shaving sets are gifted to boys who have just begun to sprout a moustache. Being a DIY kit, Tiaki will engage the attention of the recipients for a longer time and would generate curiosity in them to go through the accompanying booklet and learn how to manage their menstrual periods. Older women would also be interested in Tiaki because it

would help them avoid social embarrassment at the time of menstruation. I personally recognised this need while working in an office because I felt that going to the toilet with a large purse made the purpose of the visit obvious to co-workers. As revealed in the online survey, this feeling of embarrassment is widely shared by many women.

Thus, Tiaki relieves the pain of embarrassment at the time of menstruation for all women who, as a result, gain in confidence. For pre-pubertal girls it provides both knowledge and a tool to handle the rapid changes in their body. The psychological pain associated with ignorance and embarrassment is effectively handled by Tiaki. The resultant gain in self confidence is immense.

At another level, Tiaki is envisioned as a socially useful product to impart sex education in a taboo ridden society. NGOs would use it to spread sex awareness. Keeping this purpose in mind Tiaki which is priced at Rs.500 in the market would be priced at Rs.400 for school girls (NGOs would get it for Rs.375).

It may be kept in mind that Tiaki is an aesthetically appealing, beautiful, high quality, pure leather product which can successfully compete with ladies wallets which are priced at a minimum of Rs.899. Thus, while fulfilling a social need, Tiaki would be commercially viable.

Tiaki has very few components and all components are freely available in the market. Mumbai has a large number of leather workers' co-operatives so should the idea prove successful; Tiaki can easily be mass produced. Marketing can be done online through portals like Amazon and Flipkart. At a later stage, a completely assembled variant of Tiaki would be brought out for working women.

IMAGE REFERENCES

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