

INDUSTRY INTERNSHIP REPORT

BATCH 2019-23

National Institute of Fashion Technology,
Rae Bareli



'Rekha-ganit'

INDUSTRIAL DESIGN AT LITTLEBIRD INDIA

Created & Compiled by: Shambhavi Palni
Duration : 8 weeks (06/06/2022 to 30/07/2022)
Fashion & Lifestyle Accessories Department



LittleBird is a brand under Annapoorna Industrial Corporation which offers a wide variety of kids' products ranging from Kids' Furniture, Bedding, and Decore Items to School Furnitures. The brand was launched in the year 2006 with the feature of renting kid's furniture and gradually switched to manufacturing and selling kid's furniture along with other products for kids.

The brand provides eco-friendly modern kid's furniture, accessories and decor made with the finest materials, simple and intuitive designs and a whole lot of love. LittleBird aims to be a part of every parent's journey to create a fun and safe childhood full of wonderful design. The products offered are tested for quality and efficiency. Finishing is done with chemically tested and natural polishes for kids' furniture. The brand also offers customisation of products for better fulfilment of customer's expectations.

LittleBird India

A-13, A Block, Sector 8, Noida, Uttar Pradesh, 201301

www.littlebird.in



BUSINESS MODEL

Hybrid Model: Littlebird India makes use of both online and offline means to retail kids' furniture products through online e-commerce platforms (Littlebird.in, Pepperfry.com, Amazon.in, Flipkart.com) and its showroom located in Delhi-NCR.

MISSION

- To aim higher to establish a very decent global market
- To be a profitable ethical and market-driven company
- To consistently provide reliable products in all categories of modular furniture systems

VISION

- To establish as one of the top kids' furniture manufacturing companies in the country. To provide innovative and quality products to their customers meeting their expectations.
- To continue to bring in improvements in quality, productivity, value, and innovative product offerings.
- To be a dependable provider of high-quality kids' furniture.

COMPANY'S USP

- In-House Designing
- Production Capacity
- HighTech Production Unit
- Unique Product Line
- Large Sales Network
- Loyal Customers
- Large Sourcing Network

MACHINES USED IN MANUFACTURING PRODUCTS IN THE INDUSTRY

Panel Saw

The panel saw machines are made up of high-strength extruded aluminium alloy with a movable table and are used for wood cutting, MDF cutting, panel cutting and laminate cutting.



fig. 7

Edge Banding

It is used to cover the exposed sides of materials such as plywood, MDF, Wood, etc. in order to increase durability. Hot melt adhesive is applied on the narrow strip of the material for edge banding.



fig. 8

Air Blower

A blower is an equipment or a device which increases the velocity of air or gas when it is passed through equipped impellers. They are mainly used for the flow of air/ gas required for exhausting, aspirating, cooling, ventilating, conveying, etc.



fig. 9

Hydraulic Hot Press

The hydraulic hot press machine is used to press laminated or veneer onto MDF, plywood, etc. The machine is equipped with advanced hydraulic systems that ensure a high output with low input.



fig. 10

Power Coating Room

It is used for coating dry-powder over metals, MDF etc. to create a hard finish that is tougher than conventional paint. The powder used maybe a thermoplastic or thermoset polymer.



fig. 11

Lathe Machine

Perform Various operations such as cutting, sanding, knurling, drilling, deformation, facing, and turning, with tools that are applied to the workpiece to create an object with symmetry about that axis.



fig. 11

Grinding Machine

The grinding machine is a kind of tool which is used for grinding work pieces. Basically, it makes use of an abrasive wheel in the form of a cutting tool. The rough surface of the abrasive wheel shreds away small pieces of the workpiece as needed. The grinding machine is also called a grinder.



fig. 12

Jig Saw

Jig saw is a versatile and easy-to-use power tool that allows DIYers and professionals alike to make straight or intricate curved cuts for woodworking tasks.



fig. 13

Pipe Bending Machine

Pipe bending machine is a very useful machine in industries. This machine bends the pipe very smoothly and effectively. It is used in banding the element or parts of metal furniture.



fig. 14

Sheet - Bending Machine

Sheet-bending machines with a rotary bending beam are used for cold linear bending to produce parts of various shapes, as well as pipes on mandrels; to form flanges and closed contours, and for straightening sheet material.



fig. 15

Router Machine

A router is a hand tool or power tool that routes (hollows out) an area in hard material, such as wood or plastic. Routers are mainly used in woodworking, especially cabinetry. Usually they are handheld or fastened with the cutting end up, in router tables.



fig. 16

Multi Boring Machine

It is used to make the holes for mini fixes, dowels and for hinges. The multi-boring machine is a very user-friendly and totally maintenance-free machine. With this machine, we can make various types of knock-down (Assemble and Disassemble) furniture & cabinets.

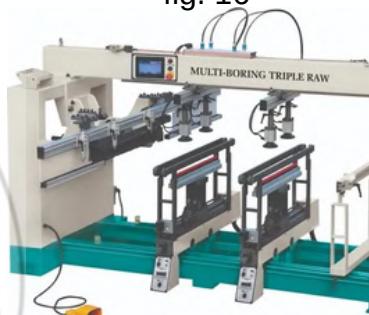


fig. 17

Metal Cut-Off Saw

The metal cut-off saw is the go-to power tool for cutting hard materials, specifically metals. Unlike a mitre saw, the cutting is performed by a thin abrasive disc that is similar to a grinding wheel.



fig. 18

Wood Moulder Machine

A wood moulder is a machine used to shape wood with profiled cutters. The profiled cutters are also known as knives and blades. Tooling refers to cutters, knives, and blades including planer blades, and cutter heads.



fig. 19

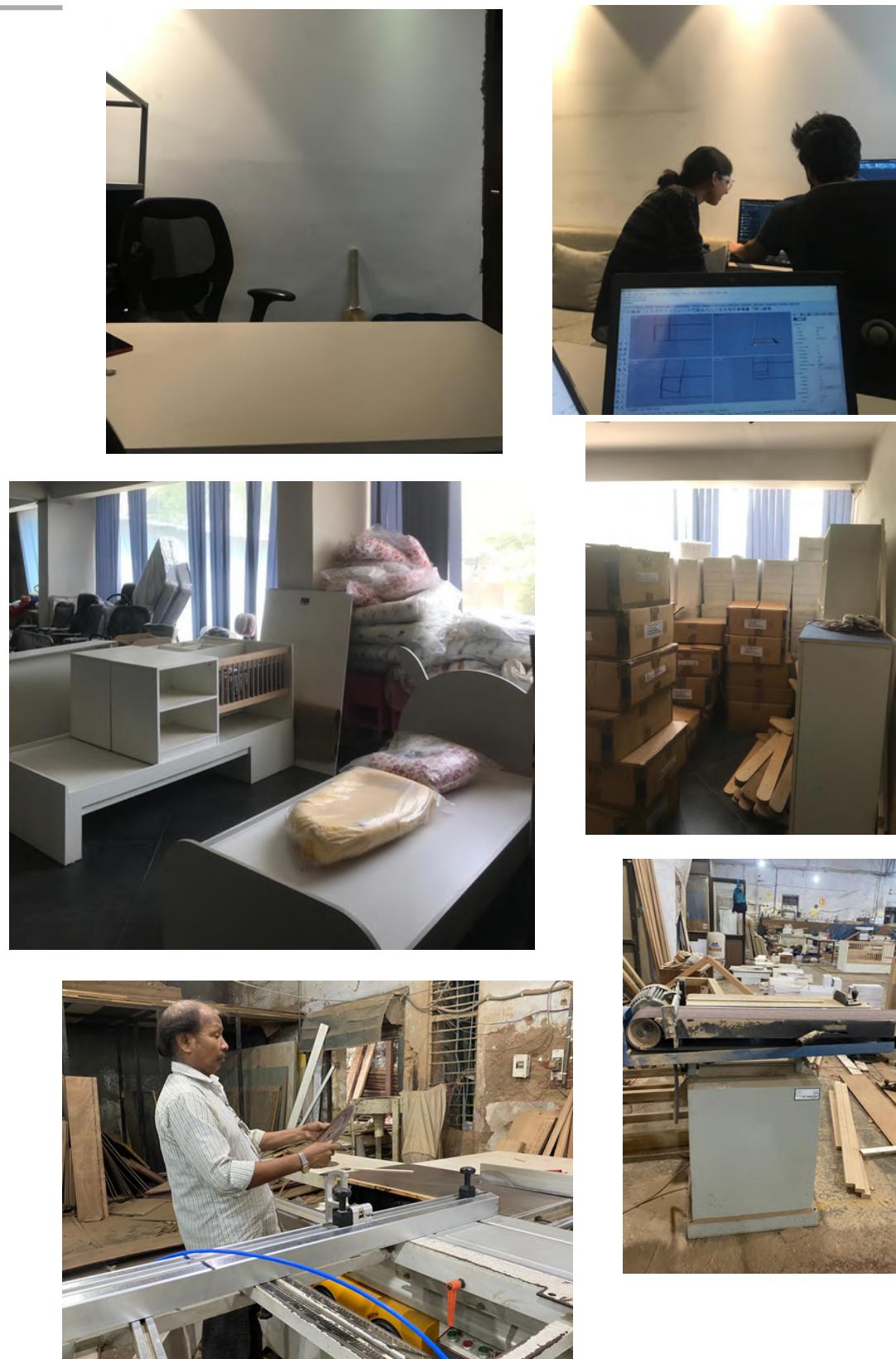
WORK ENVIRONMENT IN THE INDUSTRY

A healthy and comfortable working environment has been created for the employees of this company. This is made possible by having provision for infrastructure like coolers in all the required places for the employees, availability of drinking water, toilets, proper lighting system, open space, gardens, in between lunch break for 45 minutes to 1 hour and two times tea is been provided to each and every employee in the industry. Because of such small efforts only the working of the employees improves by motivating them to do better, as they deserve better.

Design Methodology Of Furnitures:

- Research on market trends
- Opportunity Mapping
- Sketching
- Raw material sourcing
- Hardware sourcing
- CAD drawing
- 3D modelling and rendering
- Prototyping
- Sampling
- Quality testing
- Mass production

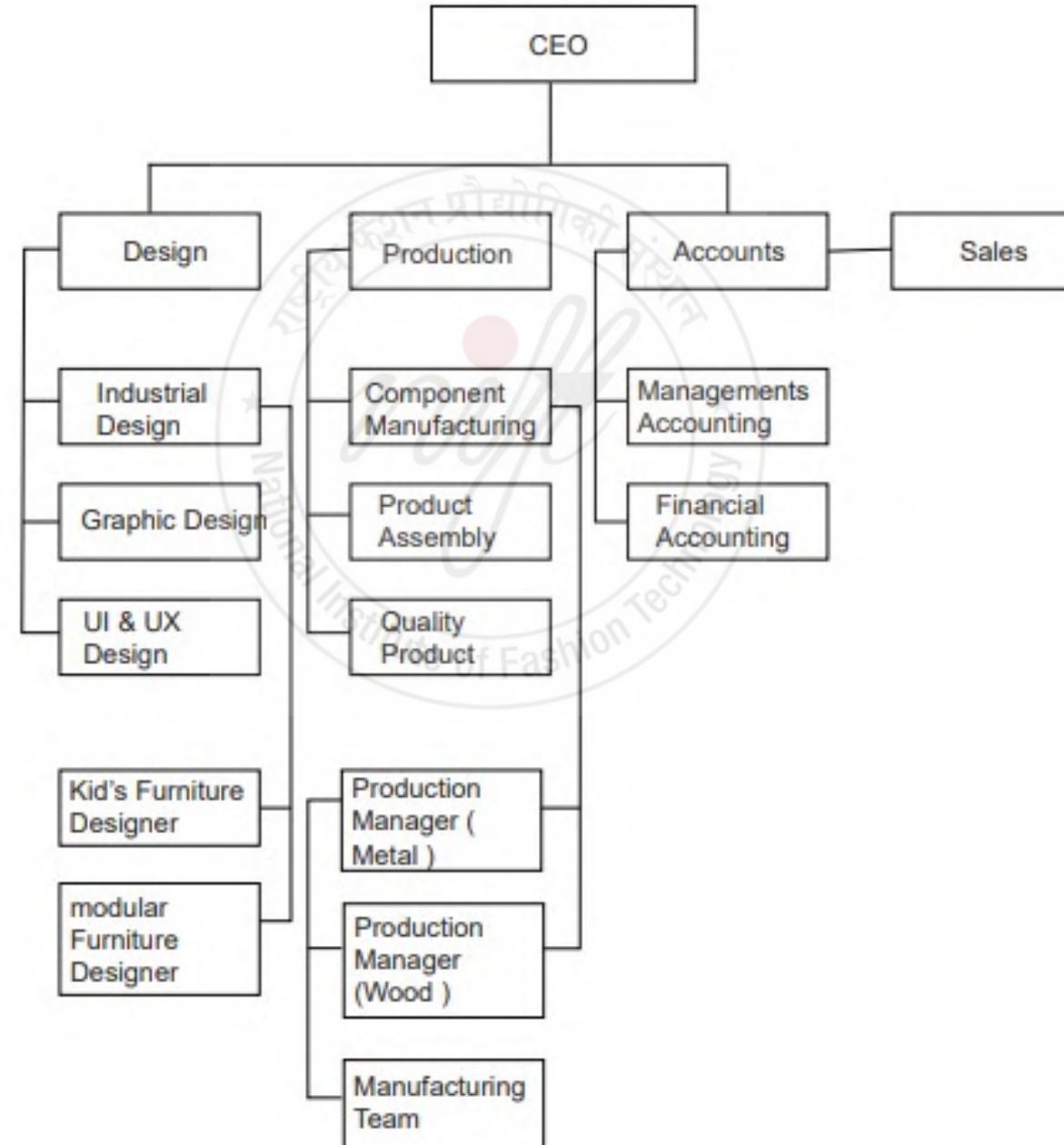
WORK DESK, AND FACTORY



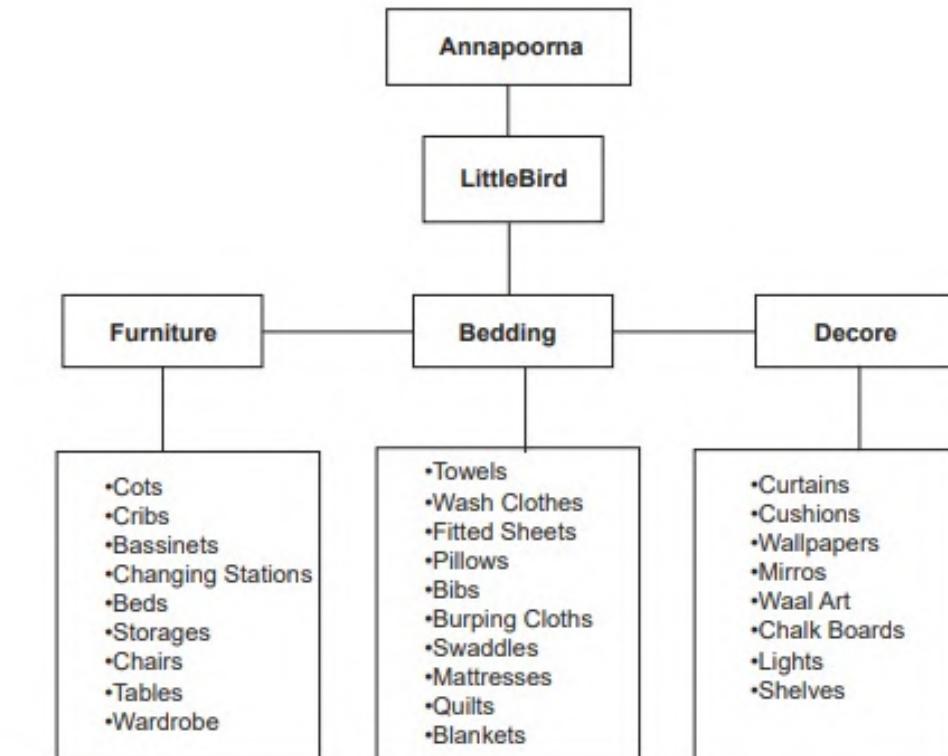
LITTLEBIRD'S FACTORY AND MACHINES



ORGANISATIONAL HIERARCHY



DIVERSIFICATION OF PRODUCTS



Product Features

- Contemporary Design & Colours
- Heavy Gauge Powder Coating
- Anti Bacterial Laminating
- Low Emission / Low VOC Paints
- Food Grade Polish
- Long Lasting Hardwares (Mild Steel)



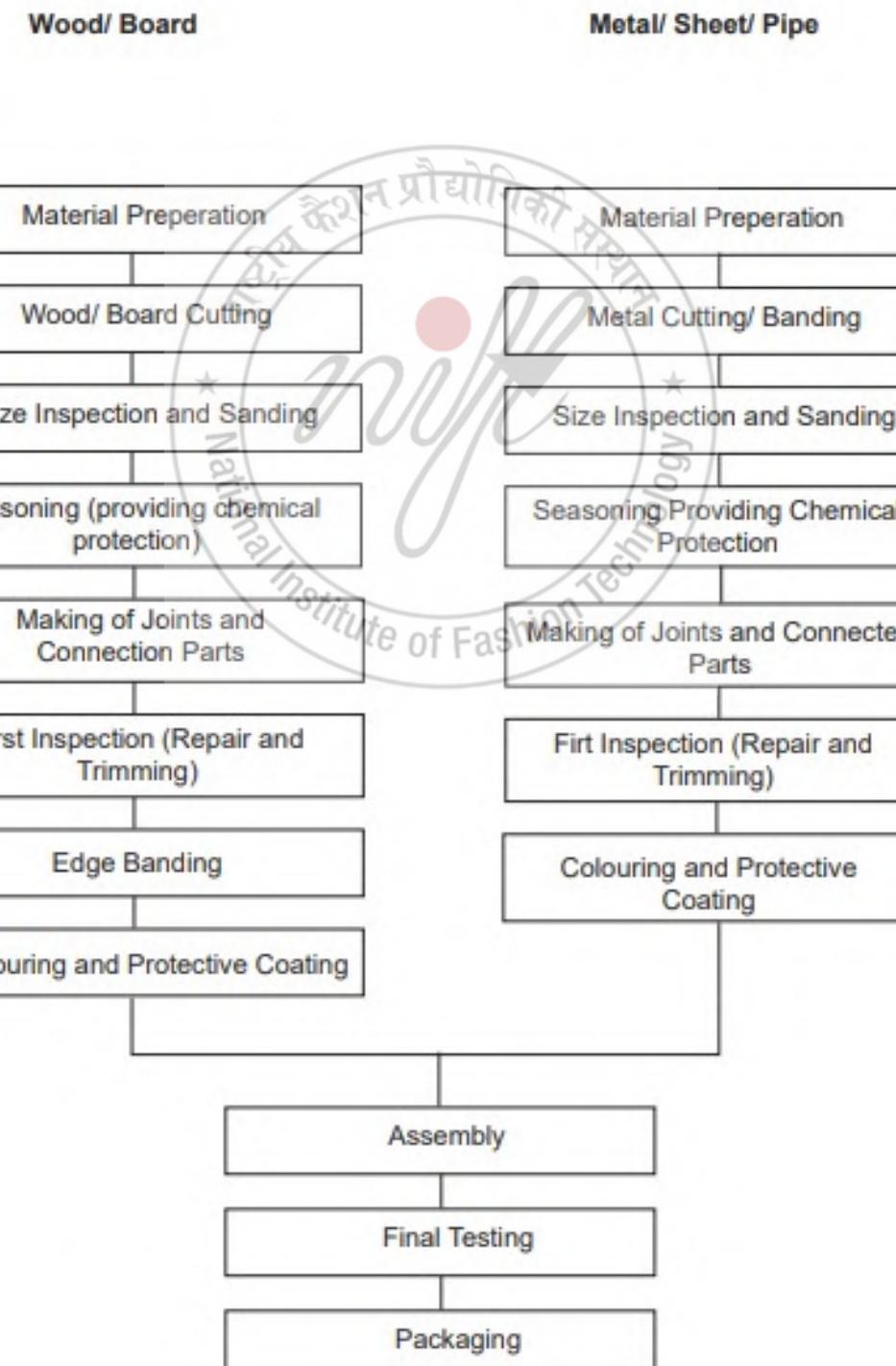
fig. 20

MATERIAL USED IN THE INDUSTRY

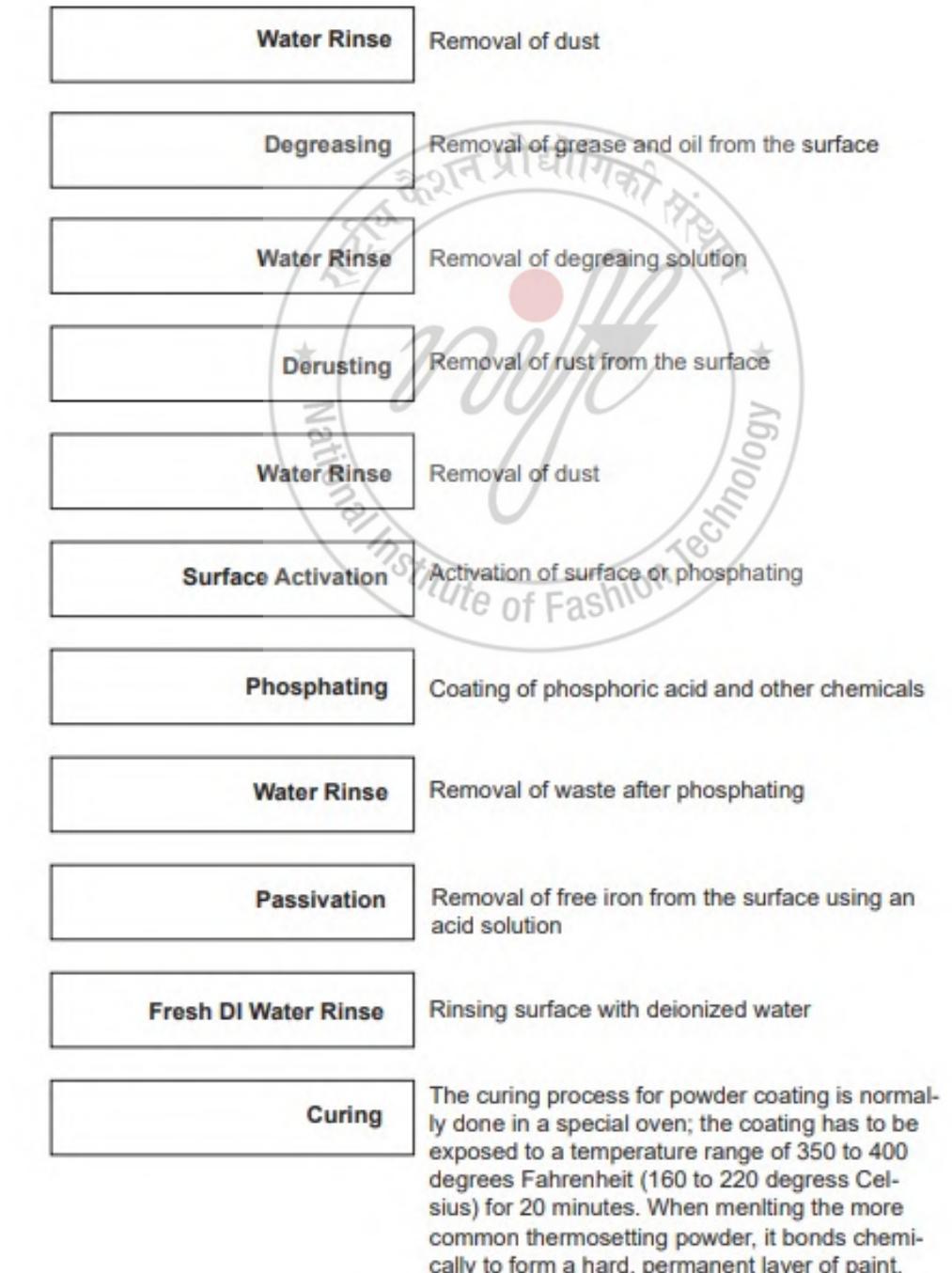
Material	Supplier
MDF Board	Action Tesa, Greenlam
Particle Board	Action Tesa
Plywood	Century Ply, Action Tesa
Acrylic Sheet	Action Tesa
Laminated Plywood	Action Tesa
Birch Ply	Century Ply, Mika, Action Tesa
Hand Wood (Teak)	Action Tesa
Steam Beach	Action Tesa
Laminate	Action Tesa, Marino, Green Lam, Century, Mika
Paint	Asian Paint
Power Coating	Rapid Coat, Haryana
Polish Wood	Local Supplier
Furniture Fittings	Epcos, Hettich, Hafele
Electrical Equipments	Hafele
Perforated Sheet	Jindal
Metal Sheet	Jindal

Material	Supplier
Pipe (Rounded)	Jindal
Pipe (Angle)	Jindal
Stainless Steel Sheet	Jindal
Deco Coat	Rapid Coat
Synthetic Foam	Local Supplier
Foam	Local Supplier
Fabric	Response, Taneja
Leather	Local Supplier
Rexine	Saint Gobain
Edge Banding	Rehau
Adhesive	Fevicol
Glass	Saint-Gobain
Aluminium partition	Local Supplier

MANUFACTURING PROCESS OF FURNITURES



MANUFACTURING PROCESS OF FURNITURES



MARKET STUDY; COMPETING BRANDS



Kids Furniture World
You Dream it, We Make it!



Kids Furniture World is a perfect place for designer ready-made and custom furniture made particularly to suit the modern kids. It offers the most energizing, slick, and safe furniture uniquely crafted from high and low-density fiber, pinewood, rubberwood, commercial plywood, etc. With curved corners and scratchless top coating, rest assured of any sort of injuries from their articles.



Spaces by Sonam



Spaces by Sonam is a one-stop-shop where you'll discover all that to add more shades and life to your kid's room. Be it tables, beds, closets, study tables, and chairs, get all these here at true prices. They additionally offer customization to turn your kid's imagination into reality. They utilize top-notch, termite resistant wood for all furnishings and give them a touch of matte finish for that eye-popping sparkling touch.



Boeing! Boeing! Boeing!

Boingg!, a Gurgaon-based startup, is well-known for its unique range of study tables, nursery fittings, tables, beds, etc. Through this startup, the founders' key goal is to help parents give their kids a livable space with elegant, colorful, and comfortable furnishings.



firstcry
.com
big store for little ones

FirstCry is an Indian e-commerce company, headquartered in Pune. The company, launched in 2010, initially focused on baby products retailing. In January 2020, the company had over 380 stores across India. FirstCrys opened its first outlet in Srinagar in May 2019. It is into its series E round of financing.



Alex Daisy is #1 furniture brand for kids offering the largest selection of high-quality furniture for kids' room. We offer a wide variety in bedroom furniture such as beds, bunk beds, study tables, chairs, bedside tables, wardrobes and much more. Our designs are colourful, lively and timeless so that kids enjoy their stay in the room. Colourful appearance and functional aspect make our range one of the most sought-after in kids' furniture.



Magical Nest has now become a household name when it comes to lightweight, durable, and prudent kid's furniture brand. If you're looking for a classy yet elegant look for your kid's room, Magical Nest can have that sorted through its exclusive collection comprising a wide spectrum of beds, study tables, wooden wall climbers, etc.

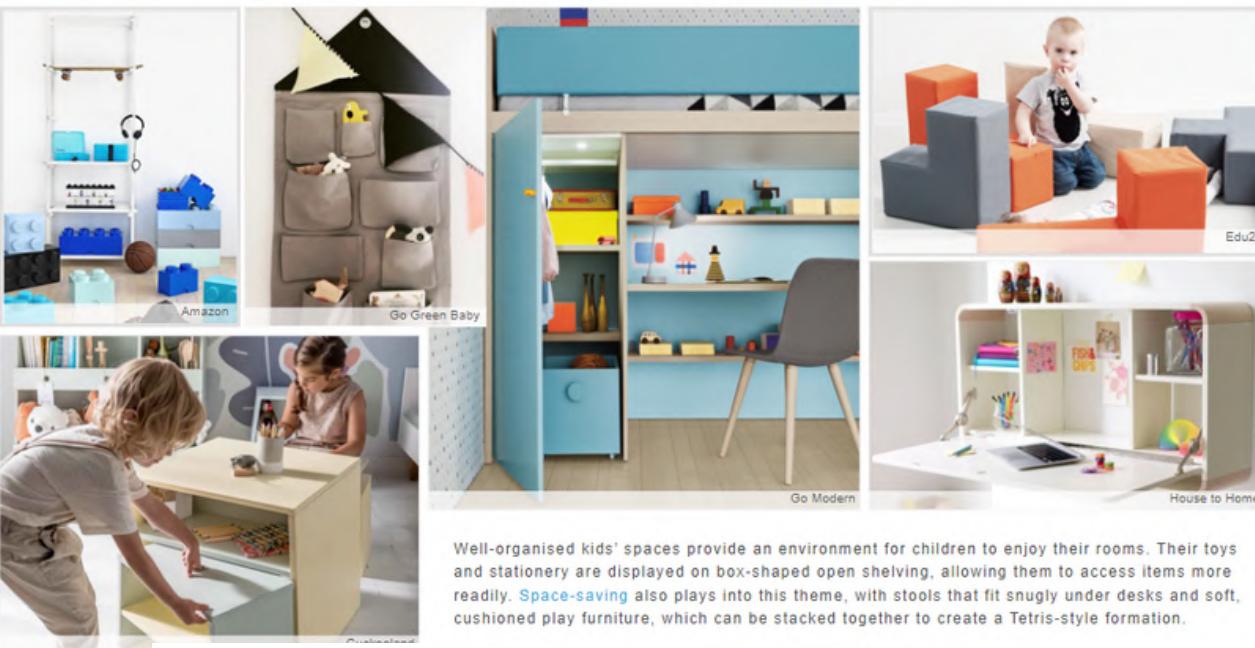
TREND STUDY FOR KID'S SPACE

Overview



- Consumers are keen to design bedrooms for their children that they won't outgrow. This is leading to an emergence of spaces which can span an entire childhood
- Foundation furniture that will stand the test of time is important for children's bedrooms, and materials are thoughtfully considered when designing products. Currently, plywood, Perspex and industrial textures are enjoying the spotlight
- Simple storage items such as belly baskets and wooden stools add an inexpensive, characterful touch to rooms and can be replaced easily if decor is updated
- Children's bedrooms are a hive of activity, being a place to play as well as sleep. Space-saving products are growing in importance, as consumers look for furniture that can be stored away neatly when not in use
- Easy-access furniture is trending, allowing children to get their hands on their belongings much more independently

Modular Organisation



Well-organised kids' spaces provide an environment for children to enjoy their rooms. Their toys and stationery are displayed on box-shaped open shelving, allowing them to access items more readily. Space-saving also plays into this theme, with stools that fit snugly under desks and soft, cushioned play furniture, which can be stacked together to create a Tetris-style formation.

Montessori Minimalist



Dipped Effect



Safari Escape



Industrial Influence



Inspiring Play



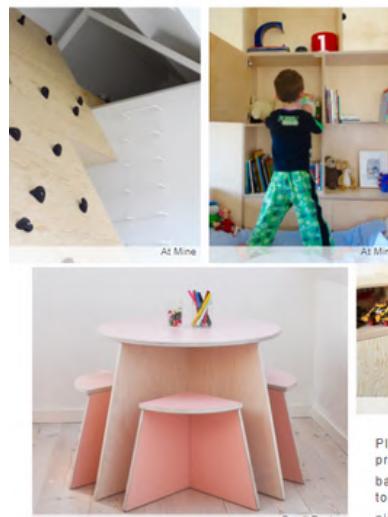
Vintage Boho



Kidult Spaces



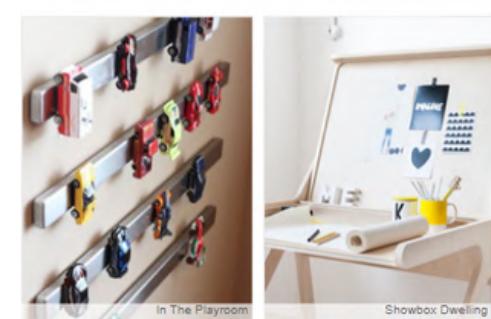
Plywood Products



Soft Curves



Gallery Display

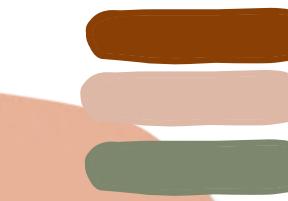


See-Through

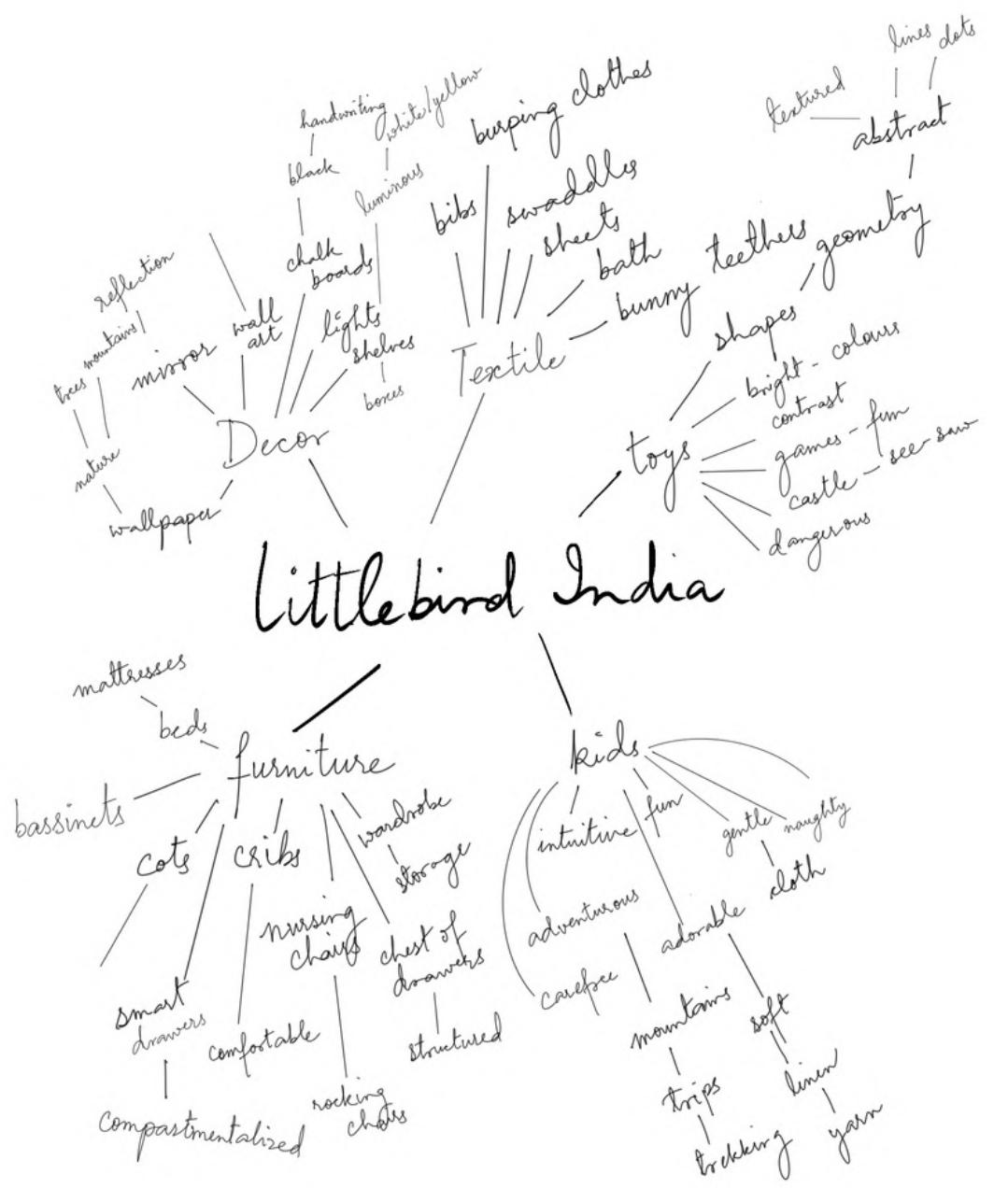




INDUSTRY PROJECTS

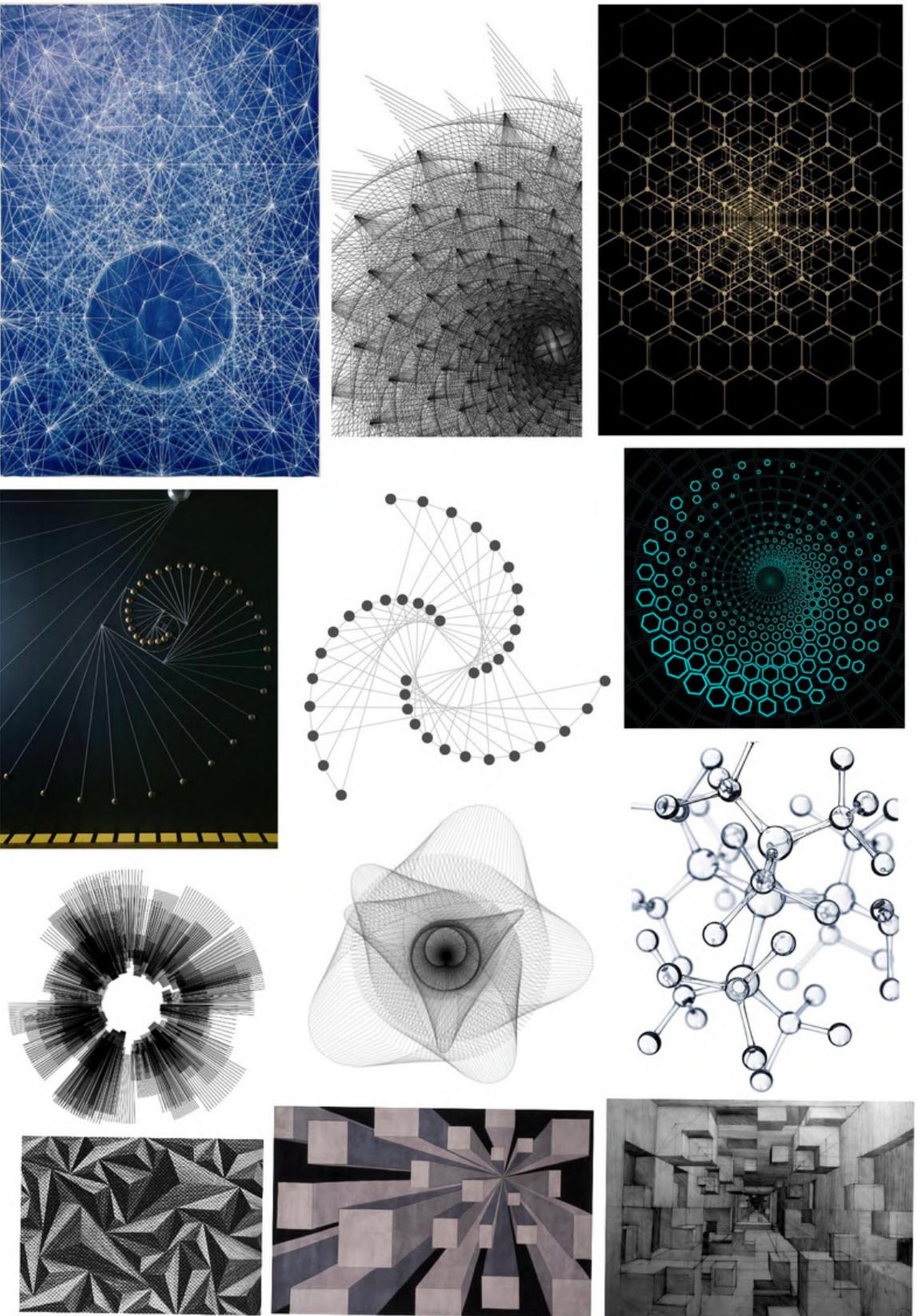


BRAINSTORM

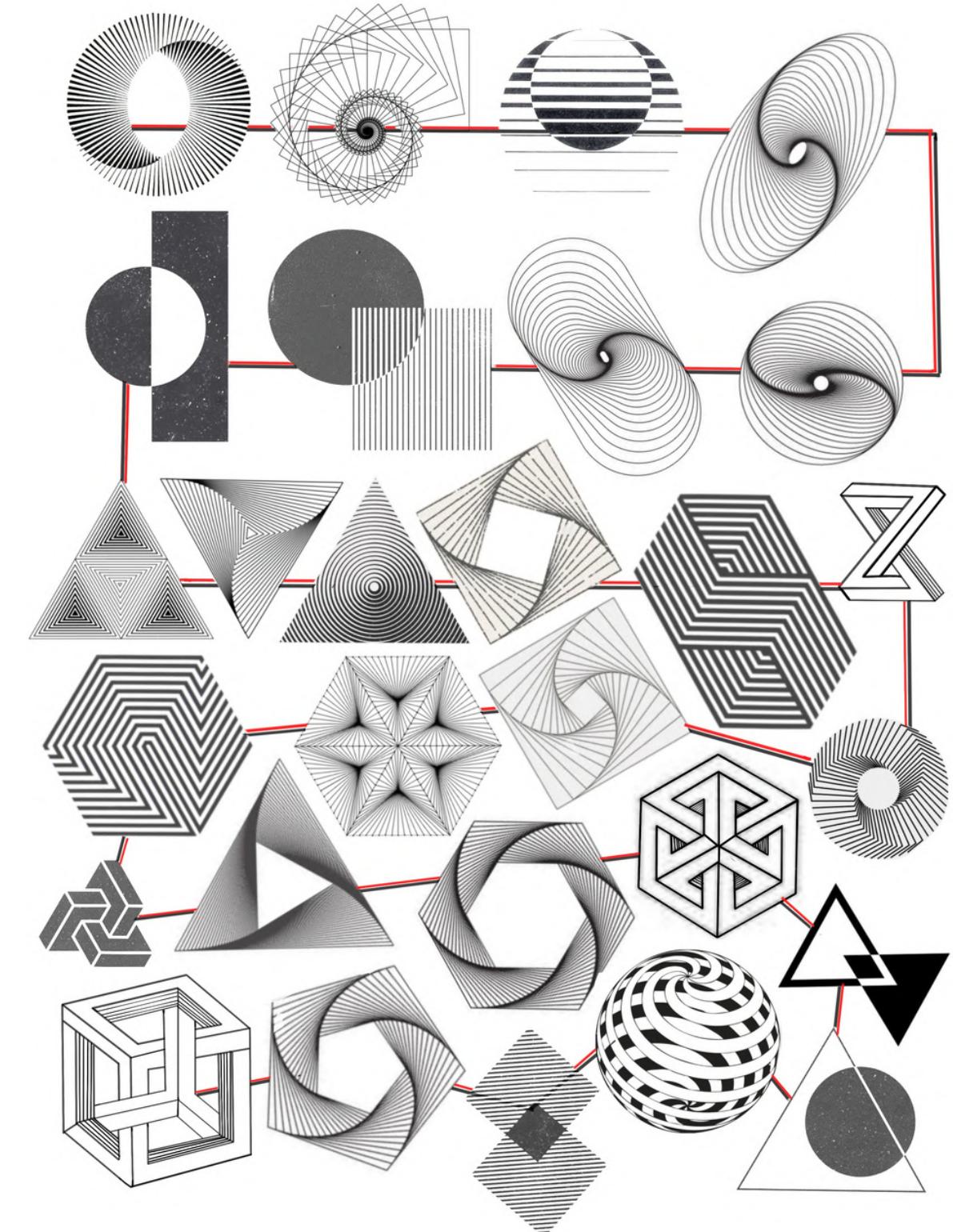


THEME BOARD: ABSTRACT GEOMETRY
INSPIRATION BOARD: GEOMETRY

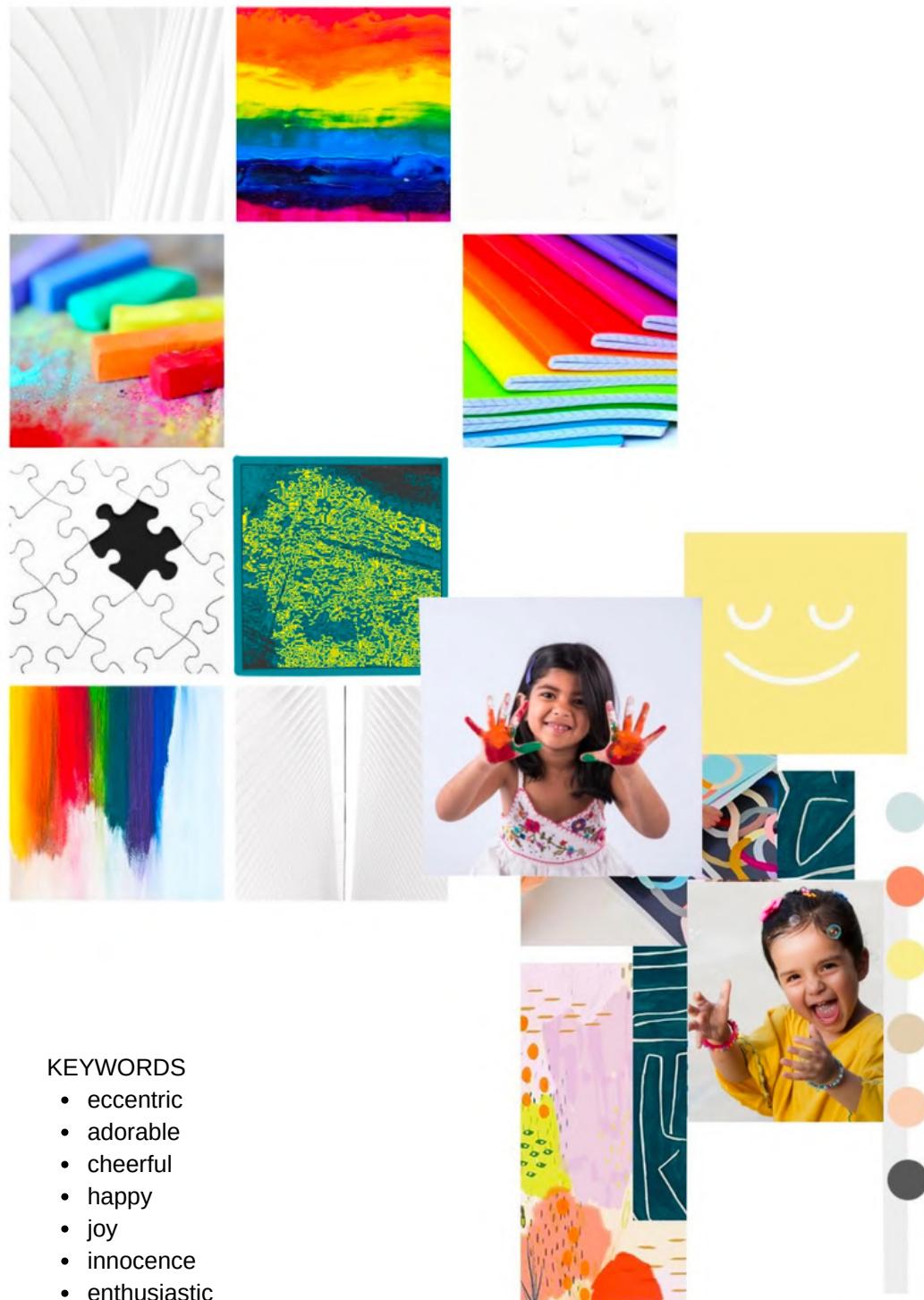
THEME BOARD



INSPIRATION BOARD



MOOD BOARD



CLIENT BOARD



FORMS



Industry Brief -1

To design a home gym for kids of 3-6 years of age that is geometrical in its look, and yet can go in contemporary settings. It should be a tiny playground that can be incorporated in their rooms with accessories.

Kid's Gym Set

A wooden game complex for children that can be twisted in any direction to change the game. An in-house any-time playground with accessories like stairs, monkey-bars, rock climbing wall and more for kid's to play while seeking their comfort and safety at home.

IDEATIONS

1.

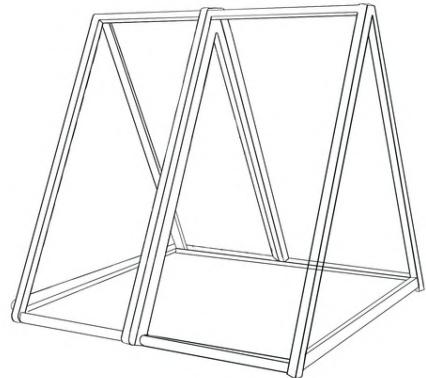


fig. 22

2.

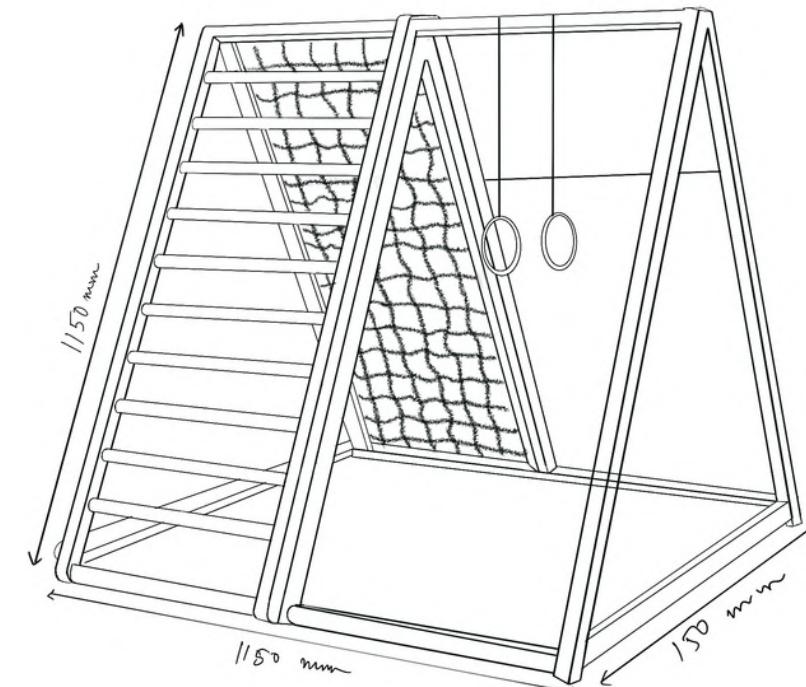


fig. 23

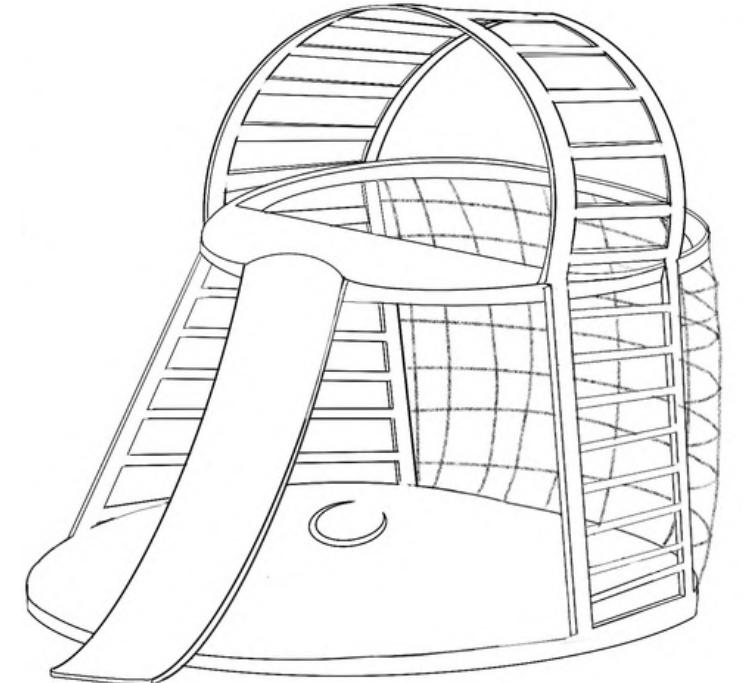


fig. 24

3.

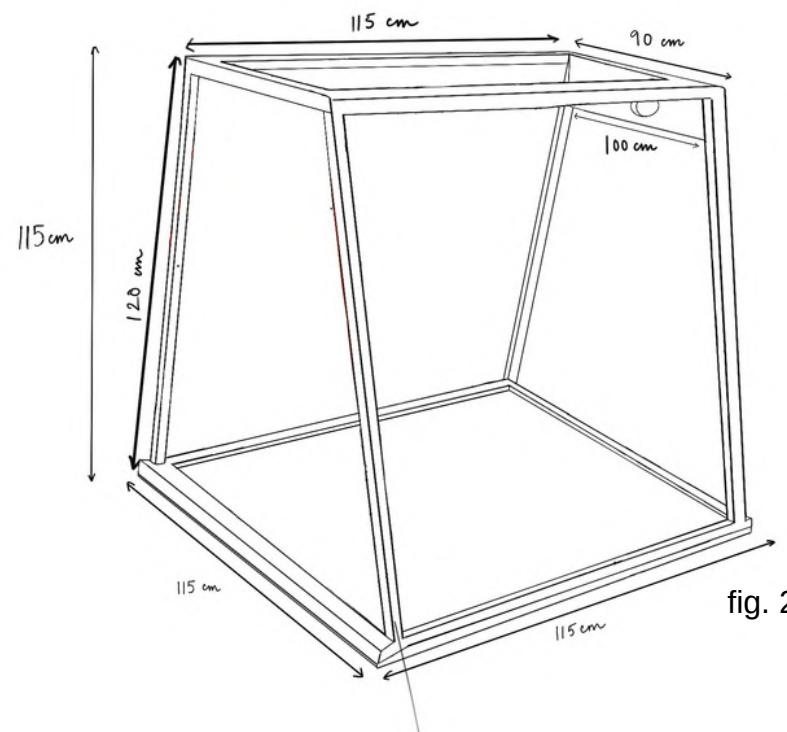
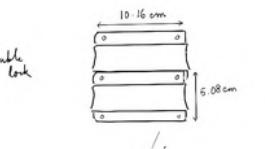


fig. 25



fig. 26

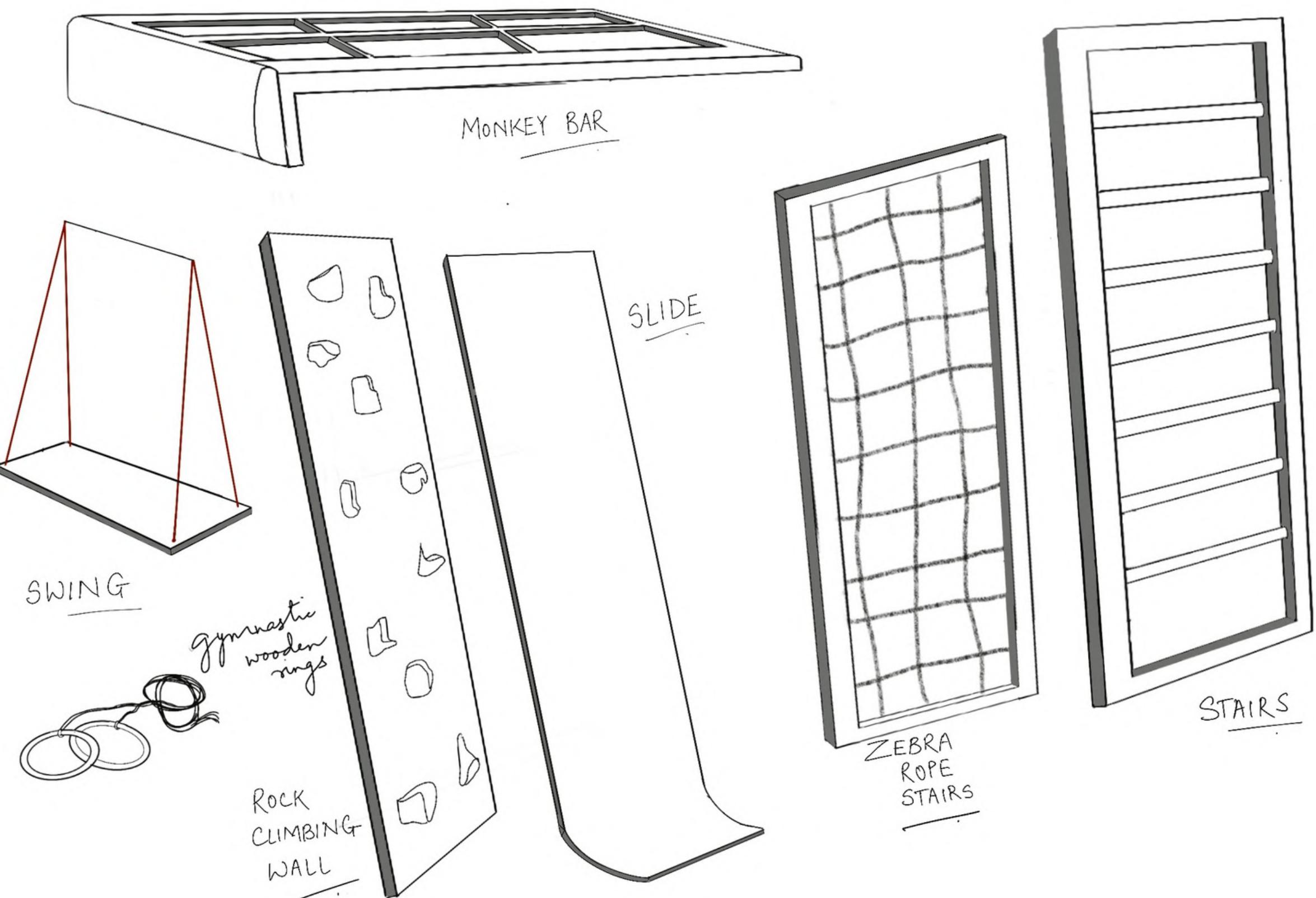


Basic
frame

age : 1.5 yrs - 4/5 yrs.



ADDED ACCESSORIES



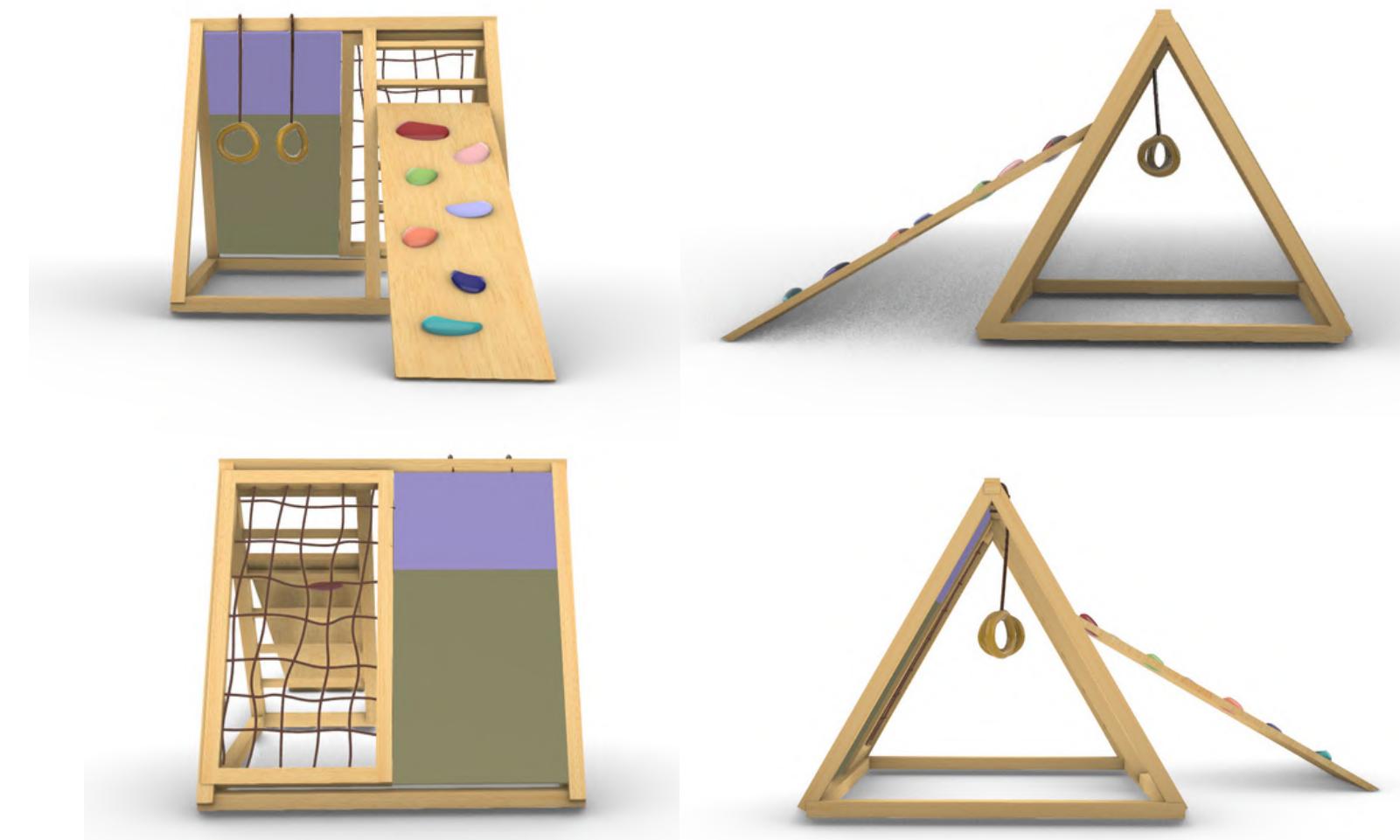
3D TRAPEZIUM GYM RENDER



Base dimensions: 115x115 cm. Design: 1) base; 2) side with a vertical ladder and a large window; 3) hand-mesh; 4) side with stairs with long rungs; 5) 2 trapezoidal faces

Equipment: frame, rope mesh, mat. For indoor use. Material: wood (birch) lacquered, cotton. Each facet in this product opens up new design possibilities.

3D TRIANGULAR GYM RENDER

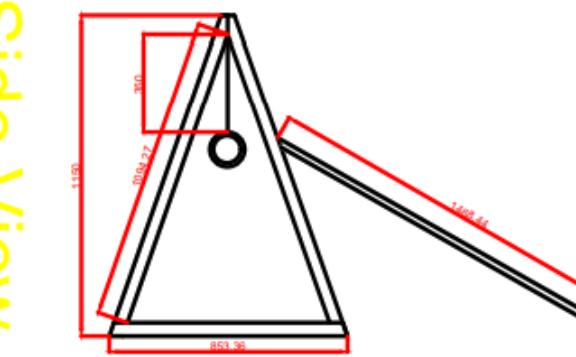


- This is great for practicing with hanging accessories.
- Attach the rings or a rope ladder and the complex will be used to the fullest.
- The net, located opposite the side with the stairs, allows the child to climb it, climb over the top rung and go down the stairs.
- Ladder - the way up, to the very top of the playing corner. The mesh handle allows you to climb up and sit there, as if in a nest or a hammock.
- The side with long crossbars is like strips of a stave. It remains only to arrange the notes - and climb up!

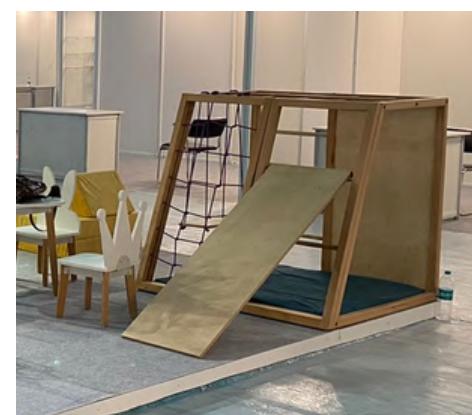
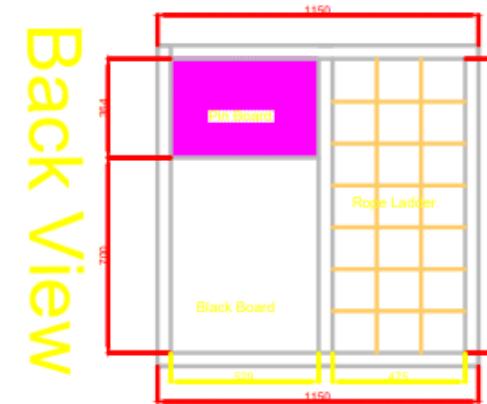
TECHNICAL DRAWING

- TRIANGULAR GYM

Side View



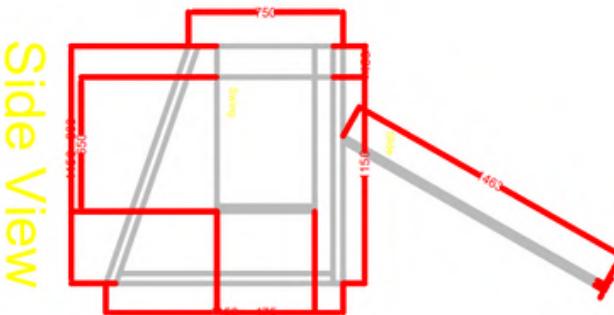
Back View



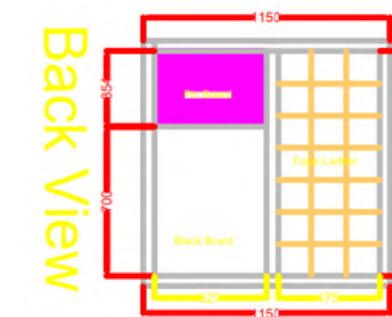
- UNDER MANUFACTURING PROCESS

- TRAPESIUM GYM

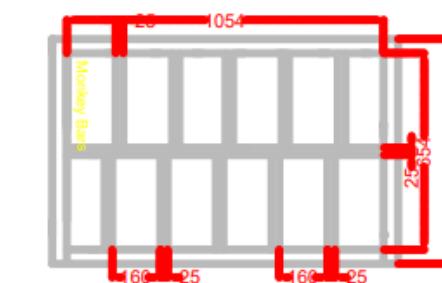
Side View



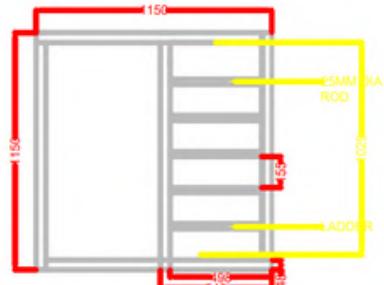
Back View



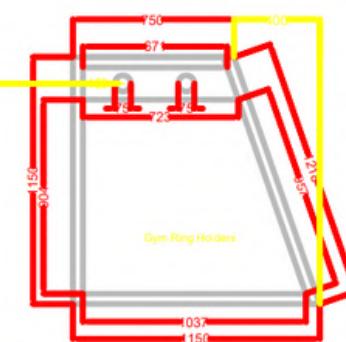
Top View



Front View



Side View



KIDS GYM
1150X1150X1150HT.

Industry Brief -2

To design a Learning Tower for kids of age 2-6 years that is geometrical in its look for child's ease of use and development. It should be a tiny playground that can be incorporated in their rooms with accessories.

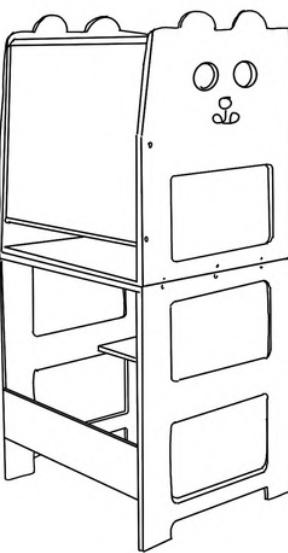
Learning Towers

Learning towers are wonderful for kids around 2 years to 6 years of age. Depending on size and the child's development, many parents start using Montessori toddler towers around 18 months with more close supervision.

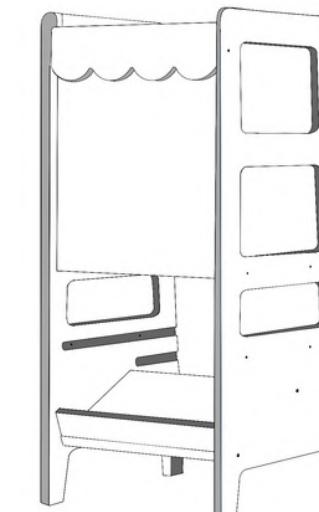
The learning tower helps your child to stand in a safe environment from the early moments when they are able to stand independently. It is stable and safe. Because your child is now able to reach the kitchen work surface, they will be eager to help you while you cook.

IDEATIONS

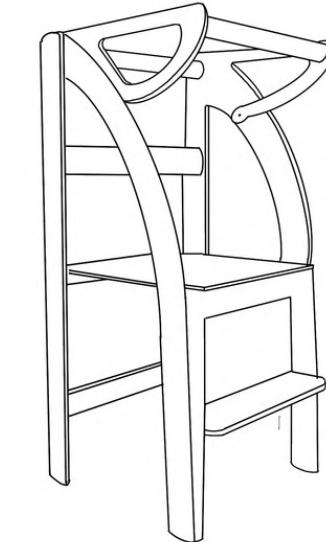
1.



2.



3.

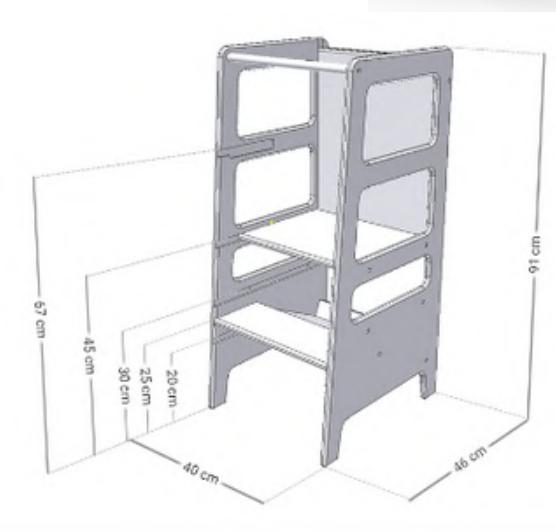


Product type:	Learning Tower
The age of the child:	1-3 years
Shapes:	Shop
Colours:	White, Transparent oil
Product model:	Learning tower SHOP
Material:	beech log and plywood birch board
Dimension:	45.5 cm width x 90.8 cm height x 40 cm depth
Varnishing:	100% natural, anti-allergenic and ecological paints
Applicable:	for children who stand alone, from 18 months
Multifunctional use:	adaptable learning tower, drawing board, sales booth
Two levels of standing:	step at a height of 30 cm or 45 cm

3D RENDER



TECHNICAL DRAWING

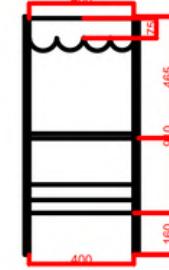


MEASUREMENT

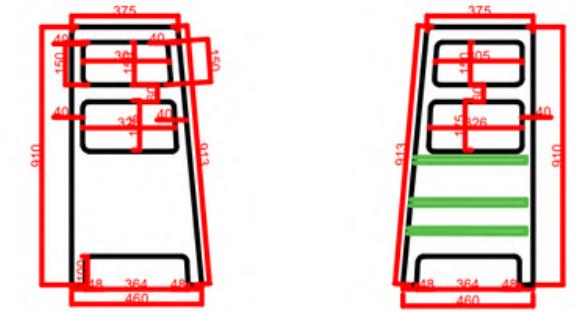
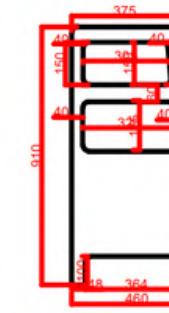
MANUFACTURING PICTURES



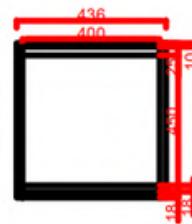
Front View



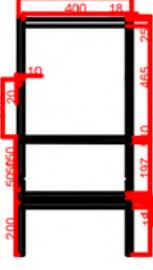
Side View



Top Vi



Back View



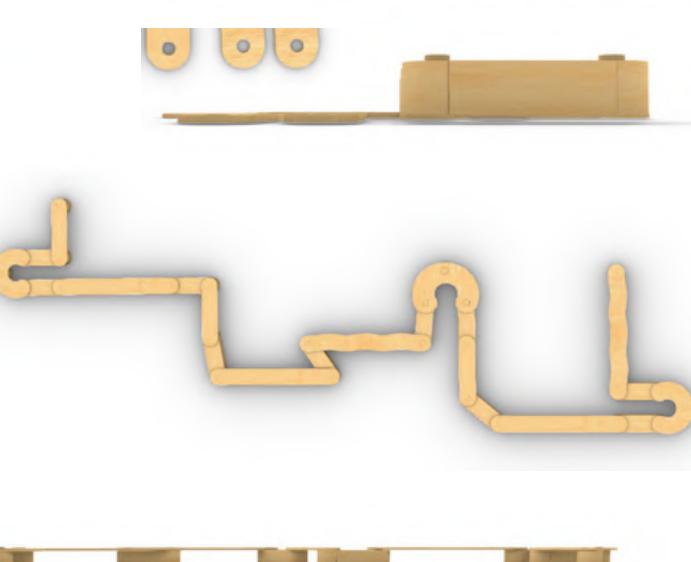
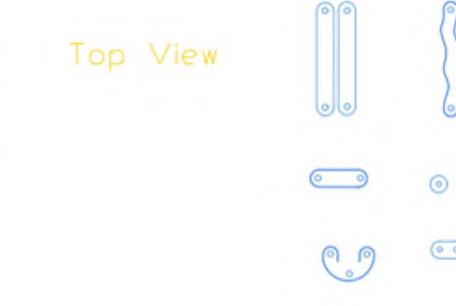
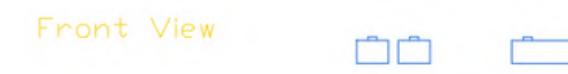
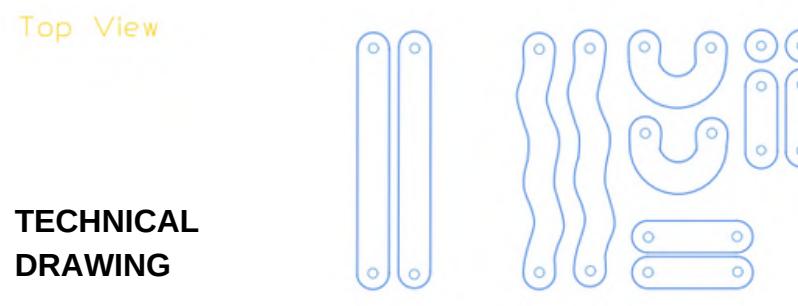
Industry Brief - 3

To design a Balance Beam for kids of age 3-6 years that is geometrical in its look, and easy to use and balance body weight with curved edges for safety. The path/ form is for imagination and creativity of the kid plus this is to be incorporated in a room.

Balance Beam

Balance beam is a fun and creative balance training track for kids. Designed to encourage children's creativity while supporting the development of their gross motor and balancing skills.

In addition to being an ideal product for developing motor skills and creativity balance beam is also great for children to learn social skills and how to play together with others when building tracks with friends.



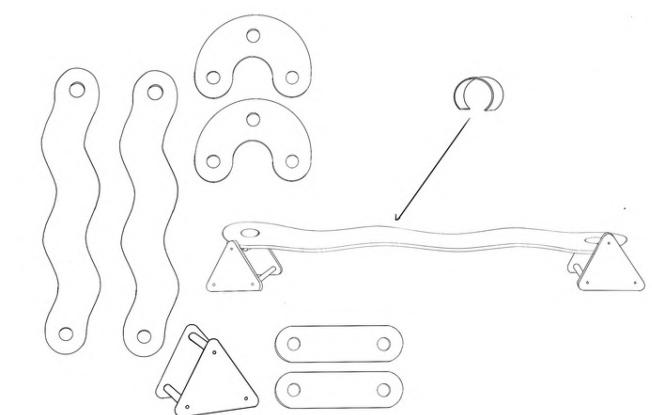
Industry Brief - 4

To design a See-Saw/ Balance Beam for kids of age 3-6 years that is geometrical in its look, and easy to use and balance body weight with curved edges for safety. The path/ form is for imagination and creativity of the kid plus this is to be incorporated in a room.

See- Saw/ Balance Beam

As soon as you put weight on one end by sitting on one side of the beam it drops to the ground. This is because the force of gravity is acting on the weight of your body, pulling it and the beam down. Balance beam is a fun and creative balance training track for kids. Designed to encourage children's creativity while supporting the development of their gross motor and balancing skills.

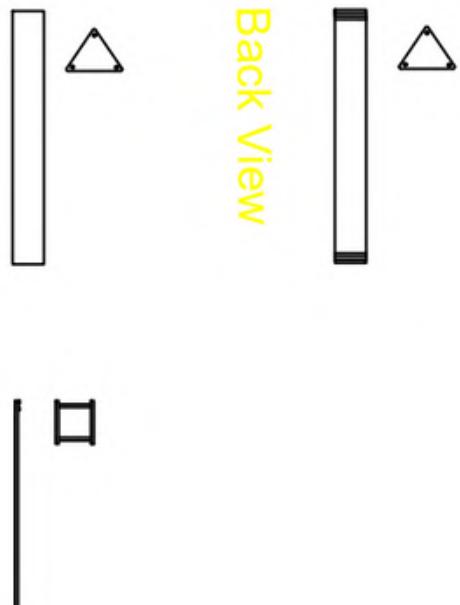
IDEATION



3D RENDER



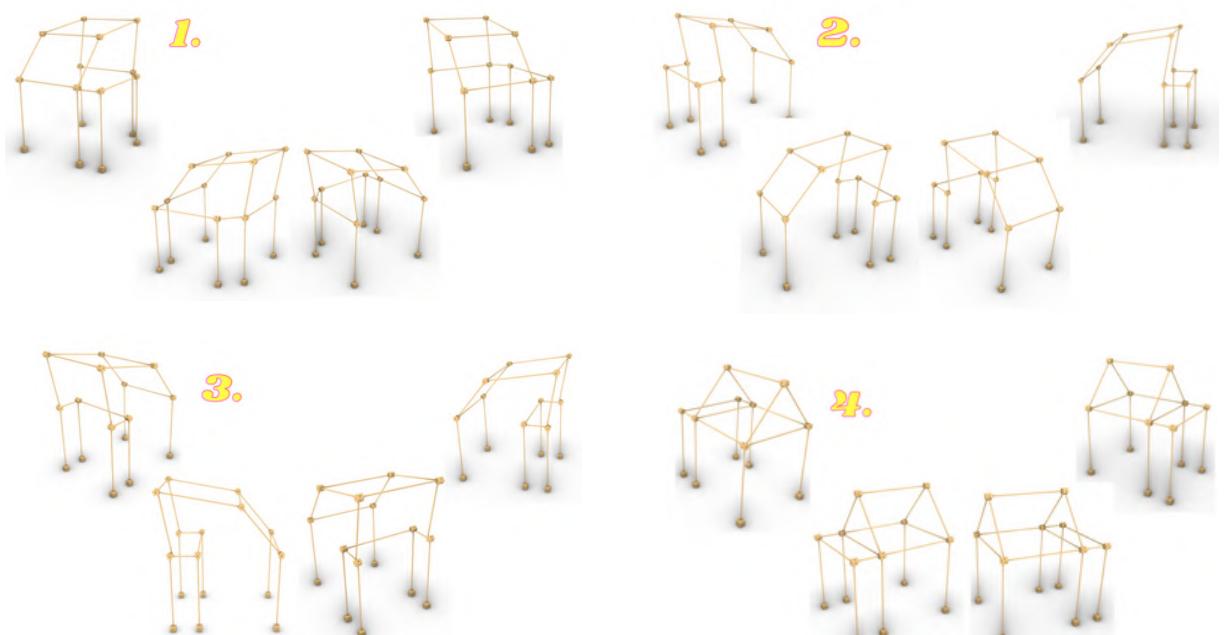
TECHNICAL DRAWING



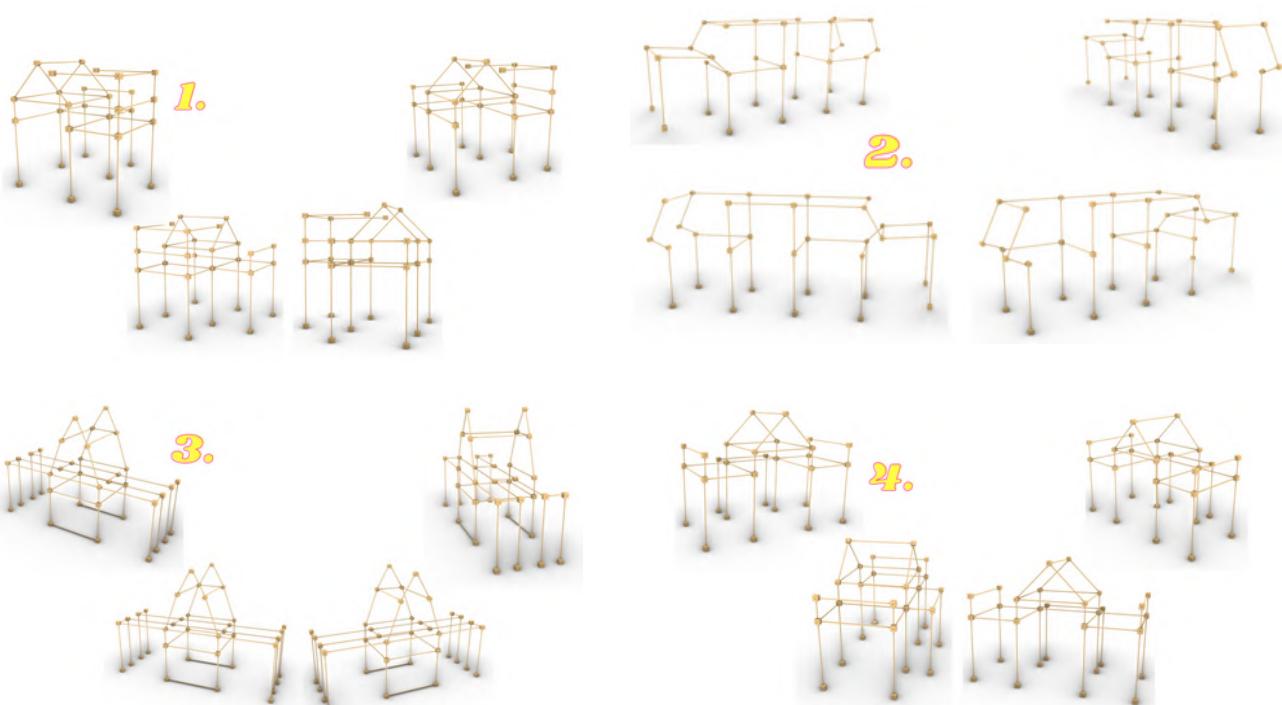
Industry Brief - 5

To design sets of sticks and joineries making them like huts, temples and castles or anything the customer fancies for kids of age 3-6 years that is geometrical , and easy to use. The configuration could also be up for imagination and creativity of the kid plus this is to be incorporated in a room. A few set configurations are rendered below.

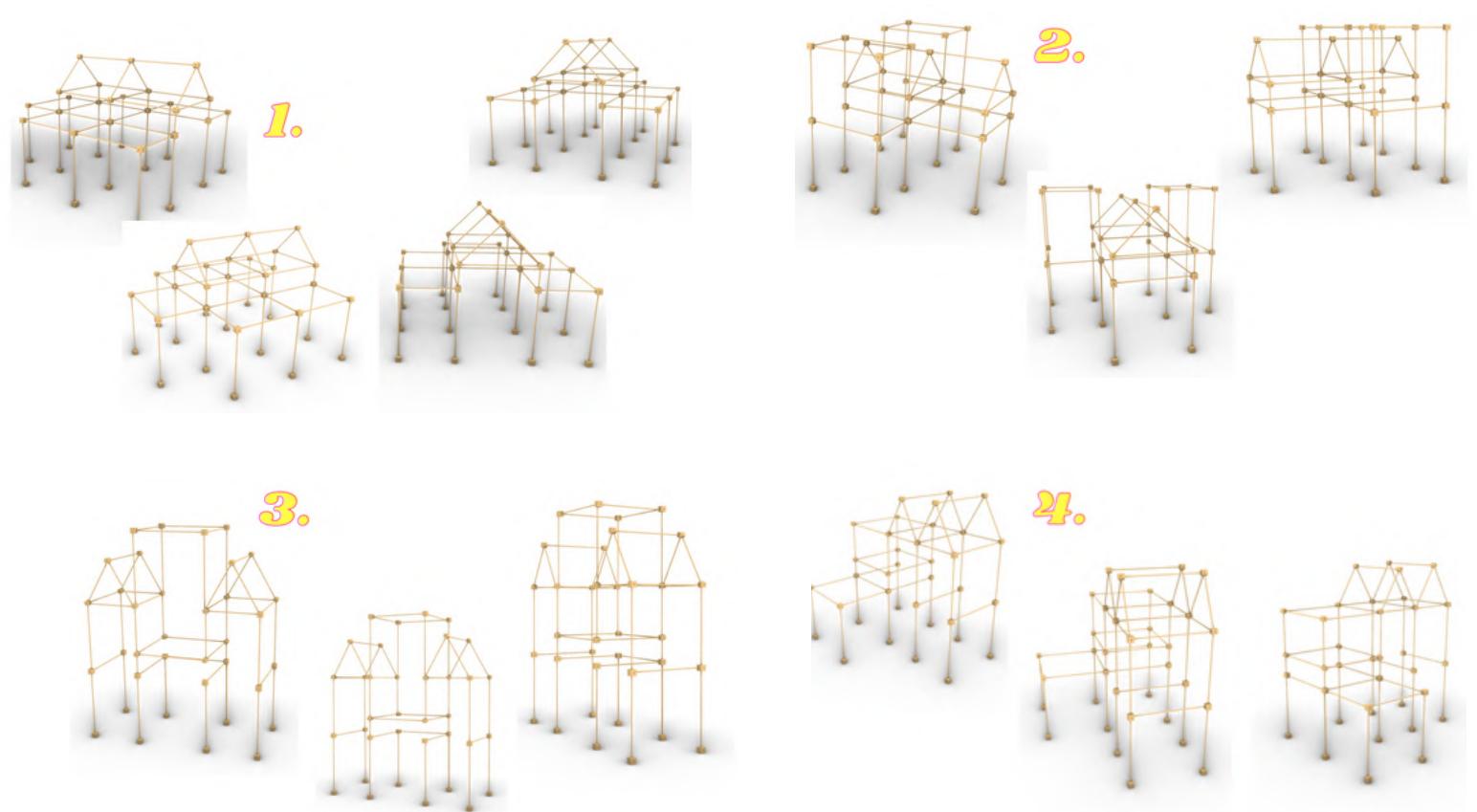
SMALL SET



MEDIUM SET



LARGE SET



- A FEW GIVEN CONFIGURATION AND ITS PART NUMBERS

	S	M	L
80cm	12	24	35
60 cm	4	8	12
40cm	0	4	2
20 cm	2	4	6
Hexagon	2	6	8
Pentagon	8	10	12
Cube	6	25	28

CONCLUSION

In the duration of 2 months I have experienced a completely new journey of experience in the real industry setup. The best learning that I took from working in the industry is time and work management. I was also blown away by the different possibilities to approach the same problem differently and solve them.

The urgent need of designs in the industry does not allow for a detailed lengthy design process. It is essential for the designer to understand the brief in depth so as to understand the need of the client.

This deep understanding allows us to cut short the process into the few necessary steps including inspiration, ideation, modeling, understanding the manufacturing and production details. Repetitive and continuous hardwork made me a better worker and gave me the opportunity to serve the company in-line.

However, working under pressure also made me realise the importance of working on scheduled time. Repetitively evolving designs made me a better design intern in the eyes of the firm, of which i carry pride in my eyes and heart.

The industry guide pushed me to do better and made me jump out of my comfort zone and work in all kinds of jobs as a design student giving me the learning that a design is not just to be put on paper but also to manufacture and sell/ market, and we as emerging designers we should be able to carry the whole process, if need be.

Overall, I gained a experience and learnings of the working of industry and its expectations from us as aspiring designers as we enter into the professional world post graduation.

At last, it was a very integral and vital experience of a small leap towards me becoming a better learner, more adapting and a growing designer.

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