

REPORT

TOYS DESIGNED TO NARRATE JATAKA PARABLES
INSPIRED FROM TURNED WOOD CHANNAPATNA

TOYS

INDUSTRIAL DESIGN PROJECT |||

MDP 452

AKANKSHA RATHORE

146130007

GUIDE: PROF R. SANDESH



INDUSTRIAL DESIGN CENTRE

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

2016

DECLARATION

The work done as a part of the written submission under this report "*Toy design* " is done as project three for post graduate program in *Industrial Design Centre, IIT Bombay*, India under the guidance of *prof. R Sandesh*

I hereby declare all the content of this project is an original work with appropriate reference information or links provided wherever due.

Any violation of the above will be cause for disciplinary action by the institute.

Akanksha Rathore .

146130007

Industrial Design Centre


Indian Institute Of Technology ,Bombay

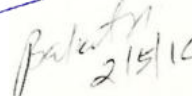
APPROVAL SHEET


This project titled "*TOYS DESIGNED TO NARRATE JATAKA PARABLES INSPIRED FROM TURNED WOOD CHANNAPATNA TOYS*"

is prepared and submitted by *Akanksha Rathore* in partial fulfilment of the requirement for the degree of '*Masters in Design*' in *Industrial Design*. It has been examined and is recommend for approval and acceptance

Guide:  22/07/2016

Chairman: 

Internal Examiner:  21/5/16

External Examiner 

ACKNOWLEDGEMENT

My sincere thanks to my guide Prof. *R.Sandesh* for teaching us work ethics and setting an example of discipline at workspace. For encouraging me at levels to take decisions for my project and believing in me when I chose one option over the other.

To the staff at studios who were always ready to back us up with knowledge and guidance while working in workshops making mockups and prototypes.

To The staff at IDC and my fellow classmates for encouraging me when I felt lost and constructively adding to my project with their valuable feedback in every possible way.

CHAPTERS

A |

ALL ABOUT TOYS

| | | |
|-----|--------------------------|---|
| A.1 | Introduction | 0 |
| A.2 | What For? | 1 |
| A.3 | Significance Of Toys | 2 |
| A.4 | Understanding The Domain | 3 |
| A.5 | Evolution Of Toys | 4 |
| A.6 | Evolution Chart | 5 |

B |

IN THE REALM OF INDIAN TOYS

| | | |
|-------|-----------------------------|----|
| B.1 | Understanding The Economics | 6 |
| B.2 | Toys In India | 7 |
| B.3.1 | Toys from Assam | 8 |
| B.3.2 | Karnataka Dolls | 9 |
| B.3.3 | Saharanpur Dolls | 10 |
| B.3.4 | Etikopakka Dolls | 11 |
| B.3.5 | Tanjavur Dolls | 12 |
| B.3.5 | Kondapalli Dolls | 13 |
| B.3.6 | Chennapatna Dolls | 14 |
| B.3.7 | Sawantwadi wooden Toys | 15 |
| B.3.8 | Rajasthani Toys | 16 |
| B.4 | Present Scenario | 17 |
| B.5 | Major Issues | 18 |
| B.6 | Purchasing trends | 19 |

CHAPTERS

| | | |
|------------|---|-----------|
| C | CHILD PSYCHOLOGY AND LEARNING METHODS | 20 |
| | C.1 Piaget's Theory | 21 |
| | C.2 Vygotsky Theory | 21 |
| | C.3 Montessori Method | 21 |
| | C.4 Nai Taleem | 22 |
| | C.5 Wardolf (Steiner) education | 22 |
| D | PEOPLE | 23 |
| | D.1 Arvind Gupta | 23 |
| | D.2 Sudarshan Khanna | 23 |
| | D.3 Freidrich Frobel | 23 |
| E | INFERENCE AND POINTS OF CONCERN | 24 |
| F | POSSIBLE APPROACHES | 25 |
| G | DESIGN OBJECTIVE | 26 |
| H | DESIGN DIRECTION | 27 |
| I | DESIGN BRIEF | 28 |
| J | FURTHER IDEATION DOODLING AND EVALUATION | 29 |

CHAPTERS

| | | |
|---|---|-----------|
| k | IDEATIONS | 30 |
| | H.1 from Assam: clay and bamboo | 30 |
| | H.2 from Karnataka Dolls | 31 |
| | H.3 from Chennapatna Toys | 32 |
| L | BRAINSTORMING ON BRIEF | 33 |
| M | REVISED DESIGN BRIEF | 34 |
| N | WHY(animal/constructibles/jatakas) | 35 |
| O | JATAKAS | 36 |
| P | DESIGN | 37 |
| | P.1 Channapatna and aesthetics | 37 |
| | P.2 Parameters to play with | 38 |
| Q | CONCEPT GENERATION | 42 |
| | Q.1 Contemporary | 43 |
| | Q.2 Clustering (on basis of form) | 46 |
| | Q.3 Clustering (Deriving from Jatakas) | 50 |
| R | IDEATION | 54 |
| S | DESIGN DECISIONS | 68 |
| | R.1 Joinery trials | 58 |
| | R.2 Scale decisions | 60 |

CHAPTERS

| | | |
|---|--|----|
| T | CONCEPT FINALIZATION | 61 |
| | DIMENSIONAL DRAWINGS | 62 |
| U | DESIGN INPUT | 70 |
| V | DELIVERABLES (booklet/activity cards/manual) | 71 |
| W | MODEL/PROTOTYPES | 77 |
| X | PRODUCT PHOTOS | 86 |
| Y | FEEDBACK | 98 |
| Z | REFERENCES | 99 |

0

INTRODUCTION

Toys are a bundle of little joy and enjoyment for toddlers and young kids. Toys have been associated with children throughout history and in all cultures, and will continue to do so. Playtime counts as one of the most fundamental and significant parts of childhood. Those attractive little tots and tots that we assume to be quite cute find themselves a perfect place in a kids' wardrobe. While kids are dependent on us for food, and all other needs, toys prove to be their companion and friend for the first few years of their life. Psychologically speaking, kids require space to stock out their thoughts and emotions. And toys are just an ideal source on which they can easily bank upon—they can play with them, get angry, or throw them around as the like.

WHAT FOR??

TOYS

FOR KIDS

Younger children use toys to discover their identity, help their bodies grow strong, learn cause and effect, explore relationships, and practice skills they will need as adults. It turns out as a miniature world helping them prepare for the real world by practicing role play.

FOR ADULTS

Adults use toys to form and strengthen social bonds, teach, remember and reinforce lessons from their youth, discover their identity, exercise their minds and bodies, explore relationships, practice skills, and decorate their living spaces. It comes as an artifact at times while the other times as a reminiscent of their childhood.

2

SIGNIFICANCE OF TOYS

Cognitive Power Development

Toys help kids to develop capabilities to think freely, and to think differently at different ages, thereby going through various levels of maturity.

Soft Skill Development:

Toys keep kids engaged in social activities, thus helping kids in development of language skills, and emotions.

Enhances Innovativeness

Toys are highly crucial for creating and developing challenging intellectual thoughts. Boosting up your child's creativeness, imagination, and innovativeness

Motor System Development

A child's physical development largely depends on the motor system that gets enhanced on repeated play. And yes not to forget the Fun element.

/Play

/Social skill development

/Role play

/Understanding Scenarios

UNDERSTANDING THE DOMAIN

Apart from being a play tool for kids and a reminiscent of childhood days for the adults toys largely contribute to the material culture of the society too. The practices in the society, culture ,customs and events all get reflected in the toys coming from the generation. It is interesting to see that on close analysis we can track down the advancements and the limitations of the society back in time

No culture is entirely without toys; where mass-produced and mass-marketed toys are absent, children transform everyday objects into games, puzzles, and imagined friends and enemies. Toys can be objects of solitary attention and entertainment or, far more often, centerpieces of social interaction.

4

EVOLUTION OF TOYS

Chronologically, the volume spans the 18th century, which witnessed the invention of the toy as an educational plaything and a proliferation of new material artifacts designed expressly for children's use. Ancient toys are extremely similar to modern toys, without the electronic bells and whistles. There are lots of rattles and dice, plus dolls and little horses on wheels - the equivalent of toy cars? The origin of toys is prehistoric; dolls representing infants, animals, and soldiers, as well as representations of tools used by adults are readily found at archaeological sites

Through the 19th-century expansion of factory-based methods of toy production facilitating accuracy in miniaturization and a new vocabulary of design objects coinciding with the recognition of childhood innocence and physical separation within the household was the attraction. Towards the intersection of early 20th-century film and other digital media got popular and into the present, where the line between the material culture of childhood and adulthood is increasingly blurred Various electronic and mechanical toys

,learning kits and construction toys which are all over now a days are evidence of the trend of making toys information rich and using them as a tool to learn .

/wood, Mud toys

/dolls, cars

/factory made ,action figures

/electronics based, graphics and video games

/technology based, futuristic apps and play stations

6

UNDERSTANDING THE ECONOMICS INDIAN CONTEXT

- India has over 800 Indian toys and games manufacturers, exporters and suppliers. Most of the Toy manufacturers in India are from the unorganized sector. The Indian toy industry is estimated at about 400 million US dollars and until now has generated only 0.5 per cent of the global market.
- However, growth of some 15 % promises a rapid rise in this statistic, especially in the context of the growing middle class and increasing demand for quality and luxury goods.
- Toys were reserved for the small sector for years, till former finance minister Yashwant Sinha deserved them in a Budget .In India toys are looked at as a superfluous item. From handicrafts department. Then they were shifted to the plastics head and later to the electronic and computer software council. The jurisdiction of toys has been moving across departments and is now with the Sports Goods Export Promotion Council."

STATISTICS

800 manufacturers
400 million dollars: net worth
accounts for **0.5%** of global market share
Competing with: China and Italy products+
organized segment owned by Mattel, Funskool,
Fisher Price.



TOYS IN INDIA

Toys in rural India have always been a quick pick up from the available objects, a slightest twist and tweak to it and the endless possibilities of play. These quick and readily available toys has come down from one generation to the next and taken a space of classics in Indian toy history.

As mentioned earlier India has a huge segment of unorganized toy industry. It is these artisans from different regions of the country that uses the abundant material of the place and keeping in mind cultural and religious aspect gives the material an appropriate and suitable aesthetic making it significant and notable identity of the region. Each region has a distinct style and art that can be located and presented. A brief study of the Major art, style, toys and puppet was done to dig deeper into the facts.

- /Unorganized toy industry
 - /Geographic identity
 - /Craft and art
 - /Folklore and cultural significance
-

TOYS OF ASSAM

the women of Kumhar and the hira community in Assam are engaged in pottery work while the men help them in procuring the raw material and selling the wares.

Materials like cane and bamboo. Pith (Kuhila) toys of Goalpara are famous. Birds dominate the over-all output of these toys. The tradition of making cloth dolls by the women of the family is common too and this craft is passed from mother to daughter.

|Image.2

|Data2



|Image 3,4



KARNATAKA DOLLS

Karnataka dolls are made in many different patterns, such as wire dolls, soft dolls, cone dolls and stuffed dolls.

Artists first very carefully bent the wire to form the frame of the proposed doll and the figure is wrapped tightly in cloth and stitched into a 'skin' of brown poplin cloth.

|Data 3

|Image 5



SAHARANPUR WOODEN TOYS

In Saharanpur, sheesham is generally the wood of choice, though teak, rosewood, walnut and mango are also used designs are usually done with the help of a lathe mechanism.

Saharanpur wood craft has influence of Kashmiri designs, with many of the craft persons having descended from Kashmiri immigrants. These influences continue to reflect in contemporary products like the finely chiseled screens and jaali work and the anguri or vine leaf pattern found in many Saharanpur products.

|Data 4

|Image 6



ETIKOPAKKA TOYS

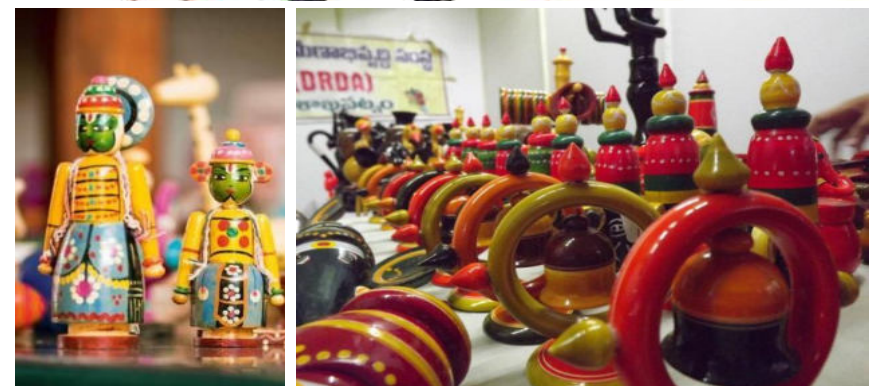
WOOD LACQUER CRAFT (AP)

These toys are well known for canon toys, lord Ganesha toys and bullock carts. These are made from lacquer color and are also wood toys.

Etikopakka toys have colourful rattles, toy cars, tiny tic-tac-toe boards and trains as a part of their range. Over the years, Vespa scooters and Harley Davidson bikes have also been added to the list.

|Data 5

|Image 7,8



THANJAVUR DOLLS

'Dancing Doll' which originally comes from Thanjavur in Chennai. The family migrated from Thanjavur to Kondapalli few years back and produces these dolls here in Kondapalli now.

Also called Thalayiatti Bommai, the dancing dolls are traditional hand-made dolls that can be used to decorate the house or give away as gifts. They are made out of sago, Plaster of Paris (POP), Paper Mache and wood pulp..

These dancing dolls contain their core weight at the bottom most part of their body. This presents a dance like movement due to its slow oscillations. The beautiful movement of the doll's head adds to its uniqueness.

|Data 6

|Image 9.,10



KONDAPALLI TOYS

Kondapalli toys are famous for their light weight, vibrant colors and age-old production techniques. Themed around mythology, rural life and animals, these toys exhibit joyous and realistic expressions. The art shows the strong influence of Islamic style and pointed nose of the human figures is reminiscent of the 17th century Rajasthani style.

Kondapalli toys are made of softwood, known as Tella Poniki. Apart from Poniki wood, sawdust, tamarind seed powder, enamel gums, watercolours, vegetable dyes and lime are used in making these toys.

|Data7

|Image 11,12,13



CHANNAPATNA TOYS

(KARNATAKA)

The history of Channapatna toys dates back to regime of Tipu Sultan. The ruler had invited artisans from Persia for imparting training to the local artisans in the making of wooden toys and Channapatna toys originated during this time only. For about two centuries, ivory wood served as the raw material for making these toys. However occasionally, sandalwood and rosewood were also used.

A number of steps are included in the manufacturing of these toys including procuring the wood, seasoning of wood, cutting them into desired shapes, pruning and carving the toys, colouring them and finally polishing the finished product.

Because the wood is turned on lathe it is observed the products have an aesthetic generated out of this usage of tool making the style distinct. The parts thus made are assembled and painted

|Data 8

|Image 14,15,16



SAWANTWADI WOODEN TOYS

The wooden toys from Varanasi (Banaras) in Uttar Pradesh are very famous. Many men and children are engaged in making wooden toys: mainly lattus (tops) and miniature kitchenware. They utilize indigenous techniques to make these turned-wood lacquered toys.

One see a happy blend of the Spanish and Portuguese styles mixed with Hindu motifs, and many of the floral borders on the older pieces of furniture, which are still in the possession of the Ruling Family of Sawantwadi, appear almost Southern European in their appearance.

wooden toys. Fruit basket- the famous fruit basket's inspiration is being taken from the horticultural aspect of Sawantwadi.

|Data 9



|Image 17, 18

RAJASTHANI TOYS

Toys and dolls in Rajasthan are crafted primarily from wood, clay, stones and other natural and easily available materials. They not only cater to the dreams of a child but they are also associated with religious rituals and festivals.

The puppets of Rajasthan are very charming due to their exaggerated eyes and lips and colourful dresses. These Puppets are the obvious expression of the human psyche, social and cultural practices, demographical differences and as such is a very important part of traditional knowledge and wisdom, passed on through generations.

|Data 10



|Image 19, 20

PRESENT SCENARIO

(INDIAN
CONTEXT)

- toy industry in India, is still a rather **unorganized segment** comprising of tradition and local toys also stuff imported from china and Italy all running in parallel with organized segments comprising of fisher price and playschool and other growing ventures like cocomocokids
- Mattel Toys, Funkskool & Lego are 3 of the major **International players in the Indian toy industry.**
- Among the local manufacturers in India about 59 % are still focusing on the production of **cheap and unbranded toys** which appeals to the price-sensitive Indian consumers
- In recent years, cities like Ahmedabad, Bangalore, Hyderabad and Pune have become the most important manufacturing sites of the Indian toy industry.
- **Internet retailing** is becoming a more and more important they often offer better merchandise in terms of variety, new launches and the offer of branded toys.

The share of internet retailing in sales grew from 1 % in 2007 up to 18 % in 2012.

- The chief organized centers for toy manufacturing are National Capital Region and Mumbai. Manufacturing of toys in India, in general, **is labour intensive** and utilizes the Indian skills of master craftsmanship and creative designing. The Indian toy industry, fueled by the vast domestic market, has now turned its attention to global markets and is fast gearing up to meet international demands. The strong points of Indian toy industry are skilled workforce, diverse range, focus on innovation and creativity, and emphasis on learning and education. Indian manufacturers are catering to both large and small volume requirements and are exporting to few of the most developed nations in the world. The main markets for Indian toys are USA, U.K. and Germany.

MAJOR ISSUES WITH INDIAN TOY INDUSTRY

- Product range and variety
 - No regular supply from Indian manufacturers and lack of range in toys manufactured a specific need of battery operated electronic toys is felt.
 - Merely 12% of MSME Toys Manufacturers have their own full fledged in house Design studio & team of trained designers for product conceptualization, prototype development and R&D on design with proper setup of CAD/CAM tools & other software calling for a need to approach outside organizations for product prototype development causing them a risk to copying of their design ideas.
 - High price of good quality raw materials
 - skilled and trained manpower including product designers; machine operators and mold designers & manufacturers, are hard to find, thus the toys manufacturers hire 12th grade workers and provide them in house on the job training.
 - National product quality standard for toys ie IS 9873 (Part III)not being mandatory has not been adopted by Indian toys manufacturers for testing & certification of their products for Domestic market leading to manufacture & sale of inferior/unsafe toys in the Indian market and adversely affecting children.
-

PURCHASING TRENDS IN INDIAN MARKET

- Indian consumers pay more and more attention to high-quality products and thus branded articles. Although the price is often still the major deciding factor
 - The children usually accompany their parents and have a direct influence on the decision to buy
 - The most popular product categories are electronic toys, followed by soft animals and hard toys. Advertising has been a major influence
 - Cultural aspects has a lot to do with toy purchase in India and so presents make up a significant share of toy sales.
-

CHILD PSYCHOLOGY AND LEARNING METHODS

/Piaget's theory
/Vygotsky's theory
/Montessori method of learning
/Nai Taleem
/Waldorf (Steiner) Education

PIAGET'S THEORY:

There Are Three Basic Components To Piaget's Cognitive Theory:

1. Schemas (building blocks of knowledge).
2. Adaptation processes that enable the transition from one stage to another (equilibrium, assimilation and accommodation).
3. Stages of Development

STAGES OF DEVELOPMENT:

- **Sensorimotor Stage:** It extends from birth to approximately 2 years, and is a period of rapid cognitive growth.
- **Preoperational Stage:** The second stage which last from 2yrs - 7yrs of age. During this stage, young children are able to think about things symbolically.
- **Concrete Operational Stage:** Piaget considered the concrete stage a major turning point in the child's cognitive development, because it marks the beginning of logical or operational thought.
- **Formal Operational Stage:** The formal operational stage begins at approximately age eleven to and lasts into adulthood. During this time, people develop the ability to think about abstract concepts.

A child's cognitive development is about a child developing or constructing a mental model of the world.

CHILD PSYCHOLOGY AND LEARNING METHODS

- **VYGOTSKY'S THEORY:**

Lev Vygotsky refers to Elementary Mental Functions -

- Attention
- Sensation
- Perception
- Memory

The major theme of Vygotsky's theoretical framework is that social interaction plays a fundamental role in the development of cognition. Vygotsky states: "Every function in the child's cultural development appears twice:

/First, on the social level, and later,

/On the individual level

A second aspect of Vygotsky's theory is the idea that the potential for cognitive development depends upon the "zone of proximal development" (ZPD): a level of development attained when children engage in social behavior

- **MONTESSORI METHOD OF LEARNING**

Montessori include multiage groupings that foster peer learning, uninterrupted blocks of work time, and guided choice of work activity. In addition, a full complement of specially designed Montessori learning materials are meticulously arranged and available for use in an aesthetically pleasing environment. The classroom is prepared by the teacher to encourage independence, freedom within limits, and a sense of order. The child, through individual choice, makes use of what the environment offers to develop himself, interacting with the teacher when support and/or guidance is needed.

CHILD PSYCHOLOGY AND LEARNING METHODS

NAI TALEEM

Gandhi's proposal to make handicrafts the Centre of his pedagogy had as its aim to bring about a "radical restructuring of the sociology of school knowledge in India" in which the 'literacies' of the lower castes—"such as spinning, weaving, leatherwork, pottery, metal-work, basket-making and book-binding"—would be made central. The other aim to focus on handicrafts was to make schools financially and socially independent of the state—an even more radical concept.

every handicraft has to be taught not merely mechanically as is done today, but scientifically i.e. the child should know the why and wherefore of every process.

WALDORF (STEINER) EDUCATION

The pedagogy emphasizes the role of imagination in learning, striving to integrate holistically the intellectual, practical, and artistic development of pupils. This is reflected in the schools' approach to early childhood

education, which focuses on practical, hands-on activities and creative play; to elementary education, which focuses on developing artistic expression and social capacities; and to secondary education, which focuses on developing critical reasoning and empathic understanding. The overarching goal is to develop free, morally responsible, and integrated individuals equipped with a high degree of social competence.

PEOPLE

/ Arvind Gupta
/ Sudarshan Khanna
/ Friedrich Froebel

A brief look into the three different approaches to the toys helped understanding the three different outlook in the same domain of Toy and industry.

ARVIND GUPTA:

A toy enthusiast who presents an altogether different approach to toys that can be built from trash. His toys are a simple yet magical examples of basic maths and science. And because these can be made at home by the kids on their own the involvement and knowledge value to the outcomes is much more than any other high cost branded toy set.

SUDARSHAN KHANNA:

An Industrial Designer by Profession had served as a Professor at National Institute Of Design teaching toy

design. Prof. Sudarshan Khanna have contributed to the domain with his extensive research and understanding and published books like "Joy of Making Indian Toys" and Dynamic Folk Toys. He talks about the simplicity of dynamic toys how a simple toy out of readily available materials like paper sticks and rubber with a humorous theme is a thing of joy for kids. Not just fun but the dynamism calls for basic principle of science and so serves knowledge rolled in fun to the kids .

Friedrich Froebel

Friedrich Froebel, the German educationalist, is best known as the originator of the 'kindergarten system'. Froebel sought to encourage the creation of educational environments that involved practical work and the direct use of materials. He went on to develop special materials (such as shaped wooden bricks and balls - gifts), a series of recommended activities (occupations) and movement activities, and an linking set of theories.

INFERENCES AND POINTS OF CONCERN

- Electronics and virtual games taking over toy industry
 - Self indulgent. more and more passive and individual experiences than active and joint ones
 - Commercialization to the extent that toys die out quick.
 - Toys increasingly becoming the miniature tangible versions of stories on celluloid whereas toys were the tools for imagination and creation of your imaginative world.
 - Toys manufactured with an intent to sell and so most of our energy lost in persuading parents to purchase (by overloading education content into the toys) or advertising it to kids in the name of their favorite superhero.
-

POSSIBLE APPROACHES

|Image 21



TOYS FOR SOCIAL CHANGE

Under this category toys that break stereotypes which pushes thought and indulges kid and at the same time serves as a tool to penetrate a social message were considered. The toys could introduce kids to the idea of individuality, body image, gender fluidity etc.

|Image 22



EDUCATIONAL TOYS

Toys that would simplify the tough concepts of Math, Science, History or Geography with fun value to it.

|Image 23



TWEAKS IN THE EXISTING TOYS AND LEARNING THROUGH THOSE.

The acquaintance with the classic Toys over generation bought this idea to tweak the existing toys and add a message may be knowledge base or social aspect to it for added value and connect with the toy

|Image 24



MATERIAL CULTURE AND TOYS.

Studying the rich diversity in toys, the materials used, the tools for manufacturing aesthetics and coming up with interventions as an attempt to rejuvenate the craft.

DESIGN OBJECTIVE

Toys as a tool for **social change** was the area decided to work on considering it might allow for new ideas. Also, exploring and figuring out methods to use toy as a medium would be a challenge.

The objective was to design a toy that would break the notions and social stereotypes and to teach them the social stratification on bases of profession ,age ,caste ,colour ,religion, culture. Also addressing the issues related with these divides with appropriate toys creating its own space in the market

DESIGN

DIRECTIONS

(Further ahead from Social change)

- **TOYS NOT CONSIDERING AGE (For Adults, addressing issues of today)**

Taking the issue of information overload in the present scenario where the intellectual gain has gone high but the emotional aspect is getting challenged.

- **Transgender and Homosexuality:**

Introducing kids to the various gender identities so as to break in the taboo and make them think open and aware of the reality. This not only helps kids getting introduced to the social segments but also make them empathetic to the communities and bridging the gap of acceptance.

- **CONVENTIONAL TOYS:**

/ Toys where each character embraces individuality(coming from the concern for kids getting bullied at school and places, body shaming)

/ Toys teaching kids the diversity in culture its importance building respect and a sense of pride for their own culture.

/ constructible for kids for letting them make their own characters and building narration or telling stories teaching them moral values.

At this point the area to work on that is to design toys to teach diversity in material culture as a rich heritage of the nation was considered.

DESIGN BRIEF

Designing toys for kids aged 13 to 15 to teach them diversity and rich material culture of different states and places. Each craft has a unique value in terms of its making, tools used, folklores and narration. The project would introduce the kids to the richness of craft further allowing them to create and make their own collectibles leaving enough room for creative manipulation and imagination from the learners end.

Where in the present scenario kids are introduced with crafts and folklores of a geographic location in minor as a part of their social sciences curriculum. This would be an attempt to give them a wider understanding of the richness of material culture of the space and might open up possibilities of further interests amongst many of them

FURTHER IDEATION DOODLING AND EVALUATION

Evaluation table for what method offers maximum gain when teaching cultural diversity to kids

Cards:

Information cards that would bear the information of state, its culture. Graphics (aesthetics) of the place .

Puppets and narration:

For majorly each state has its own method of story telling .Their own narration puppets that imbibe the aesthetics and craft of the place it comes from. It allows for Drama, narration and storytelling around the props and characters decided.

Toys:

Toys rich in the craft value ,aesthetics (both in terms of graphics and form)of the place they come from talking about richness of its origins. Toys could be made as constructible and allowed for play taking various shapes and form. From simple structures to human character can be visualized in the modules allowing for narrative and play .

TAKE AWAYS

(what the idea has to offer)

Cards:

Knowledge
Cognitive development

Puppets and narration:

Knowledge
Imagination
Creative thinking
Social Development

Toys:

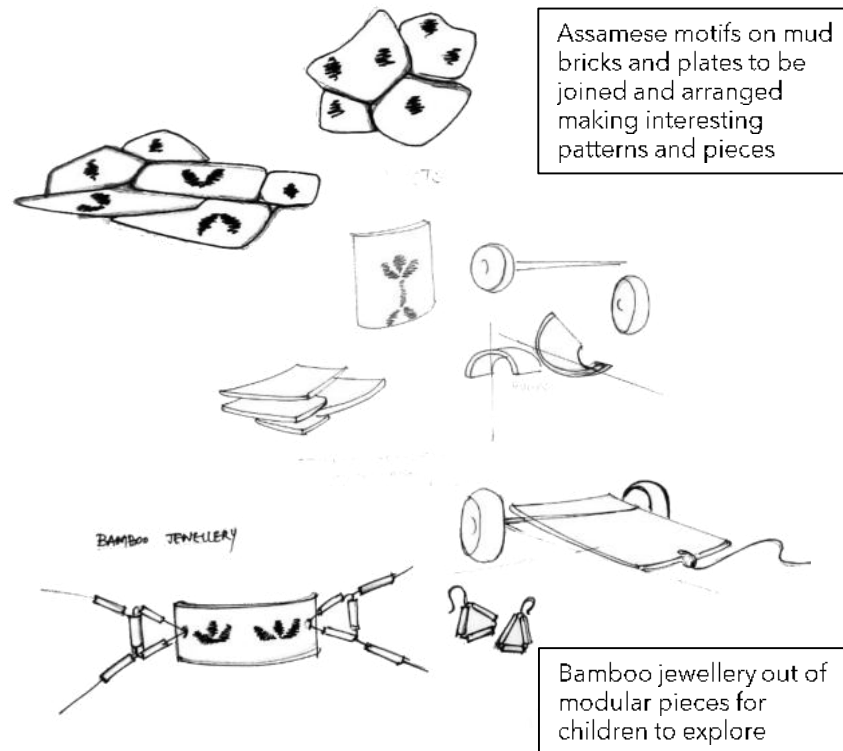
Knowledge
Imagination
Engagement
Creative thinking
Form and abstraction.

FROM ASSAM :CLAY AND BAMBOO TOYS

Units of discs and chips made with clay and with characteristic Assamese motif making it culture specific.

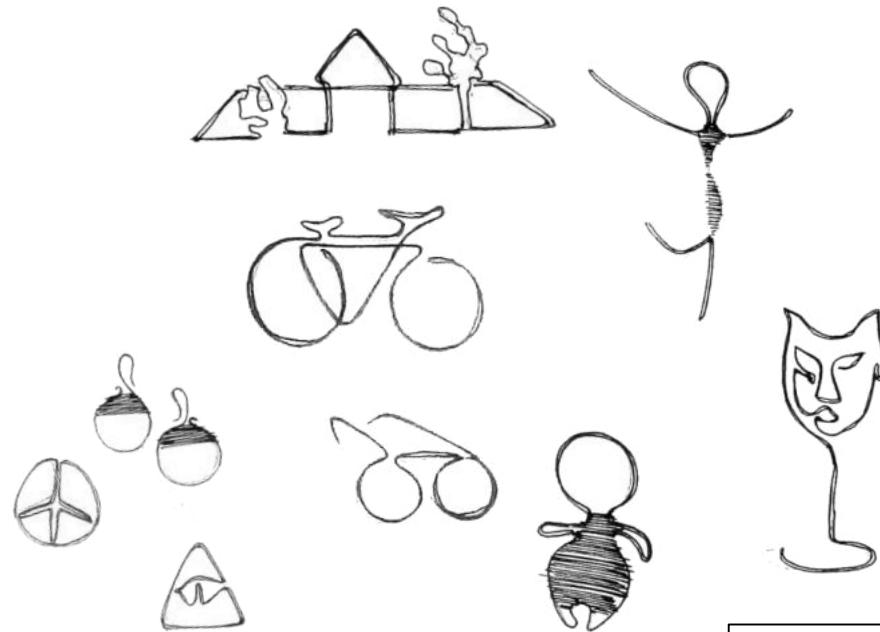
The units can be glued together/ painted/ making characters out of them allowing role-play .
gluing your own set of pieces together and making interesting patterned layout.

The bamboo pieces can be arranged and beaded together making interesting jewellery pieces.



FROM KARNATAKA: WIRE DOLLS

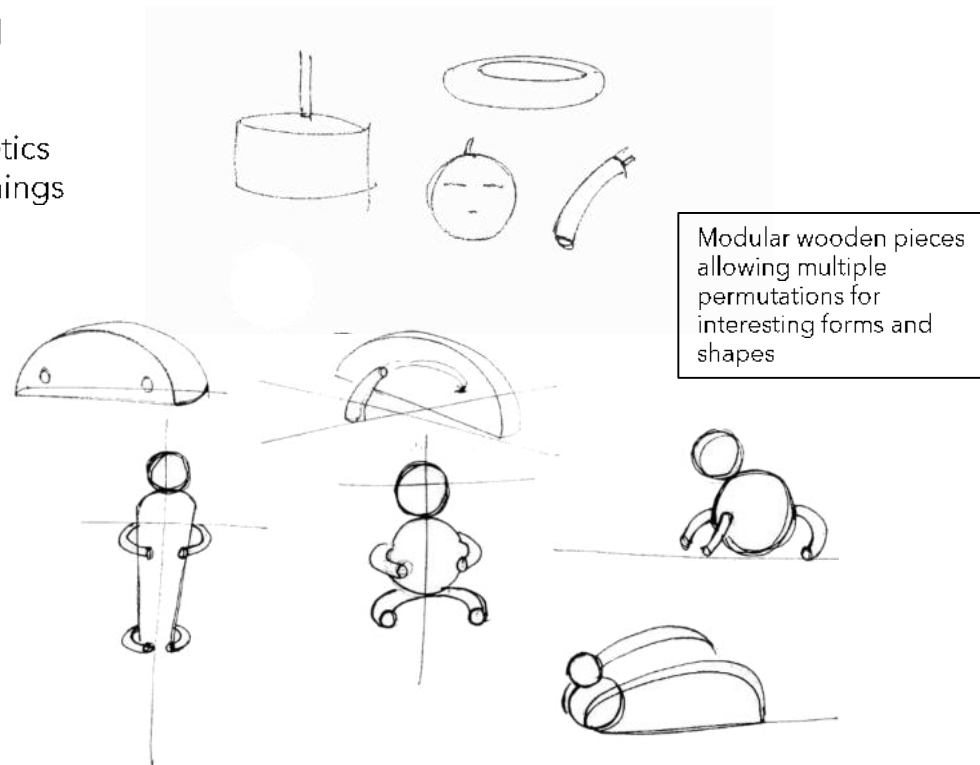
Introducing Karnataka dolls and providing wires and thread /cloth . Just turning and shaping wire with some spaces covered with thread and cloth while other structure exposed gives immense possibilities to try .



Wire models for kids to explore.
Using thread and cloth at places defining mass and structures at places

FROM CHANNAPATNA TOYS

Designing modular units that can be fit and released easily
The forms and modules with all possible permutation and combinations gives immense possibilities of form and aesthetics that can be interpreted to be things and structures from real world.



BRAINSTORMING ON BRIEF

Working on and for the brief led to ideas of designing a kit that would bring elements of notable crafts in India on the same platform, offering games ,cards or constructible for play.

The ideations in the direction gave a flavor of what all the end product could deliver in terms of fun factor and learning.

For the entire concept of bringing in craft in the same kit would demand a detailed understanding of each art form. And a need to design something that would allow learning and would also leave enough room for kids to participate and build something on their end.

The limited time for the project and the wide scale of knowledge base required kept it from growing further and it was decided to fix one craft and an appropriate context, doing justice to both craft and the context.

For the reasons mentioned the design brief was revised and one craft area was fixed (Channapatna).

DESIGN BRIEF

Designing toys for kids aged 13 to 15 to teach them diversity and rich material culture of different regions they come from. The kit should be so designed to leave enough room for creative manipulation and imagination from the learners' end.

REVISED DESIGN BRIEF

AGE : 5 Yrs. and above.

To Design a set of constructible allowing animal shapes and form from the traditional Channapatna toys. The set should allow a diegetic universe of Jataka parables being played and spun around the toys constructed.

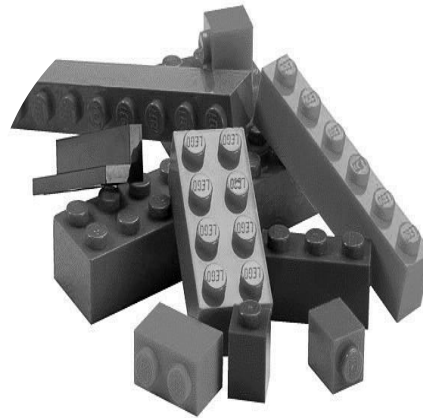




|Image 25

ANIMAL FORMS

- /Increased involvement
- /Sense of belonging to the characters talked about
- /Teaches kids to think in three dimensions
- /Generic
- /Better understanding of form



|Image 26

LEGO |CONSTRUCTIBLE| E|

- /Richness of Channapatna craft.
- /Further Acquaintance with animal forms and the meaning generated, when put together.
- Involvement
- /Design intervention in Channapatna craft
- /Constructibles in cultural realm



|Image 27

JATAKA

- /Rich Moral tales.
- /Imaginative role play.
- /Exposure to emotions.
- /Acclimation to new experiences.

JATAKAS

Folk tales form an important part of the collective psyche of a society. Folk tales evolve over the centuries. They are enriched by the soil

Jataka Tales are not fables stories. These teach the lessons of Buddhism through short morality tales, each of which is said to be a tale from one of the Buddha's earlier lives often focus on animal characters who display humanistic behavior .

Many Jatakas have parallels in the Mahabharata ,the Panchatantra (animal fables), the Puranas, and elsewhere in non-Buddhist Indian literature. Some turn up again in such places as Aesop's fables. The Jataka stories have also been illustrated frequently in sculpture and painting throughout the Buddhist world.



|Image 28

DESIGN:

CHANNAPATNA AND AESTHETICS

To understand the language of Channapatna craft it was important to sink in the fineness and little details .Wood turning, lacquer colours, being the notable features of the craft should reflect in the final output.

\Axial symmetry

\uniform thickness

\thick to thin

\lines to break the solid structure

\colours –red/ mustard/ green/ orange/ black

\Brush work for further details

\Hollow, solid, cylinders, stick, tapered, round, disks, rings, sliced shapes and structures.

/Grooves

/Chapped ends

/Sliding parts

/Varying Crossection

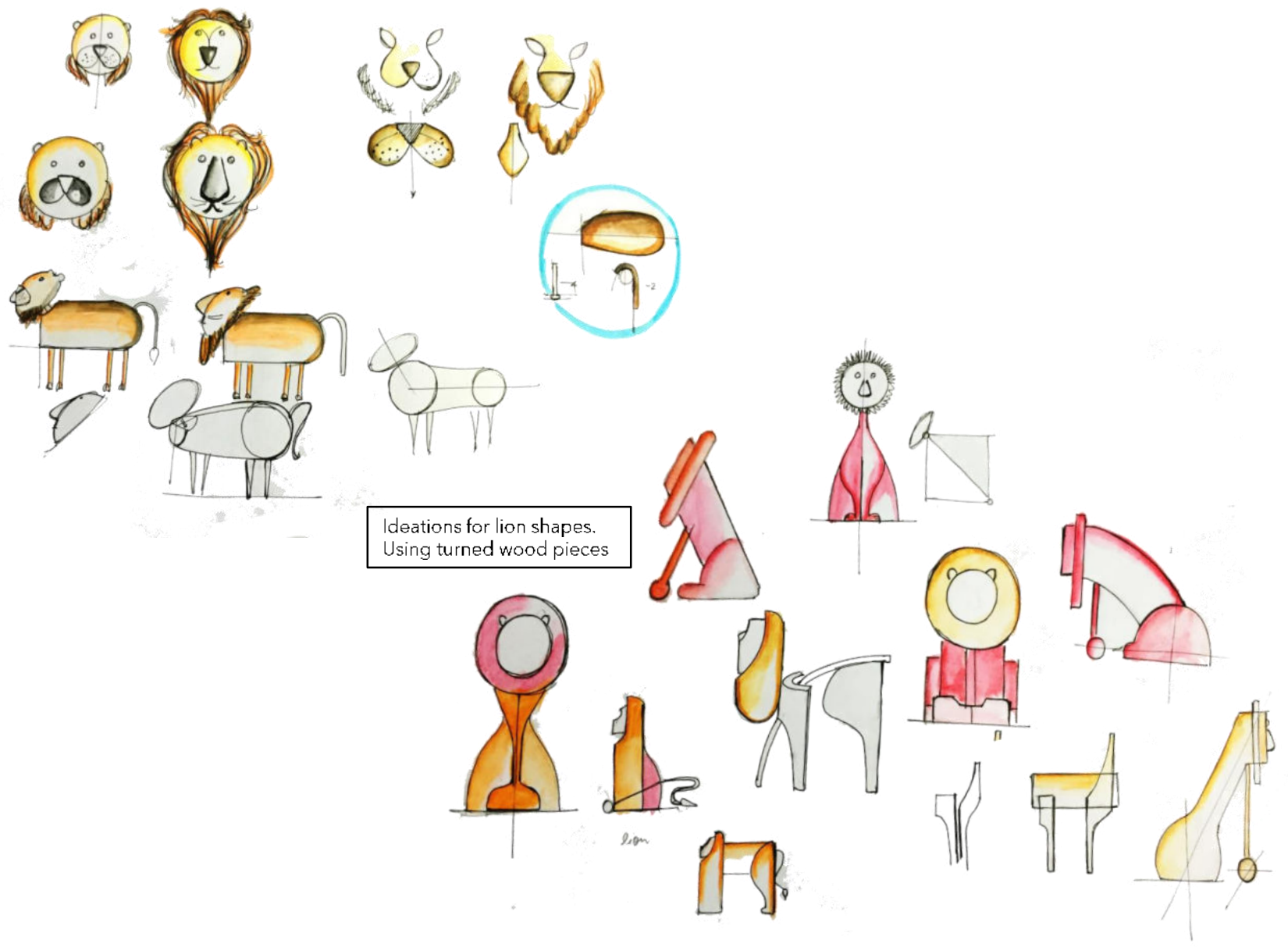
/Motion mechanism

/Disc cut

/Paint

/Holes

/Graphics



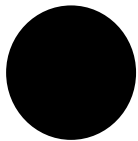
CONCEPT GENERATION

CONCEPT 1|**CONTEMPORARY**

CONCEPT 2|**CLUSTERING** (on basis of form)

CONCEPT 3|**CLUSTERING** (Deriving from Jataka Tales)

The concepts came more as a result to approach the problem of making animal forms out of limited modules as required in the constructibles.



CONCEPT 1 | CONTEMPORARY

The first one being contemporary design that would use turning methods but the form would be very different from what a traditional Channapatna looks like . A set of modules would be provided that would generate the minimum required to convey an animal form.

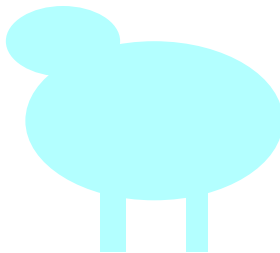
We allow for wrong combinations of modules considering that as a discovery for the kid on his own and might not strictly abide by the existing forms in nature. The idea is to make your own imaginative character irrespective of its presence in real world.

CONCEPT 2|CLUSTERING (on basis of form)


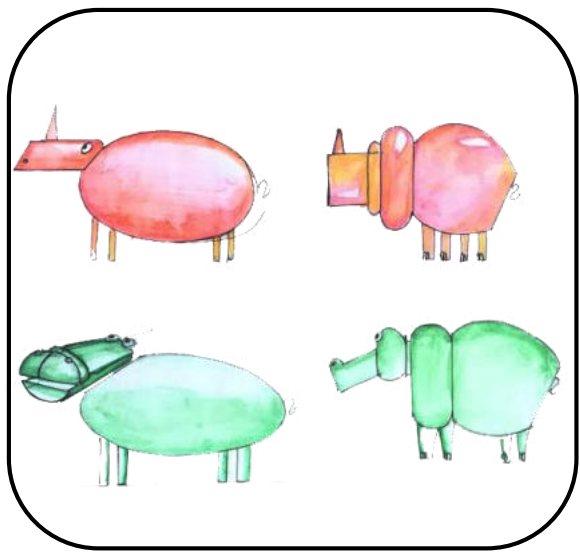
To generate detailed animal forms that would allow sharing of some of the attributes of one animal with the other, with similar form. It was thought to cluster the animals on the basis of their body shapes or scale considering the parts could be interchangeably be used in one or more forms



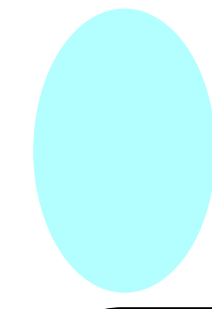
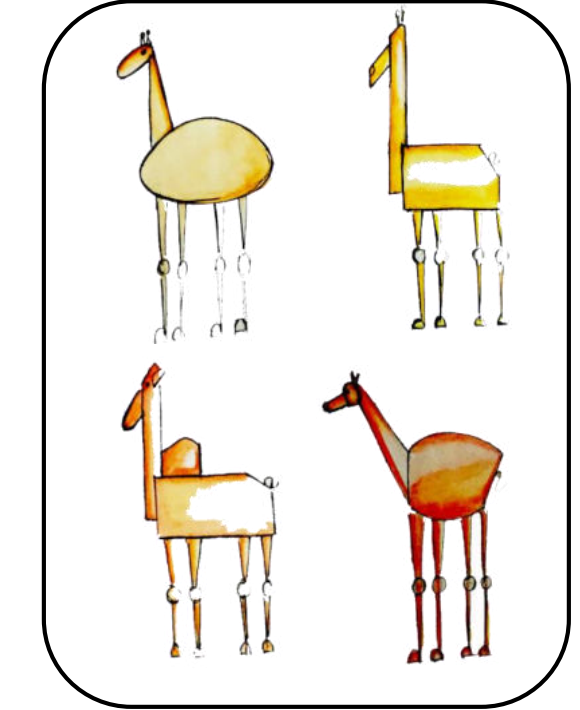
CONCEPT 2 | CLUSTERING (on basis of form)



Rhino
Hippo
Elephant
Bull



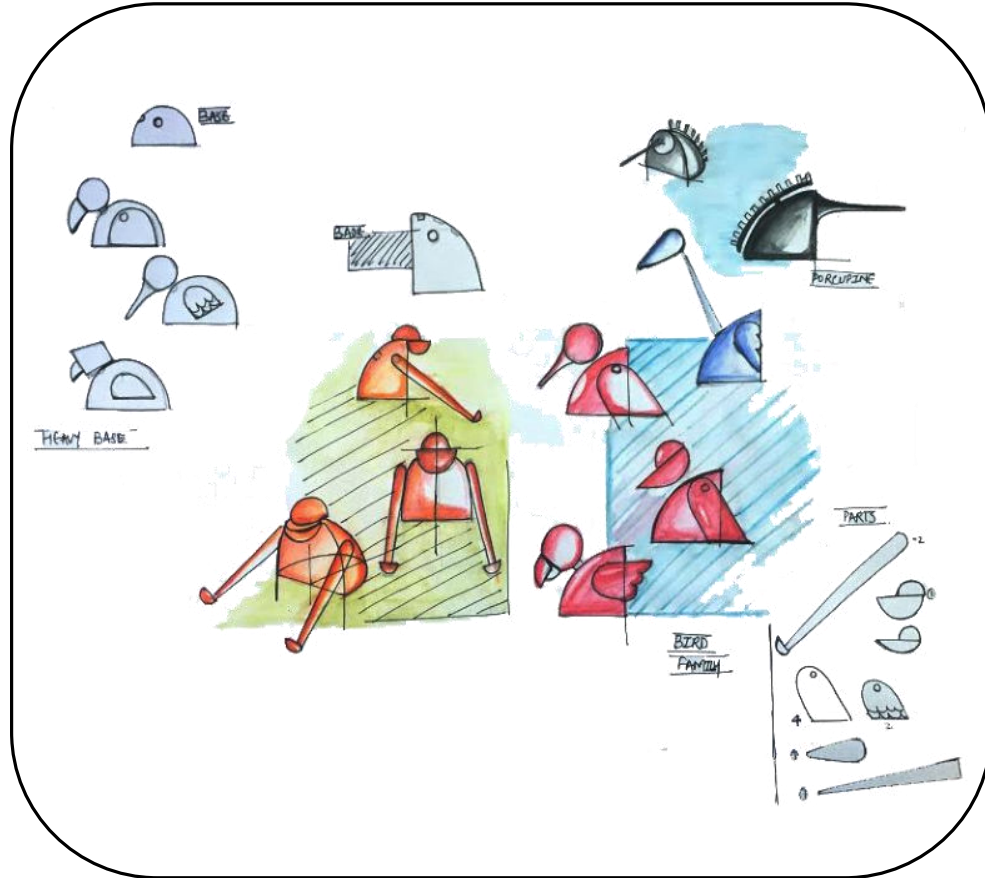
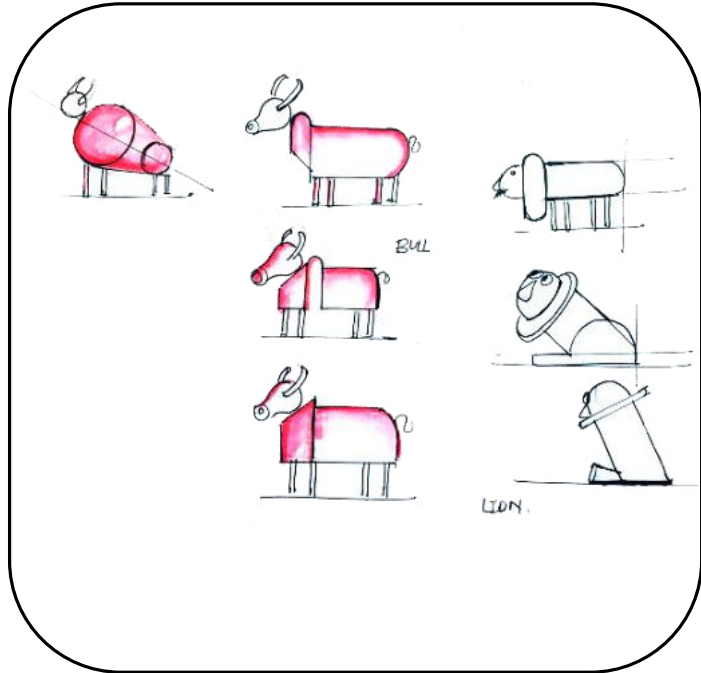
Giraffe
Camel



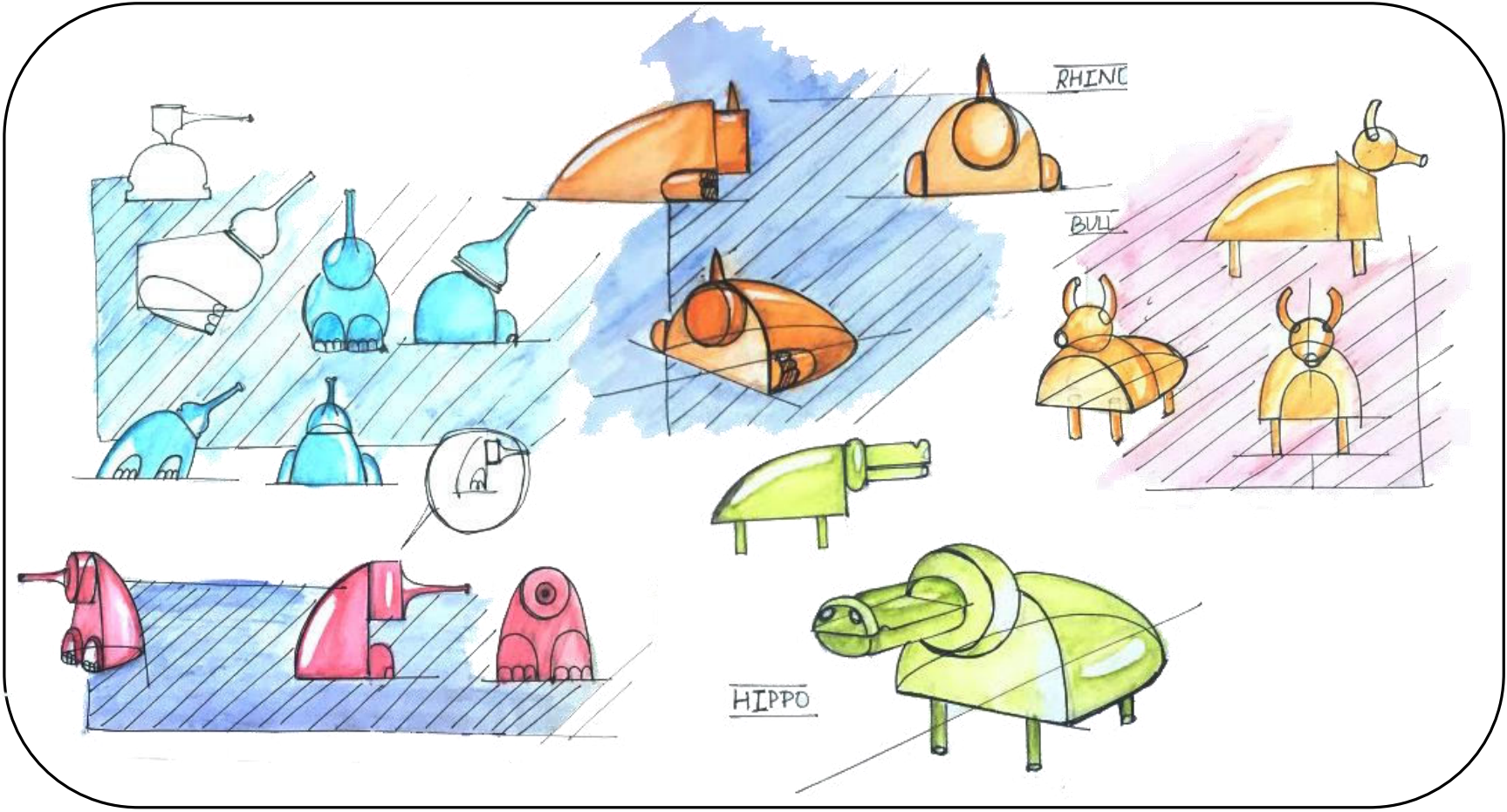
Cat
Rabbit
Rat
Pig
Mouse
Bear
Dog



CONCEPT 2 | CLUSTERING (on basis of form)



CONCEPT 2 | CLUSTERING (on basis of form)



CONCEPT 3 | CLUSTERING (Deriving from Jataka Tales: lego)

For the animals In the concept two came out to be random .Of which many of them had no mention in Jataka parables.
To make it more contextual any ten of the jataka tales were selected and the animals portrayed were listed. These animals were then numbered on their real size. Considering, these would be scaled down and parts had to be interchanged.

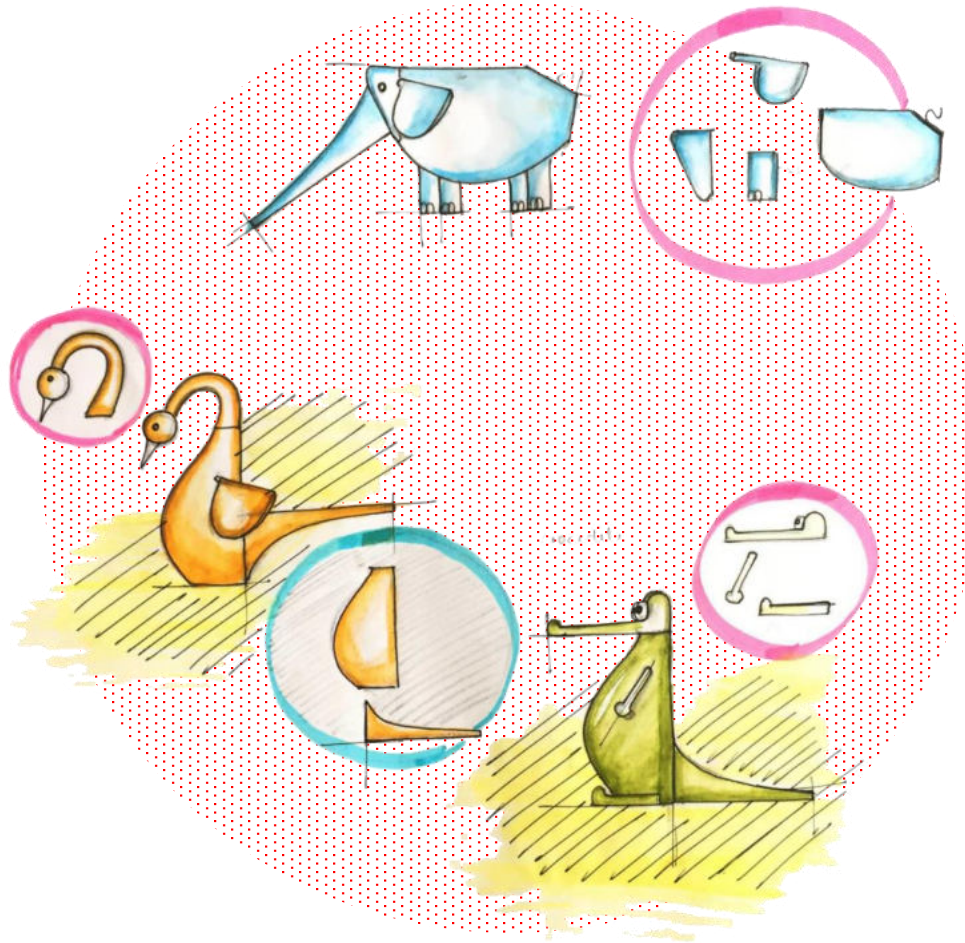
TALES Selected

Golden Swan
Jackal who saved Lion
Elephant and Dog
Wind and Moon
The Heart of Monkey
The Story of Tigress
The Penny Wise Monkey
The Turtle who Couldn't Stop Talking
Turtle who Saved His Own Life
Snake Charmer

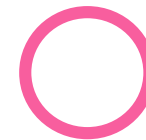
ANIMALS

Monkey
Crocodile
Lion
Tiger
Jackal
Dog
Elephant
Swan
Dog
Turtle

CONCEPT 3 | CLUSTERING (Deriving from Jataka Tales)



Further ahead in the ideations the pink and the blue circles are for:

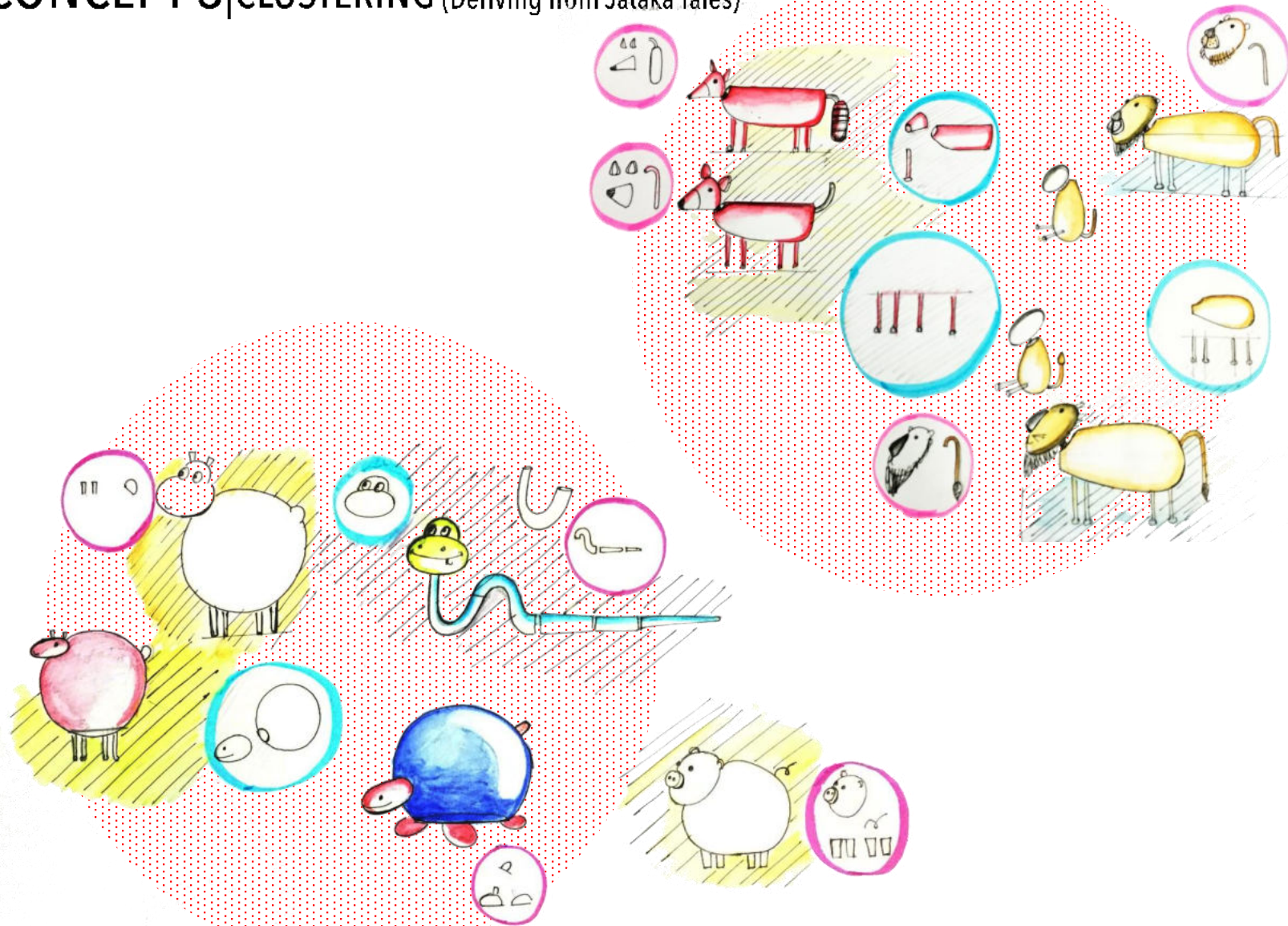


Parts specific to the animal form



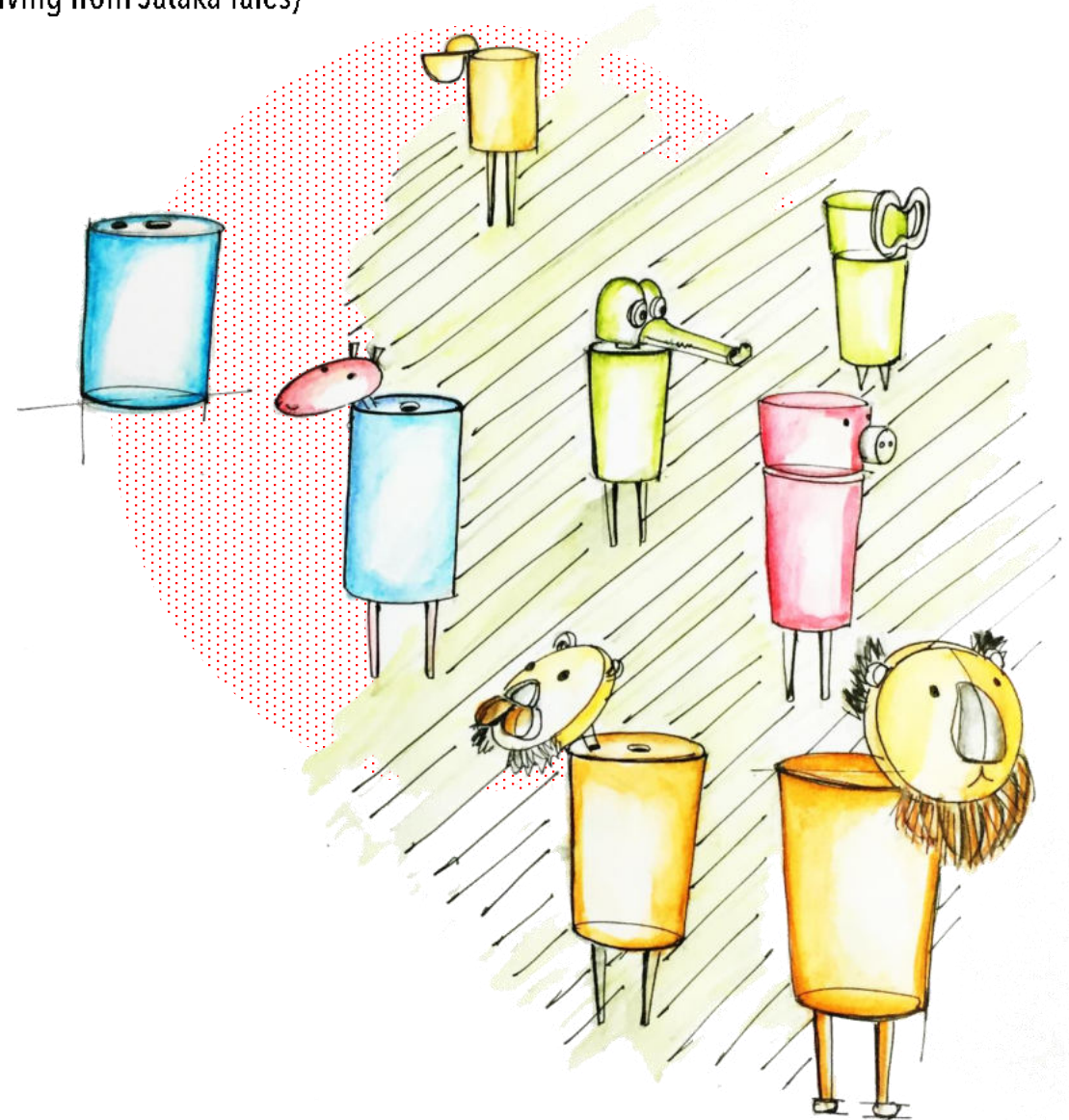
Parts shared by two different animals

CONCEPT 3 | CLUSTERING (Deriving from Jataka Tales)



CONCEPT 3 | CLUSTERING (Deriving from Jataka Tales)

As a part of the same kit other than the detailed animal form and modules. We include some basic modules as cylinder, a quarter sphere or a hemisphere. These behave as a basic body and with just changing the face or legs the being of the form change from one animal to the other.



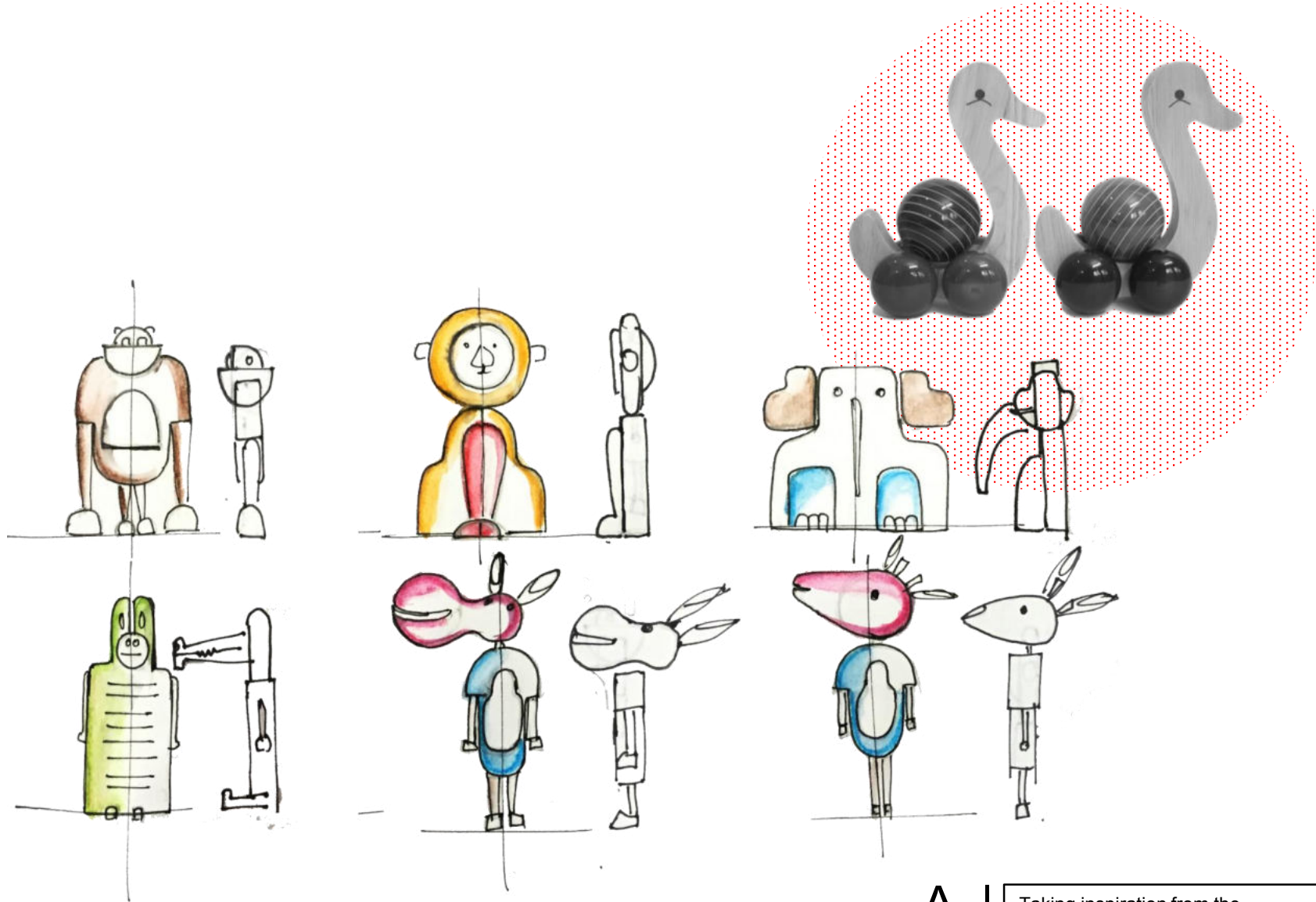
IDEATION

The major challenge of the concept is to make the animals constructible in some sense and also bringing them to look alike.

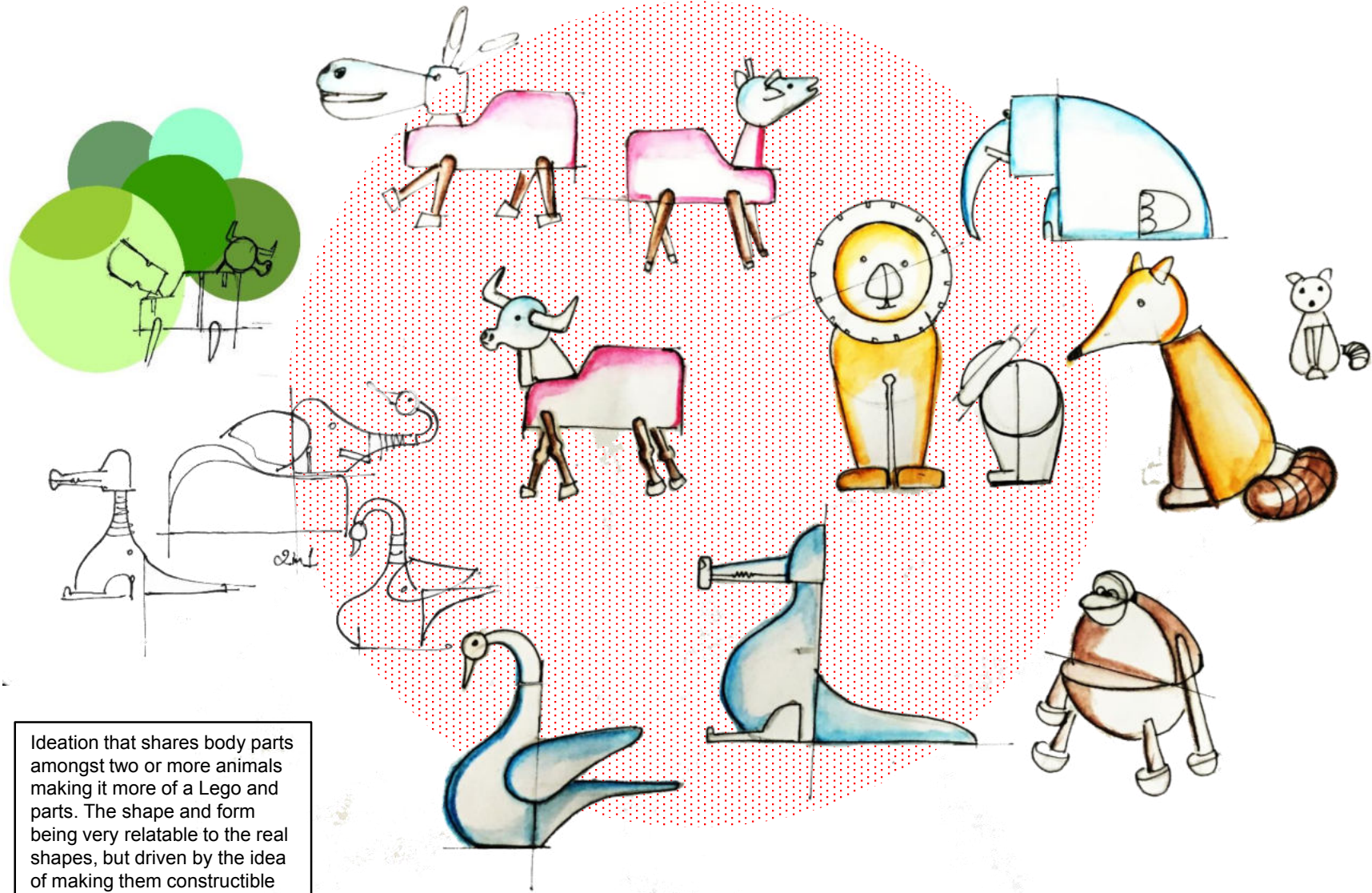
it turned out to be a trade off between the aesthetics (abstraction of animal) and constructible, where a part of the animal body is shared between two or many.

Three ideations were made on this concept to come up with a set where animals relate to each other in terms of aesthetics they share or the kind of joins used.

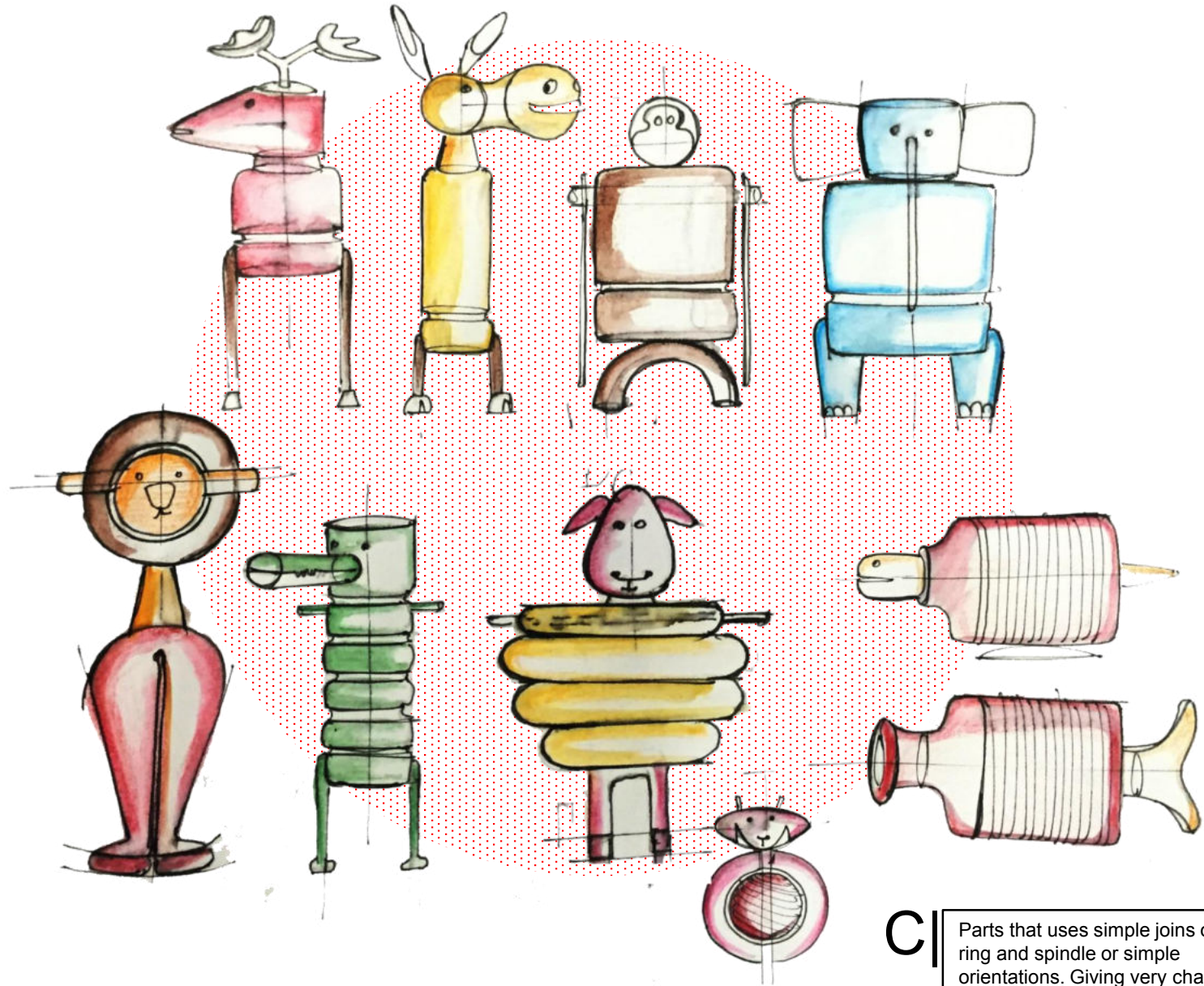




A | Taking inspiration from the particular flat wood body Channapatna toys.

**B**

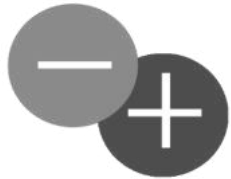
Ideation that shares body parts amongst two or more animals making it more of a Lego and parts. The shape and form being very relatable to the real shapes, but driven by the idea of making them constructible and repeatable amongst animals.



C | Parts that uses simple joins of a ring and spindle or simple orientations. Giving very character and comic look and feel to animals.

DESIGN DECISIONS:

(joinery and trials)



Using Magnets to joining unit



T joint



Tying thread knot across bodies



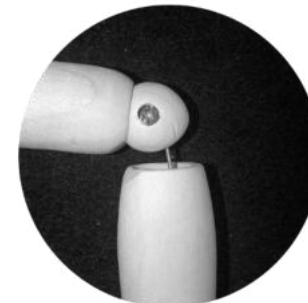
A solid rod across bodies



Screw and wood



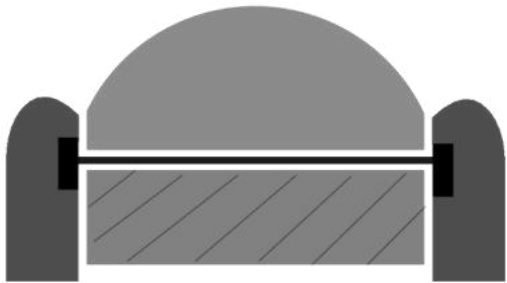
Hinge for movable joints



Ball joint

JOINERY USED

Stretchable string allowing parts to sit on body with the help of slit on the open end.

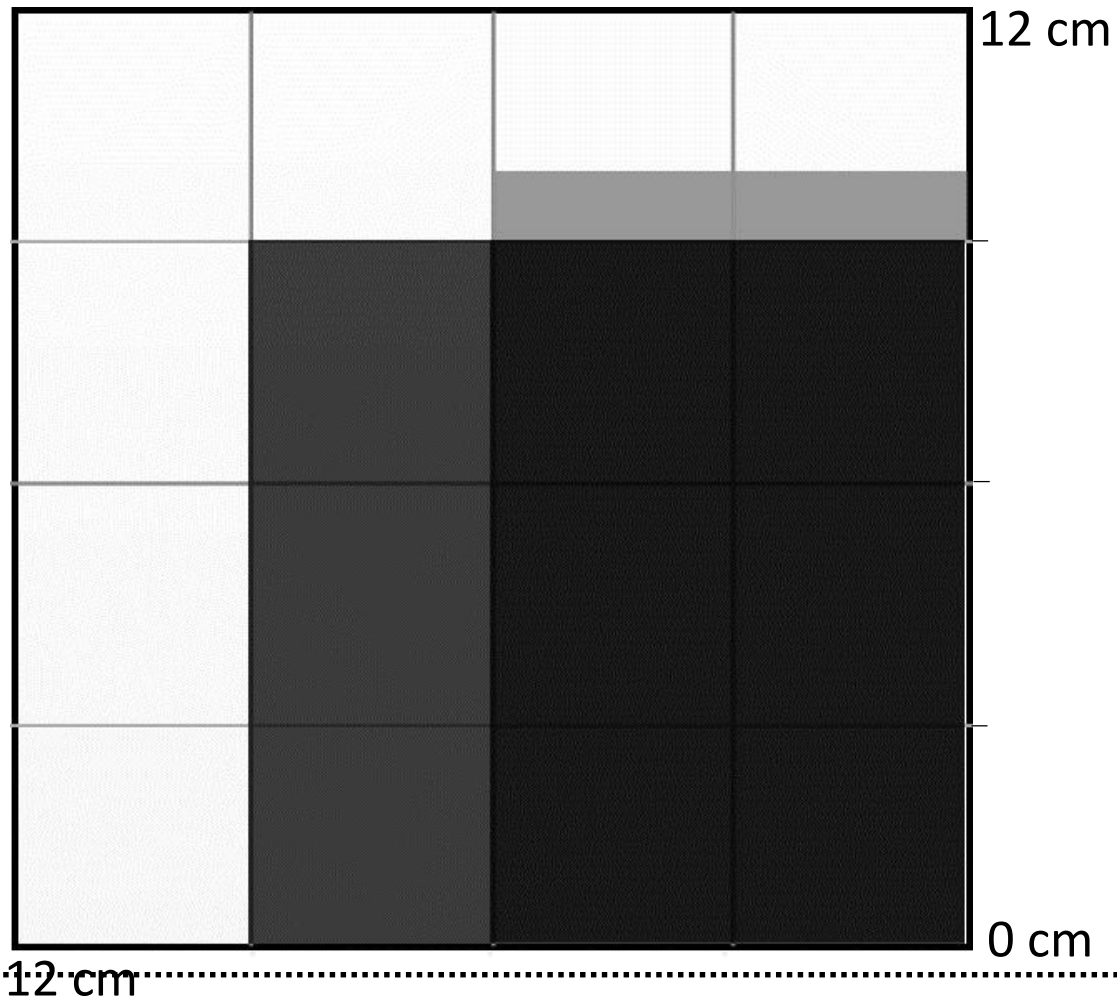


Using stretchable thread to pierce through slit in the body part.



DESIGN DECISIONS:

(deciding scale)



Deciding on scale of various animal forms to be included .The range of height was kept from 0 to cm
While round profiles were restricted to 9*9 cm of block.

CONCEPT FINALIZATION

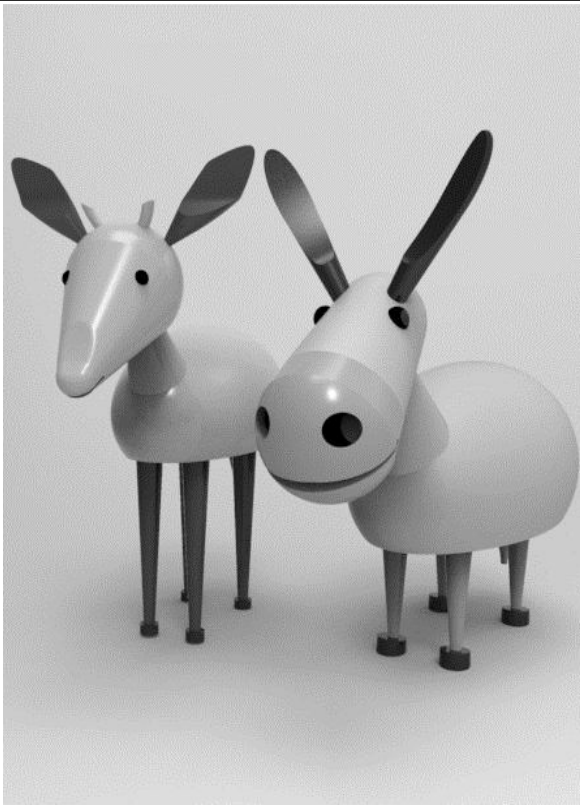
On listing down the constraints we figured the factors could be

/Process: turned

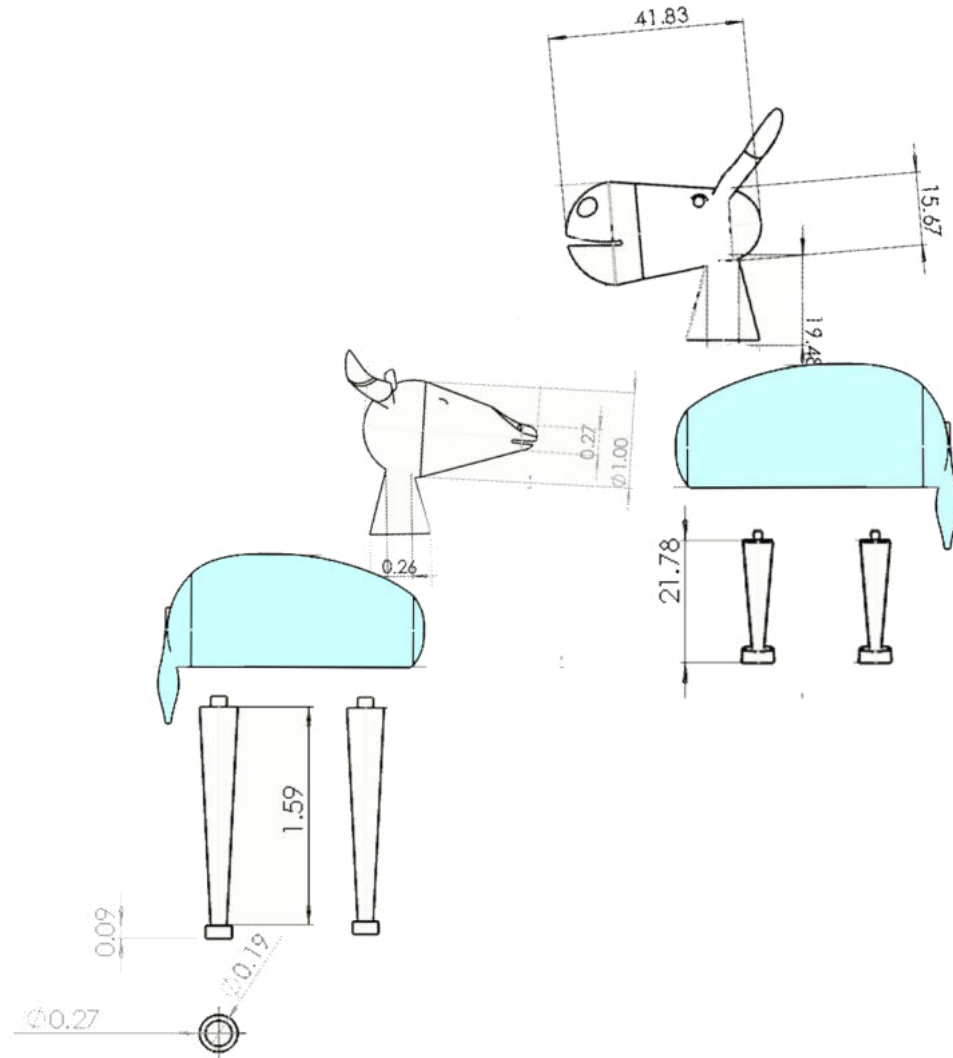
/Constructible

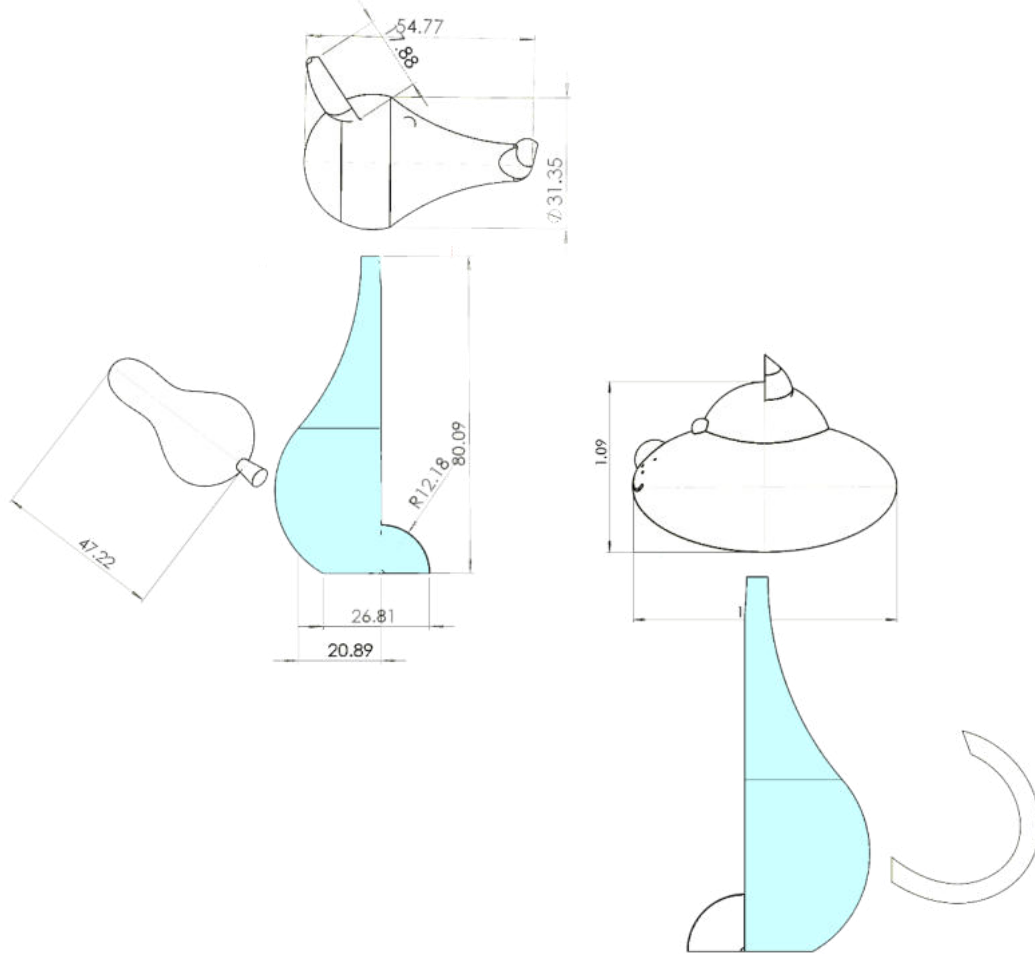
/Animal form

With the idea of animal forms interchanging parts and also to be turned figures (Channapatna) the need of abstraction of forms was felt, pouring in possibilities of animal forms that might take away from the real form and feel of the animal intended. Which behaves as the core of the project. Further changes were made minimizing the interchangeability. The final output had to be the balance. Also the major concern was to make all the animals clearly identifiable focusing on aesthetics and lines more than the interchangeability

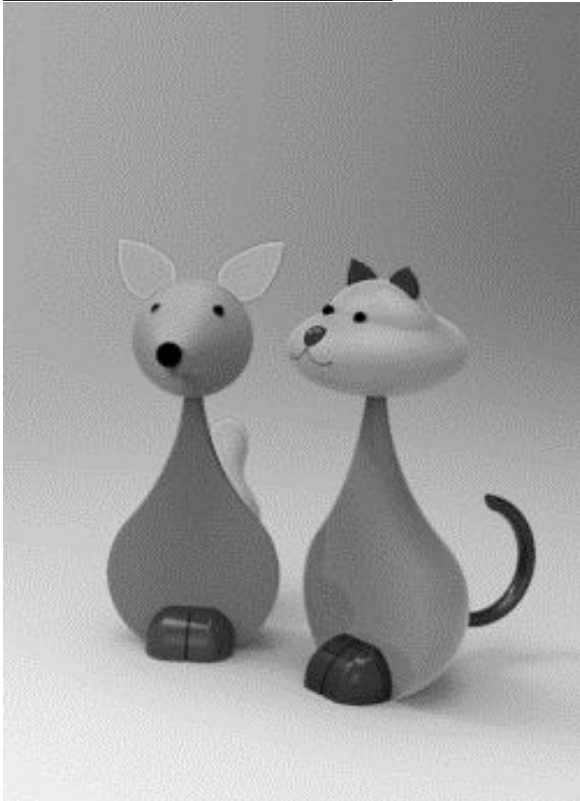


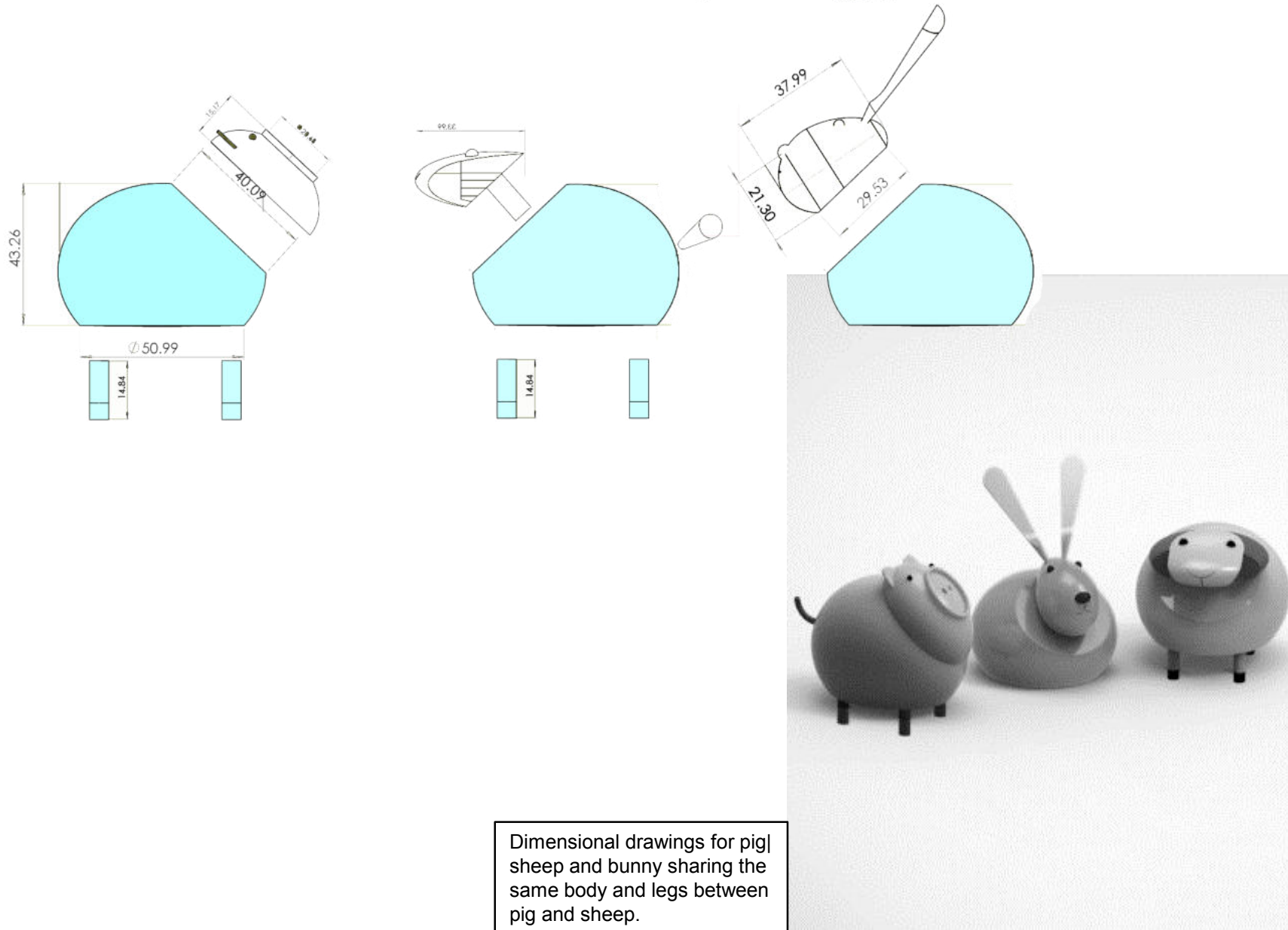
Dimensional drawings for
deer and donkey.
Sharing the same body



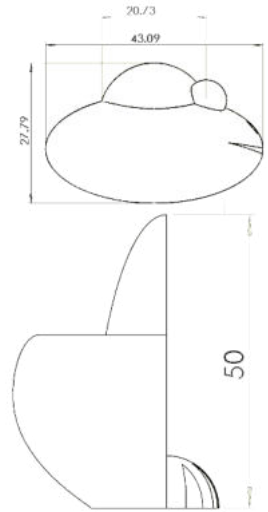
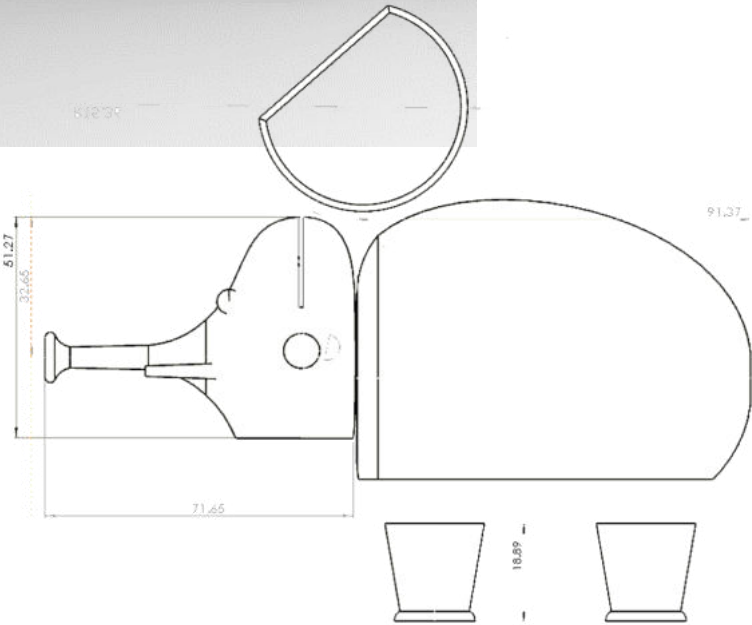
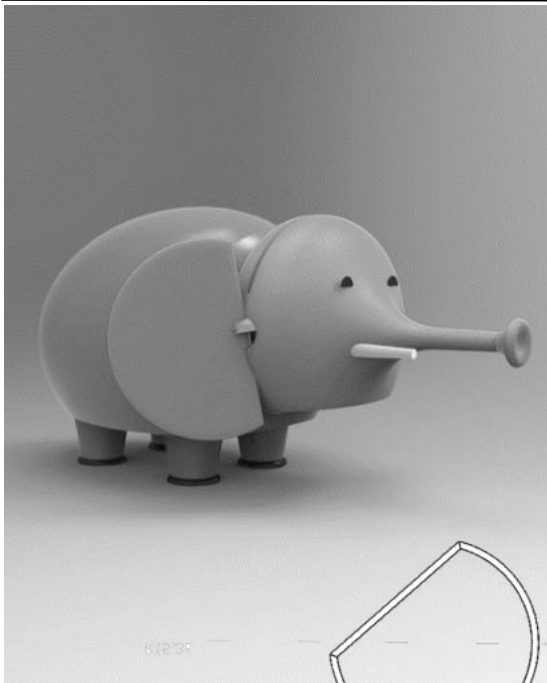


Dimensional drawings for fox and cat. Sharing the same body





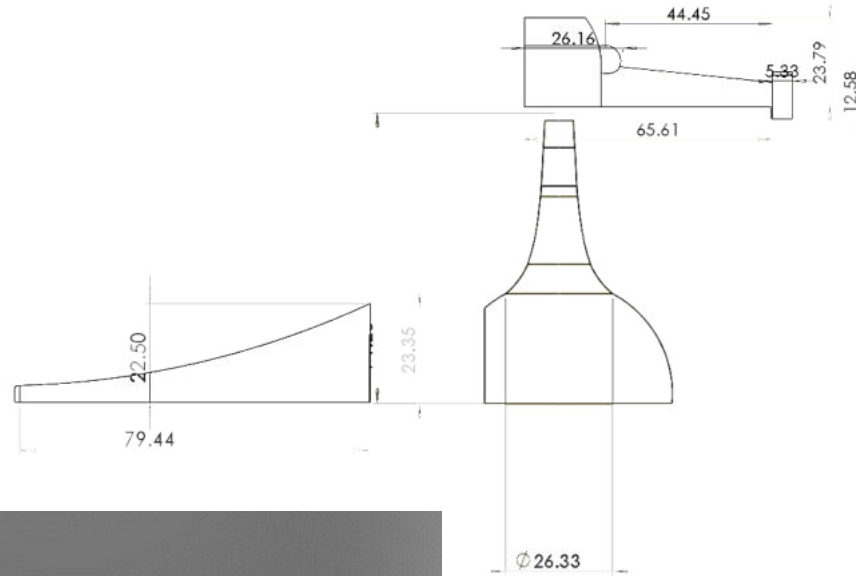
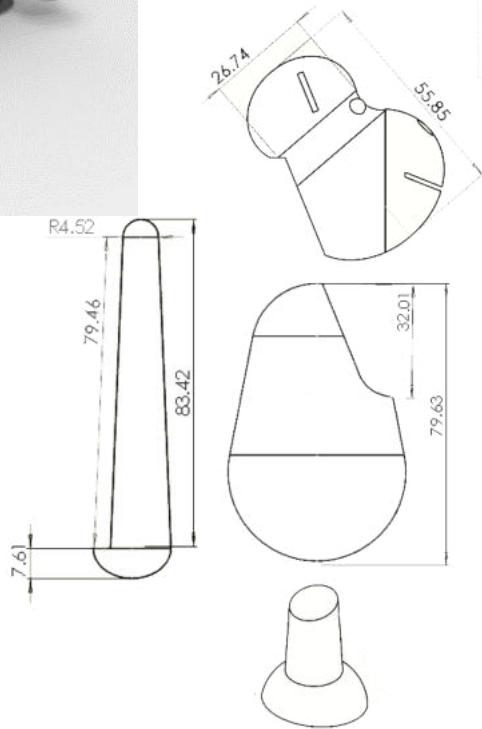
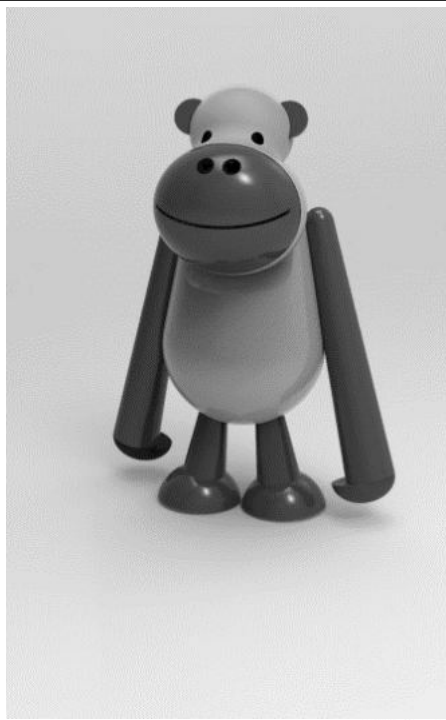
Dimensional drawings for pig, sheep and bunny sharing the same body and legs between pig and sheep.

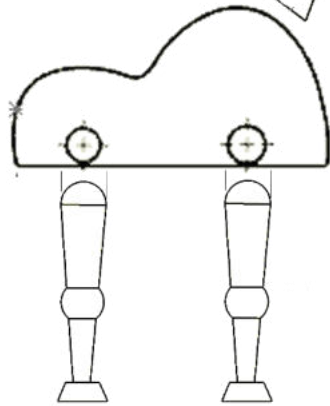
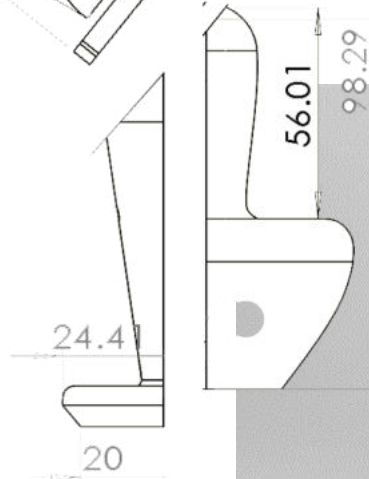
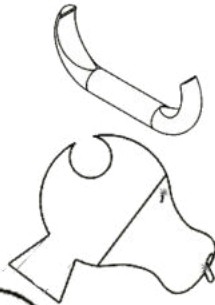
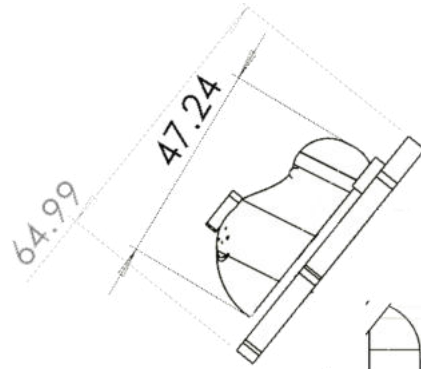
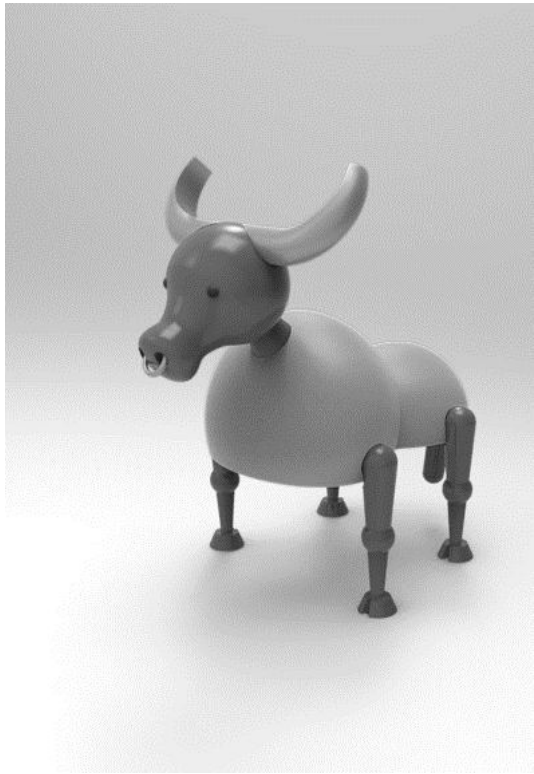


Animals with individual pieces. | crocodile | frog | lion | bull | elephant frog and elephant dimensional drawings



Monkey | crocodile
dimensional
drawings

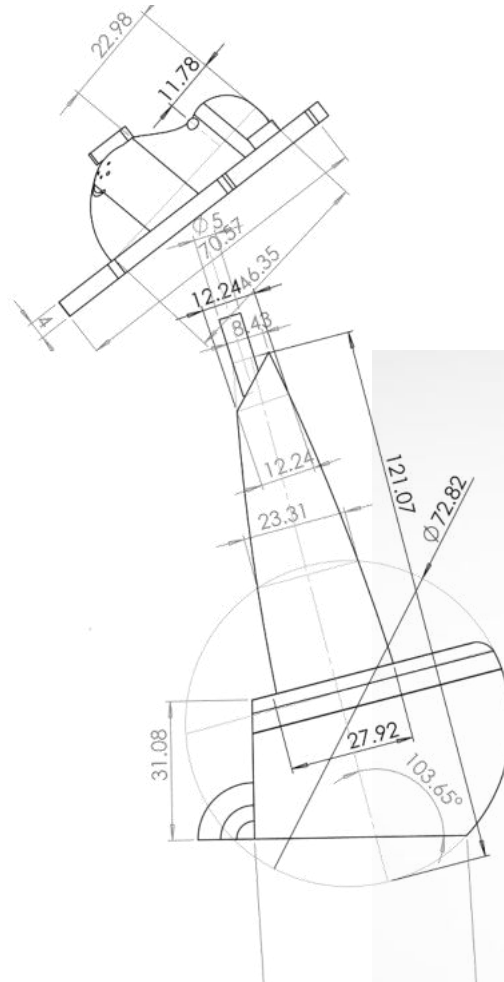
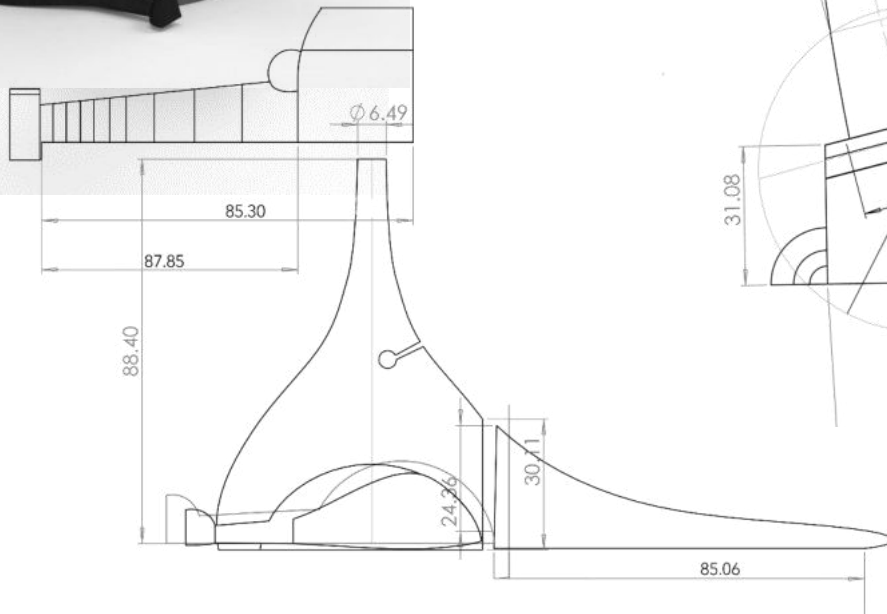




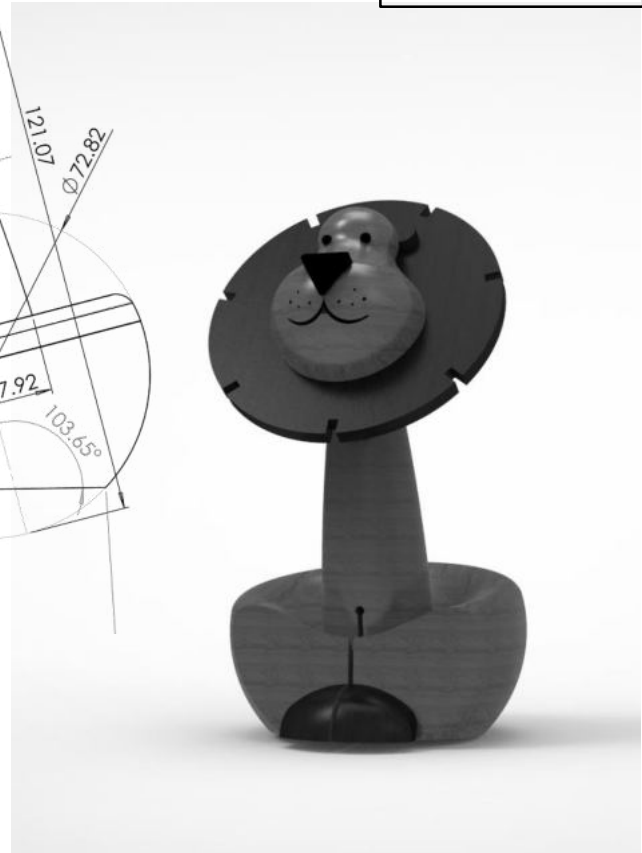
Bull| Lion
dimensional
drawings



DESIGN ITERATIONS:



changed design
for crocodile and
lion





DESIGN INPUT

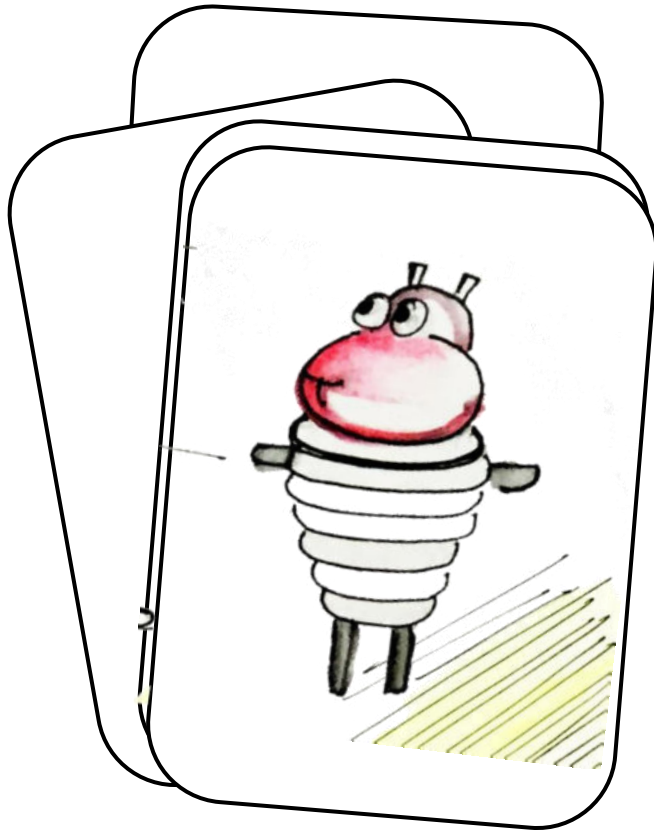
\Generating Forms abiding by the wood Turning
Technique of Channapatna toys

\Creating a pool of modules that allows for multiple form
iterations for the same animal.

\Creating Forms that manipulate its being with little
addition or removal of module parts.

\Abstraction of animal form such that parts can be
interchanged and multiple animals can be achieved

\With variations in scale and multiple number of modules
different scaled animal forms can be made creating a
family and portraying scenarios from the parables.

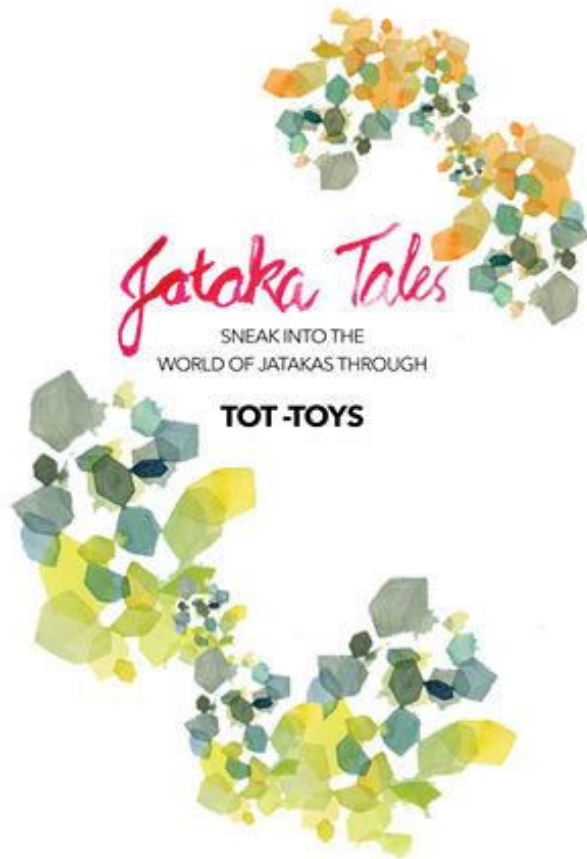


DELIVERABLES

\Constructible animals Set
\Booklet Of 10 listed Jataka Tales.

\NARRATIVE DRIVEN: Placards showing the constructed animal form as a goal to achieve.

\CREATIVITY DRIVEN: Game cards hinting kids to make their own stories.



JATAKA TALE BOOKLET

A Booklet with illustrated TOT-TOYS, adding more life to the toy- animals in terms of visuals with toys in action.

This book is the narrative approach to the project where a story is told and a scenario is imagined| played around TOT-TOYS as told in story



TOT-TOYS
illustrations from
chapters told in
story.

ACTIVITY CARDS

Creativity driven approach :
A set of cards that allows for filling
in incomplete stories or poses
questions triggering an effort to
frame your own scenario and
situations to be played around
TOT-TOYS.



1

Imagine what would have happened to a cat who thought, she was a lion.

.....
.....
.....
Did it save her the trouble from other animals for she thought she was stronger, or she would put herself in situations and get troubled

3

Once an old lion pretended to be ill and killed his well-wishers who came to see him at his cave . The fox from outside his cave gave a shout and asked the lion for his well being. He had noticed the footprints of animals going in .
When the lion asked the fox to visit him in his cave the fox sensed and said "....."

5

A month pass by. It was raining heavy. All the animals were moving to the nearby village.
The little rabbit was caught on the rock amidst the huge pool of water. No sign of anybody around scared him. Just then he hears the noise of a
.....
.....
.....

2

The two frogs left the marsh when it dried. On their way, they saw a well full of water one of them jumped in immediately the other stayed back and walked longer to find a pond instead.

Who made a wise decision?

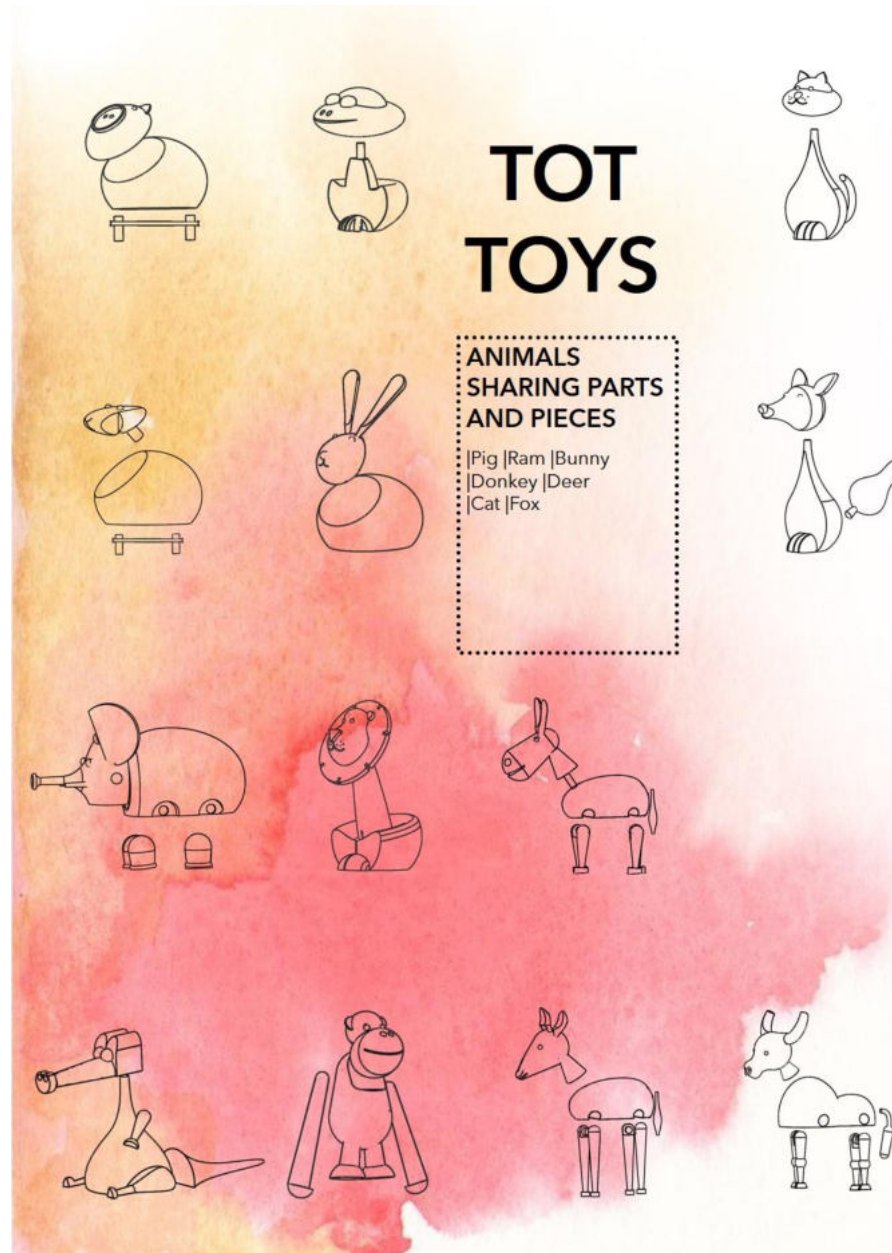
4

Think of different ways to end the story of a fox and a sheep:

Once a fox was roaming around in the dark. Unfortunately, he fell into a well. He tried his level best to come out but all in vain.
The next day, a sheep came that way. She peeped into the well and saw the fox there

.....
.....
.....
.....





MANUAL

A visual of all the animals .
With outlines and detached parts
to take cues from the picture and
figuring out joins in the kit .

1.A Quick and dirty thermocol prototypes



2.A



3.B



3.A Disassembled pieces for elephant



4.A Disassembled pieces for swan



4.B



5.A Crocodile and swan with same parts



5.B



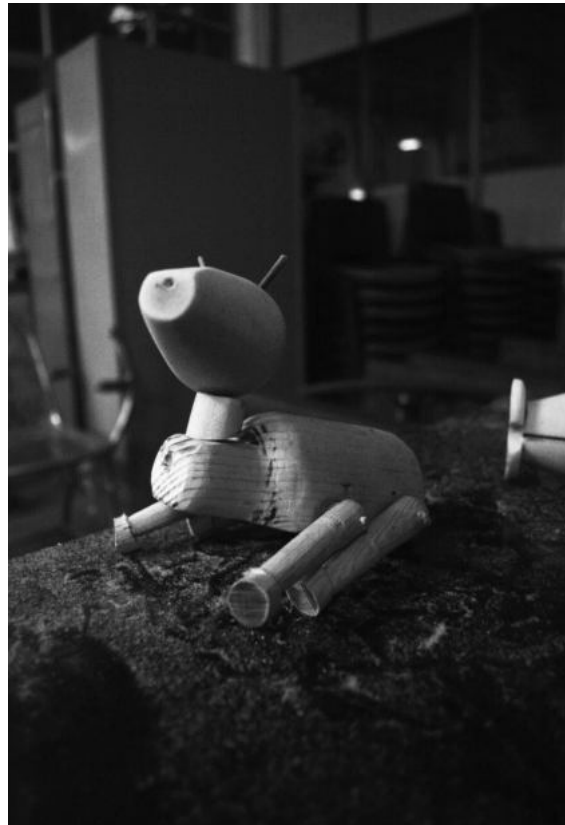
6.A



7.A



8.A|B|C : PU foam turned models to understand the process and geometry.



9.A Crocodile and swan with same parts



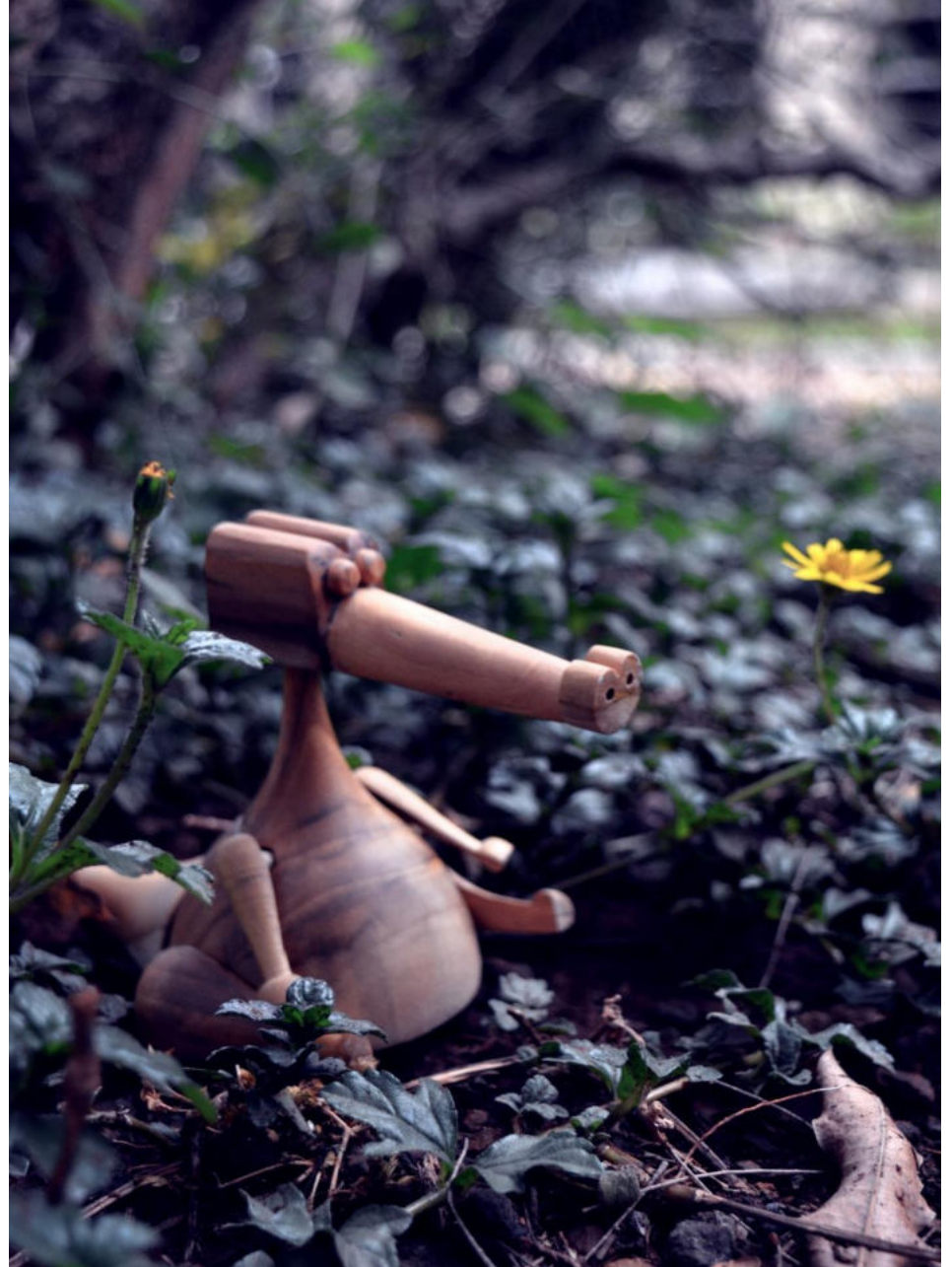




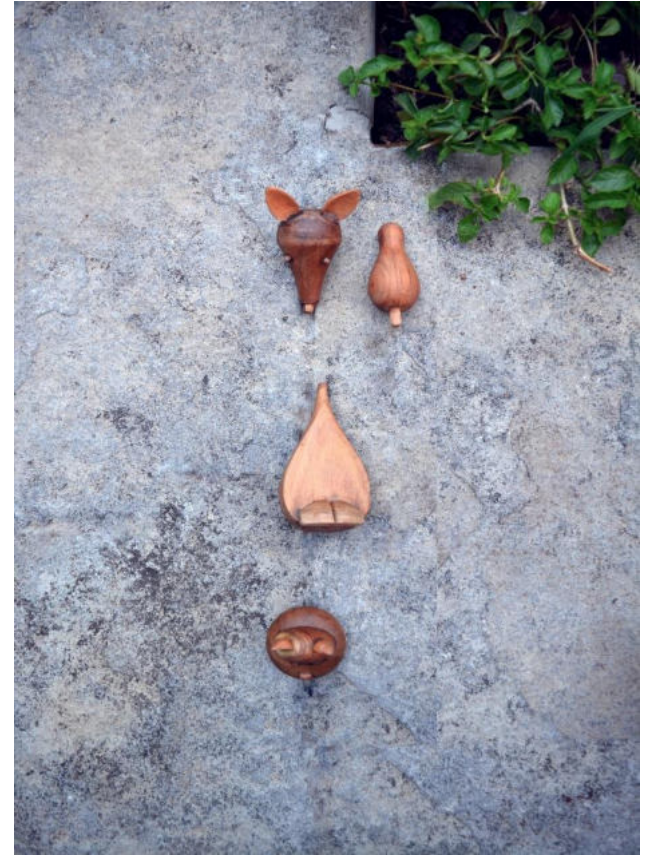


9.A Crocodile and swan with same parts

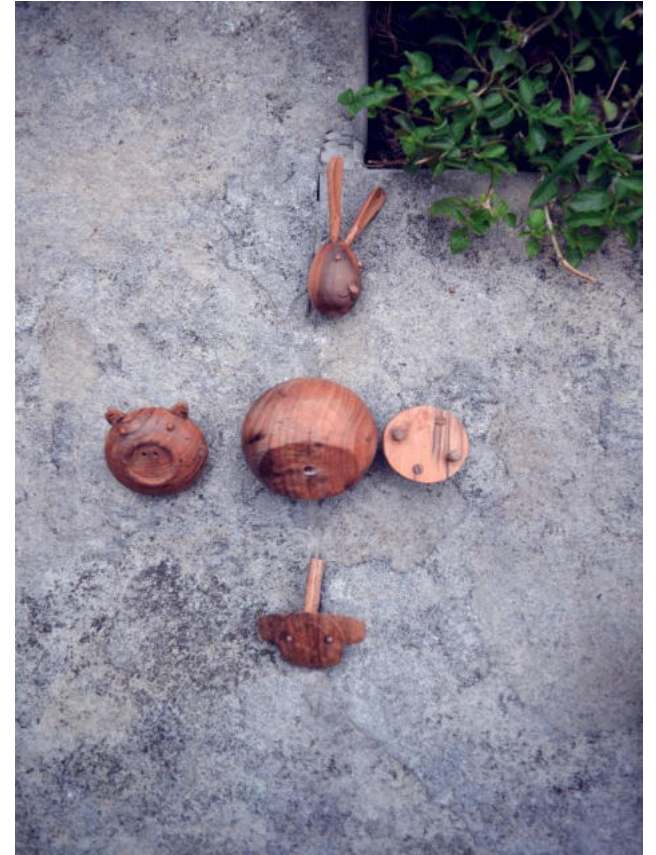








10| Disassembled parts of toys. (a)Bull, (b)Crocodile and (c)Fox from left to right



11Disassembled parts of toys.
(a) Donkey| Deer sharing same
body part
(b) Rabbit| Pig| Sheep sharing
same body part







FEEDBACK

I like how the joinery is allowing for required motion in the toy – Mrs Chaitra

Kids are right in identifying parts of animals. Also they are mixing parts and giving names , interesting – Mrs Radhika

Colours would have made these even better – Mrs Mugdha

FROM KIDS:

/ Its good

/ These are cute

/ My favourite is deer because its fun to assemble it.

/ I don't have any wooden toy so I like it.





REFERENCES

BOOKS AND ARTICLES:

- A| Dynamic folk toys: Sudarshan Khanna
The LEGO Book :Daniel Lipkowitz

B| PAPERS AND ARTICLES:

- B.1 Who Turns the Toys of Channapatna? Indian turned wooden lac ware and the role of Fair Trade in the
B.2 Design and commercialization of the craft
B.3 Toys, Play & Young Children Action Guide
B.4 When video games bridge between play and cinema: Mattia Thibault University of Turin Lego
B.5 Study to Assess the Impact of Chinese Imports on MSMEs in Toy Industry and to suggest remedial measures for corrective action
B.6 Babes in the Woods: Wilderness Aesthetics in Children's Stories and Toys, 1830-1915 :Donna varga
B.7 Teddy's bear and the socio-cultural transfiguration of savage beasts into innocent children, 1890-1920. Journal of American Culture
B.8 Play and toys nowadays- their cultural claim :Dr. Egon Schmuck
B.9 Toy Stories: Mothers and the Meanings of Toys :Jennifer Diaz
B.10 Ethnic Images and Cultural Change
B.11 The Implications of a Theory of Play for the Design of Computer Toys

C| ONLINE SOURCES

- C.1 www.animalsandsociety.org/
C.2 www.world-of-toys.org/india/toy-market-india/
C.3 www.rediff.com/money/report/toy/20030411.htm
C.4 www.kyotojournal.org/the-journal/culture-arts/an-aesthetic-for-toys/
C.5 www.fastcodesign.com › Co.Design
C.6 www.psychologicalscience.org/index.php/publications/observer/2006/december-06/toy-stories.html
C.7 www.yale.edu/ynhti/curriculum/units/1985/6/85.06.04.x.html (toys are us)
C.8 www.arthist.net/archive/12223
C.9 www.boloji.com/index.cfm?md=Content&sd=Articles&ArticleID=14698#sthash.NLF9CLD7.dpuf

IMAGE AND DATA REFERENCES

Page 5

Image 1

Images sourced from:

http://www.tiki-toki.com/timeline/entry/66076/The-Evolution-of-Toys/#vars!date=1881-07-09_18:42:57!

Page 6:

Data 1:

Reporter, B.

Reporter, B. (2016). *Indian toy industry hit hard by imports, says study*. *Business-standard.com*. Retrieved 19 Feb 2016, from

http://www.business-standard.com/article/sme/indian-toy-industry-hit-hard-by-imports-says-study-113081901059_1.html

Page 8

Data 2, Image 2,3,4

<http://www.indiablooms.com/FeatureDetailsPage/2013/featureDetails210113a.php>

<http://www.bharatonline.com/assam/art-craft/toys.html>

Page 9

Data 3, Image 5

<http://www.craftandartisans.com/cloth-wire-dolls-of-karnataka.html>

Page 10

Data 4: <http://www.craftclustersofindia.in/site/index.aspx?Clid=266>

Image 6: <http://lal10.com/collections/saharanpur-wooden-toys>

Page 11

Data 5: <http://www.andhrportal.org/crafts-etikoppaka/>

Image 7,8 :<http://www.andhrportal.org/crafts-etikoppaka/>

Page 12

Data 6: <http://www.thehindu.com/features/metroplus/society/doll-craft-in-the-doldrums/article7040106.ece>

Image 9,10

Thanjavur Bommai, Thanjavur Doll, Making of Thanjavur Bommai

Thanjavur Bommai, Thanjavur Doll, Making of Thanjavur Bommai.

(2016). *Thanjavuronline.in*. Retrieved 19 May 2016, from

<http://www.thanjavuronline.in/city-guide/thanjavur-bommai>

Page 13

<http://www.kostalife.com/heritage/kondapalli-bommalu-facts-thatll-make-you-go-wow/>

Image 11,12,13 :<http://www.explara.com/blog/kondapalli-toy-village/>

Page 14

Data 8 :<http://www.hashtakalaa.com/blog/channapatna-toys-online>

Image 14,15,16: <https://www.shimply.com/toys-school-supplies/channapatna-toys>

Page 15

Data 9: http://creative.sulekha.com/art-of-sawantwadi-wooden-puppets-toys-and-ganjifaa-cards_474795_blog

Image 17,18: http://creative.sulekha.com/art-of-sawantwadi-wooden-puppets-toys-and-ganjifaa-cards_474795_blog

Page 16

Data 10: <http://www.craftandartisans.com/dolls-toys-of-rajasthan.html>

Image 19,20: <https://www.pixoto.com/images-photography/artistic-objects/toys/the-rag-dolls-of-rajasthan-4896703031279616>

Page 25

Image 21:<http://treechangedolls.tumblr.com/>

Image 22 :<http://www.sciencetoys.org.uk/>

Image 23: <http://www.indian/desi-toys-lattu/p/itmdunzdy9juzdv>

Image 24: <https://www.flickr.com/photos/sanmang/2218255213>