

# FYP Presentation No.2

Project title: That brown alternative material

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# Developments from the Initial Concept

- Further understanding of the material (corrugated board)  
*eg. the manufacturing process of raw material,  
how are industries using them*
- Further research on existing designs and how artists/designers are making use of this material  
*eg. the usages/ context and audiences/the design construction-wise*
- Redefine objectives and research questions to context
- this mostly revolves around gathering information as a form of justification towards the proposal of using this material in the design process

keywords: cardboard, eco-friendly, innovative, multi-function

# The Value of Cardboard

- In terms of how useful it is, the structure and cost .etc
- how it is being manufactured, its Life-cycle and the steps and its recycling processes
- the great visual impact it would create in the design industry
- as other possible experimental alternatives for existing solutions
  
- comparing the value of cardboard with another 'common but also recyclable material'
- Plastics

# The Value of Cardboard

Some common advantages as we know

Cardboard are:

- easily available
- non-toxic
- light weight
- easy to handle
- cheap and economical
- easily customized
- allows space management
- eco-friendly
- recyclable and reusable
- decomposes with soil without any residue
- energy efficient to create
- easy to print onto

# The Value of Cardboard

A case-study on its cost efficiency aspects and also as a material alternative:

## Out of the box (OTB) system

- a system invented by Mike Juma
- that introduces corrugated trays as a replacement for plastic trays in the bread retail and delivery industry
- cuts the added cost in terms of the wash cycle each time the trays goes back to the manufacturer for a new delivery
- cuts the distribution costs as the delivery truck only make one trip
- cuts fuel cost as OTB system carries double the amount of loaves per palette



Fig. 1.0 (Corrugated trays system)

# Cardboard vs Plastics

A comparison in terms of the both packaging recycling and production process

## Cardboard recycling & production:

After disposal, used bottles or packaging are sent directly to the new packaging manufacturer to be re processed

Production happens at the same factory

## Plastic recycling & production:

After disposal, bottles or packaging are transported to recycling plants which then undergo the recycling process which consists of 6 different phases

It would take 1 gallon of water to clean 40 plastic bottles

The new raw material is transported to another factory for new production

*\*less recycling time also means less consumption of resources*

# The link and further research

Children and their attitude towards their toys and play furniture  
- especially the Pre-schooler group (potential target users)

*\*every children has a different personality*



Pre-schooler

- kids ages 3 to 5 years old

- this is the crucial stage of early childhood when a kid:

- starts to learn and adapt new skills

- gets curious with all sorts of questions and actions

- develops various kinds of emotions as the adapt to changes

*\*this is also the age group where they are qualified to play with most of the toys available in the market*

# The issues

There are several concern issues to this topic:

1. Kids resorting to destructive behaviours and damaging their toys .etc
  - thus, parents has to replace broken toys
  - not a economical process as carefully-made toys are costly
2. Kids toys can be big and bulky
  - storage and space management wise can be a problem
  - homes are getting smaller
3. The rise in the standards of living
  - toys might be an optional element in raising a kid but it is also one of their needs and as mentioned, quality toys are expensive because of its material
4. Toys or kids furniture do not grow unlike its user
  - some quality toys are made to last for many years but a kid would only use it for a year or less and then it is replaced as the kid gets older
5. The history of harmful plastics used in toys
  - not many really bother about this issue as they assume that trusted brands and the high price tag would justify the quality of the toy/furniture



# Justification of material in context

How Cardboard could serve as an alternative:

1. Cardboard is cheap as it is easy to produce, so the end product would not be as costly
  - consumers save money, manufacturer saves more money and all of them are contributing to saving the environment in a way
2. Replacing cardboard toys or furniture will be cheaper as compared to the other materials
3. Cardboard products are made to be more rugged thus allows a second usage when it gets worn out for example, rough mats
4. Cardboard are flexible and can be flat-packed easily upon proper construction, thus allows easy space mangement
5. Cardboard is eco-friendly and very safe so consumers do not have to worry about toxins
6. Visual-wise, cardboard is a unique material that could stand out from all similar products

# Implementing the possibilities

## Cardboard as an alternative material for kids toys and furniture (to a certain extent of temporary product)

### The Idea:

#### Implementing the elements of childhood development to my product

*- kids love hands-on and they are often fascinated with colours, motions and big objects*

- a possibility that kids could interact with the product
- a product as a learning tool for kids (an innovative aspect which allows the kid to play and learn)



### These includes:

#### - Creativity

eg. to construct or explore with the forms of the design like DIY making or joining modular designs

#### - Learning

eg. learn about the material used and why we should recycle, teaches to think out of the box

#### - Management

eg. learn to manage the space and organize toys after playtime

#### - Fun

eg. for the kid, the design could be anything like a robot or a table as long as it is fun

#### - Puzzle and Games

eg. add elements of child-like games that requires a thinking process



# Theme and ideas

## “Transformation”

linking back to the child growing stages and how their minds develop as they learn

## Inspirational elements includes:

basic shapes and colours,  
geometry,

basic kids toys like the wooden matching shapes toys and the building blocks



## Possible outcomes:

children play furniture like tables, chairs, storage system or writing boards

playhouse or push cars .etc

flooring system .etc

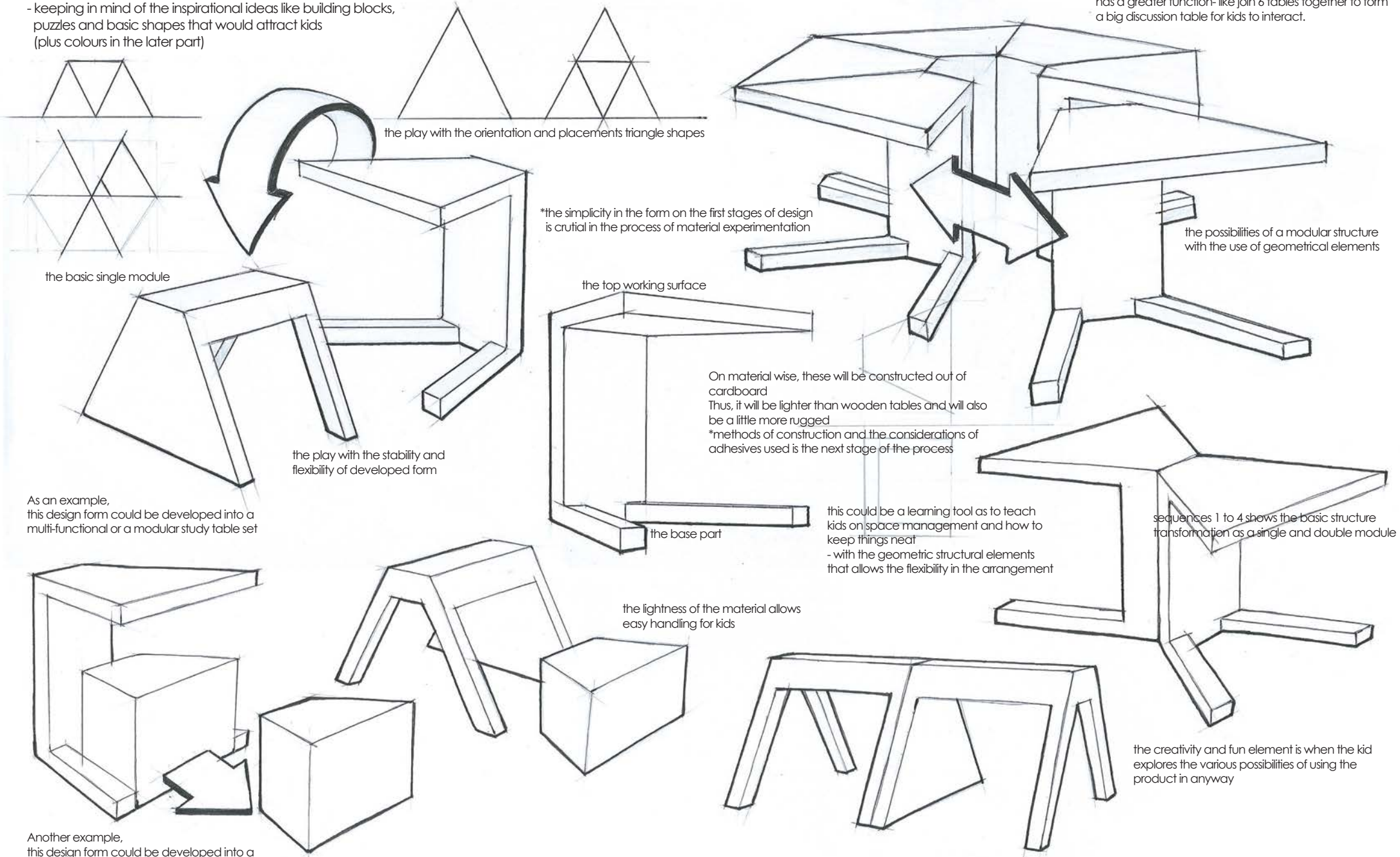
## Keywords:

Modularity, Multifunctional, Transformation, Growth, Construction

# Development of modular combinations from a basic shape

- as a start in form exploration studies
- keeping in mind of the inspirational ideas like building blocks, puzzles and basic shapes that would attract kids (plus colours in the later part)

For example, this design form could be placed together in any way, side to side to make an overall structure that has a greater function- like join 6 tables together to form a big discussion table for kids to interact.



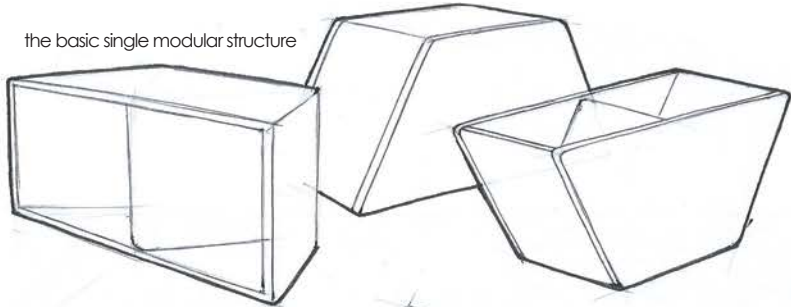
As an example, this design form could be developed into a multi-functional or a modular study table set

Another example, this design form could be developed into a table and chair set



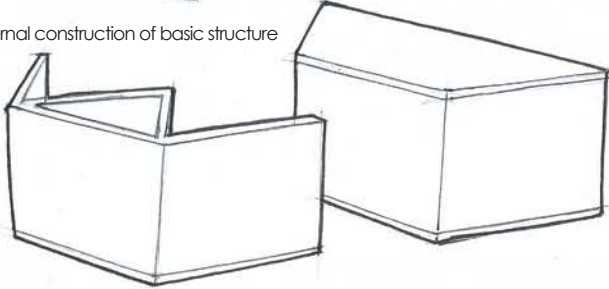
# Development of modular combinations from a basic shape

- as a start in form exploration studies
- exploring on the theme of transformation
- keeping in mind of the inspirational ideas like building blocks, puzzles and basic shapes that would attract kids (plus colours in the later part)
- shape is derived from the placement of three triangles opposite each other

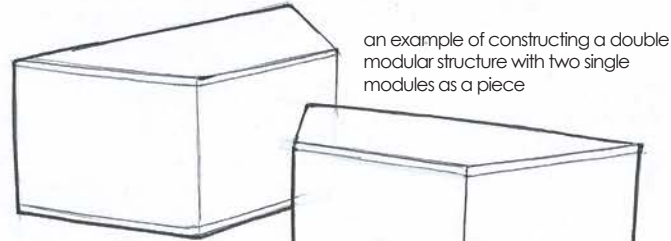
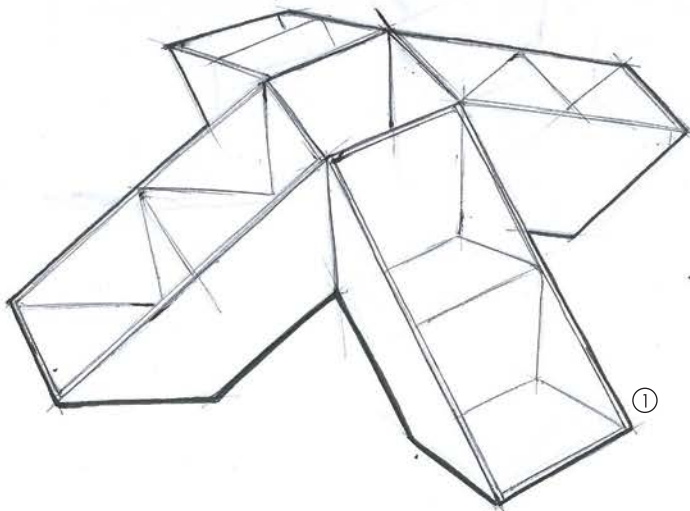


the basic single modular structure

the internal construction of basic structure

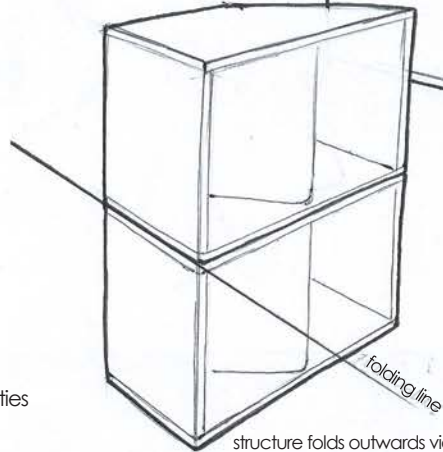


As an example, this is a modular kids stool design that has multi-functional capabilities



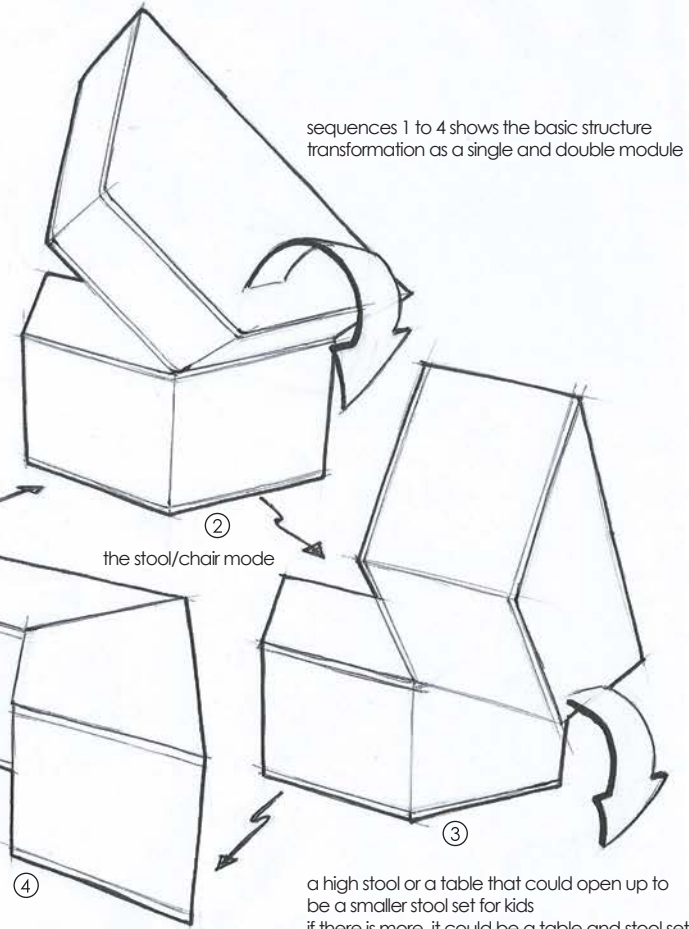
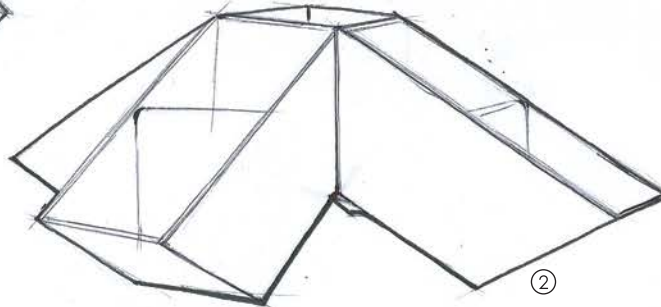
an example of constructing a double modular structure with two single modules as a piece

exploration of the possible structural joints and fold up methods



structure folds outwards via the connection on the side

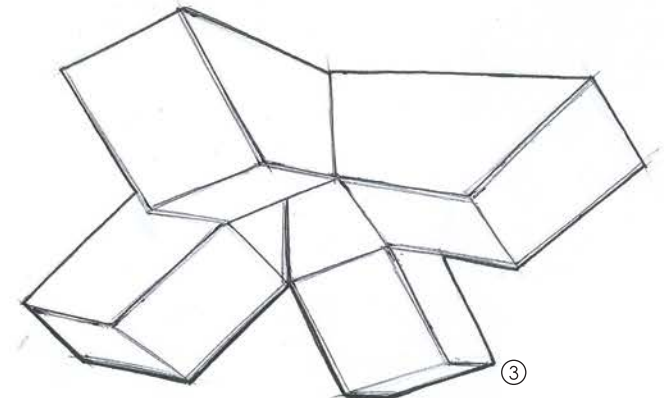
sketches 1 to 3 shows possible structure combinations



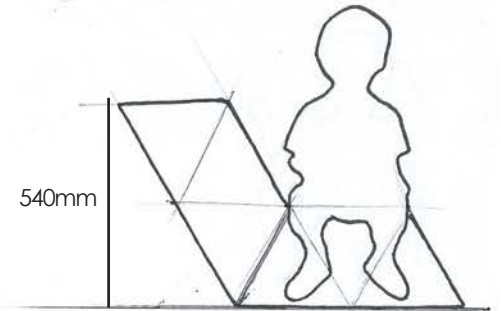
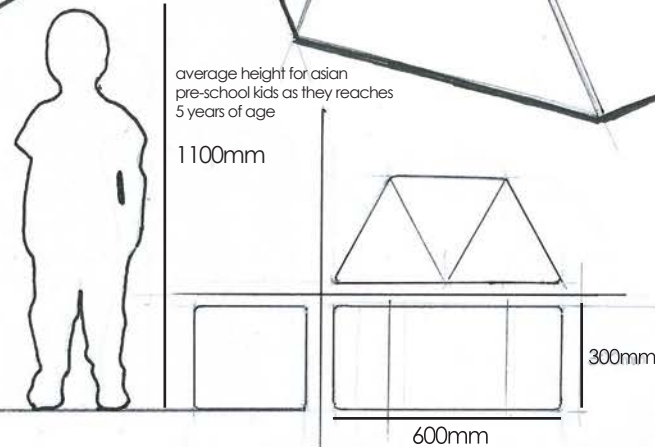
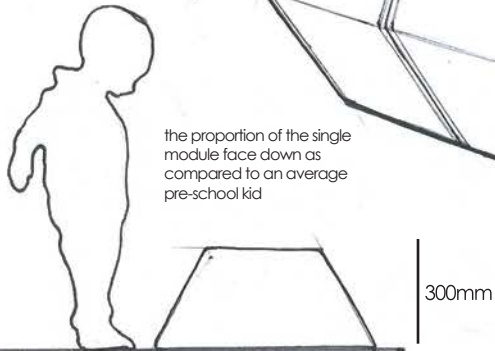
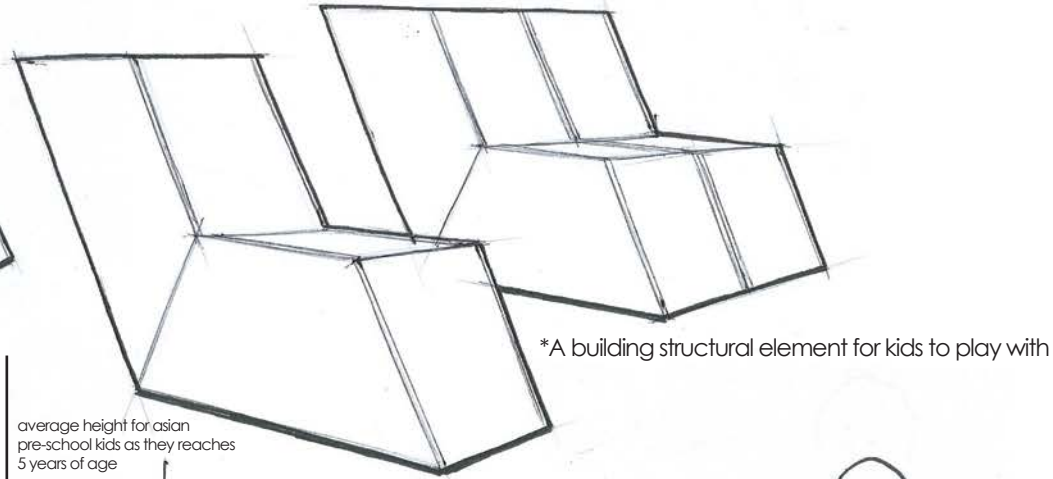
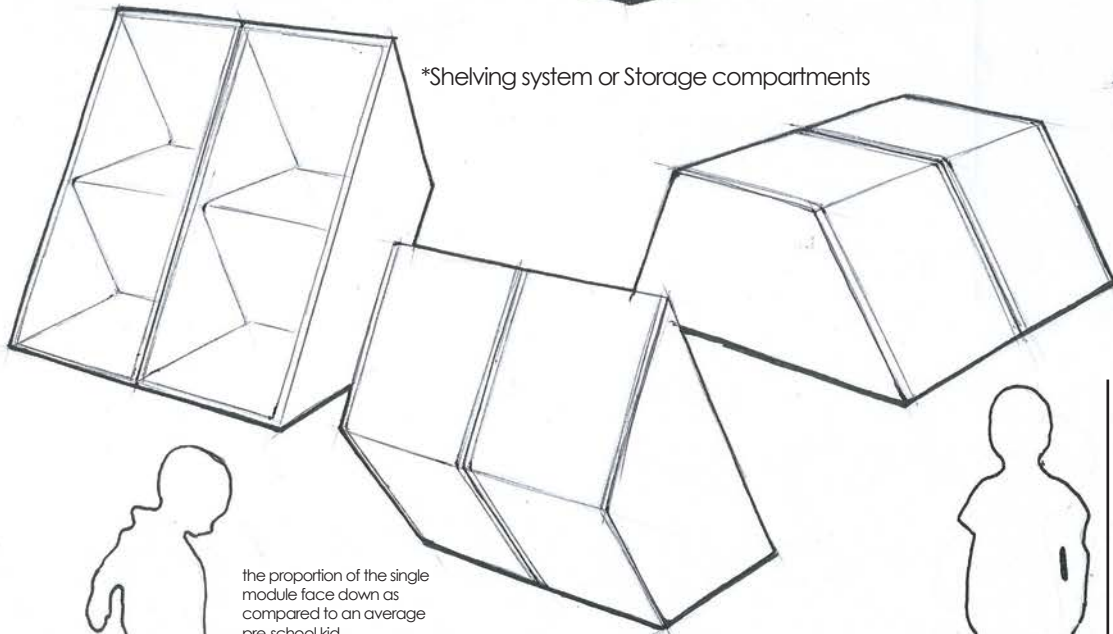
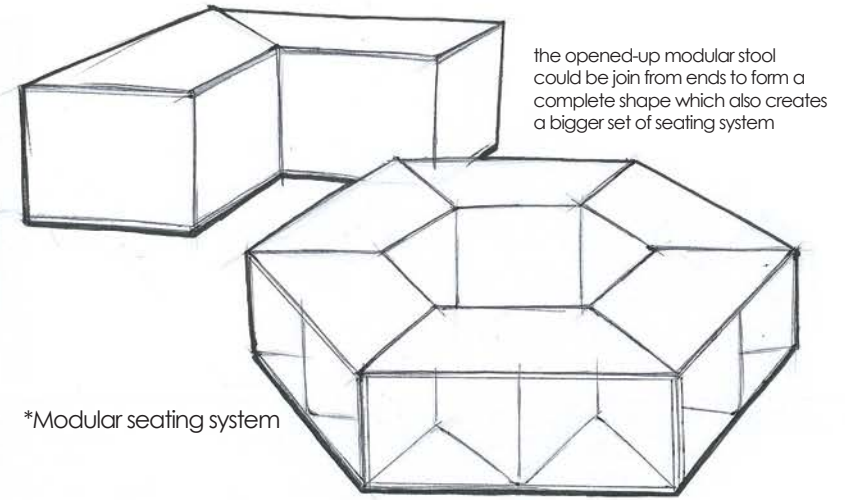
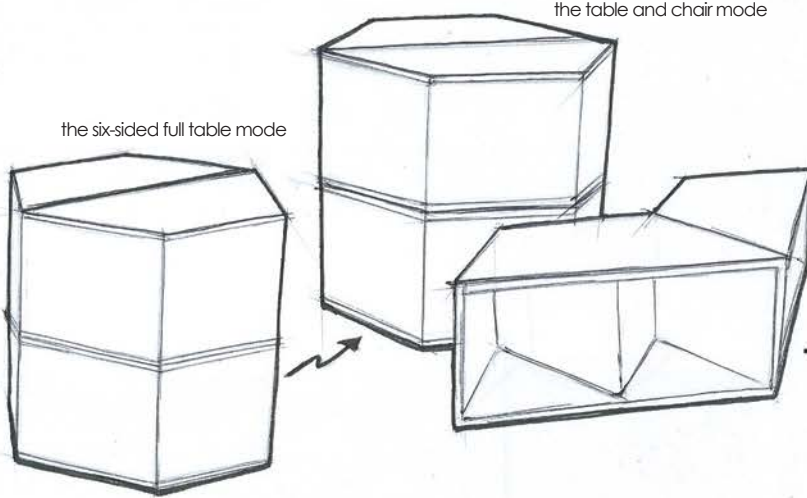
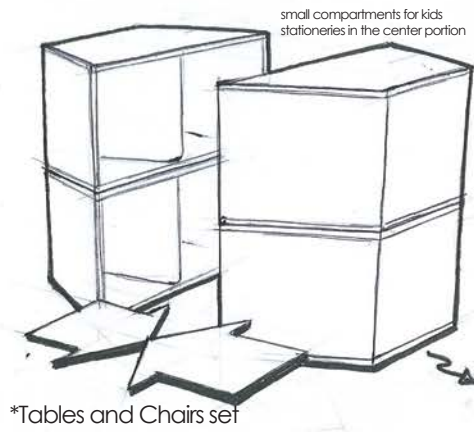
sequences 1 to 4 shows the basic structure transformation as a single and double module

the stool/chair mode

a high stool or a table that could open up to be a smaller stool set for kids if there is more, it could be a table and stool set



The multi-functional play furniture set for kids



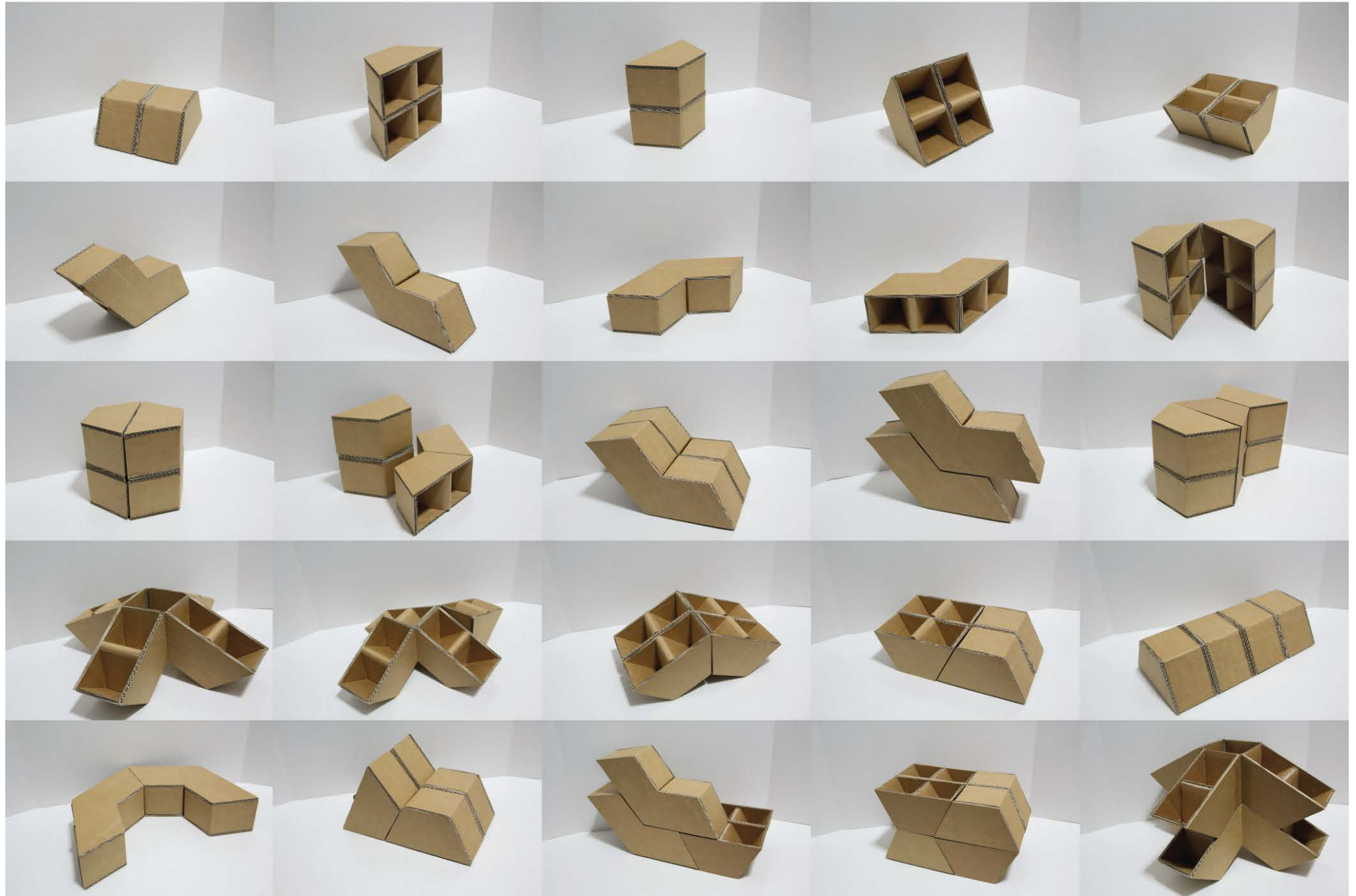
the basic measurements and proportions



# Experimental Models

1:3 scale

\*this is just a process of searching and looking onto modular shapes in various possible ways  
but this is not anywhere near to the final result  
as I am still researching onto the functions of products which fits in the kids playroom environment



# Bibliography

## References of Images

Fig 1.0 - Corrugated trays system

Image source: [http://www.bakeryandsnacks.com/var/plain\\_site/storage/images/publications/food-beverage-nutrition/bakeryandsnacks.com/processing-packaging/out-of-the-box-cardboard-can-cut-costs-of-plastic-trays-for-bakers/9797826-1-eng-GB/Out-of-the-Box-Cardboard-can-cut-costs-of-plastic-trays-for-bakers\\_strict\\_xxl.png](http://www.bakeryandsnacks.com/var/plain_site/storage/images/publications/food-beverage-nutrition/bakeryandsnacks.com/processing-packaging/out-of-the-box-cardboard-can-cut-costs-of-plastic-trays-for-bakers/9797826-1-eng-GB/Out-of-the-Box-Cardboard-can-cut-costs-of-plastic-trays-for-bakers_strict_xxl.png)

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Thank You!