



design of play objects for children

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## **Product Design Project III**

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## approval sheet

**The product design project titled ‘ play objects for children: a source of experience’ by Ms. Vidya Joshi (02613013) is approved as a partial fulfillment of the requirements for the Post Graduate Degree in Industrial Design.**

**Project Guide :** \_\_\_\_\_

**Chair Person:** \_\_\_\_\_

**Internal Examiner:** \_\_\_\_\_

**External Examiner:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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## designing for children..

As human beings, we know that a few things in life are guaranteed. One thing is certain everyone is a child at least once in his/her lifetime. The promises held out to children by adults are very fascinating. Designing for children's products gives us an opportunity to deliver these fascinating promises.

Designing for children requires a very special focus. One criterion that has priority over all others is – relevancy. It is necessary that products for children be designed specifically for them, and not just be scaled down versions of adult products.

The toy industry has the opportunity more than any other to mould, shape and assist the development of future adults. We as designers should definitely give our best to this industry in terms of design.

We do not live in a perfect society, but whatever we design should in some way illustrate progress and innovation, without breaking the link from our past while contributing to the future.

Playing is a right of every child. Its true that play objects can be a great source of overall development for the child. But the basic and most important intention of play is to have fun, which many a times gets overlooked by adults due to overly rated concerns of learning and development of children.

The project is an attempt at designing play objects that are a source of enjoyment, awareness and learning for children – play objects that let play be 'play' and not become 'work'.

# CHAPTER 1

## play object a source of experience, awareness and learning

### 1.1 play object- a source of experience....

Firstly, it is important to define what do I mean by 'experience'.

Here, one needs to understand difference between an object being attractive and interesting and the same having such a quality, that one never ever gets bored of it. Attractive interesting things tend to become uninteresting with time where as the latter have something new to offer in every encounter.

'Play experience' is defined as a situation where the whole and soul of the child is a part of the play environment. This could be called 'kinesthetic experience in space' where in the entire body of the child moves in the space around. The play activity of a child can either revolve around a certain *environment* created for the same or can be focused around a particular *object* of interest.

## play environment

This approach looks at creating a *play environment* for the child. This environment is a source of sensory explorations filled with fun, adventure, and surprises. It gives the child an opportunity to react to the surrounding objects and people openly.

The child develops sensory skills, social skills, analytical skills and intellectual skills. Most importantly, the child is free to move and has fun.

## play object

Further explorations led to the idea of an object as a creator of experience – an object that activates body movement in the space around. The simplest example one can state is of a ball. A child plays with the ball at home, at school, on the playground, while watching TV, while bathing... it can become a part of multiple contexts. The child can play with it almost anytime anywhere.

Finally, I have explored the possibility of creating ‘a mystery object’ an object that is a constant revealer of surprises, a source of curious involvement, and with an inherent quality of instigating a play process filled with fun, learning and overall development for the child.



## 1.2 intention of the project...

- promote the natural ability of children to explore and discover
- provide the child a source of fun, learning and over all development – physical, mental ( intellectual)and emotional



children never get bored of playing outdoors



Children physically explore objects by holding, touching, feeling them.



- help the child to realize that one can change and manipulate the environment to create experiences, both known and unknown.
- let play be 'play' and not become 'work' - to make play an extension of children's senses and not a forced activity.

## 1.3 methodology

### stage 1

The design project demanded different types of studies to be carried out. It also required getting information and developing a better understanding of children. Each study provided useful information which was helpful to define the design approach.

Interactive sessions with children, parents, teachers, dealers of toys and other people directly or indirectly related to the toy industry provided first hand insights into the behavioral aspects of children - how children react to objects and people around. This helped to identify certain loopholes in the process of playing with the available play objects. Also revealed how emerging trends, media, affect children and their needs.

**Market scenario : study and evaluation of available play objects**

This provided insights into current market trends and the forces that dominate the toy industry.

**Writings and publications:** Extensive work has been done in the field of child psychology. Many theories have been put forward explaining learning and development in young children. These theories give valuable insights helpful for laying a foundation for design objectives.

## stage 2

**Study and analysis of play objects available in the market: A critical analysis done of a few play objects based on the criteria chalked out, helped in understanding the popular trend and identify loopholes in the quality of play offered by the existing play objects.**

## Stage 3

**Defining the play process**

## stage 4

**Concepts – stages, user feedback  
Final concept- user feed back, refinement**

## summary

- **The basic intention of play is to have fun, which many a times gets overlooked by adults due to overly rated concerns of learning and development of children.**
- **It is necessary that products for children be designed specifically for them, and not just be scaled down versions of adult products.**
- **Designing a *play object* and designing a *play environment* can be two independent approaches for designing play things for children.**
- **The project aims to design of play objects for children aged between 3-5 years. The play object should be a source of joyful experience, learning and over all development for the child – an object that lets play be ‘play’ and not turn into ‘work’.**

## CHAPTER 2

### children and play

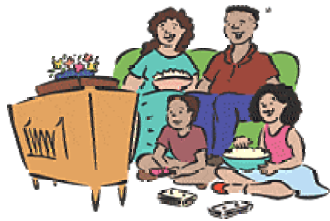
#### 2.1 children

Young children are perpetually active, very rarely do they keep still. They are quick to let their emotions be known. They enter work and play with their whole bodies. They feel, observe, smell and sometimes even taste materials and objects. This is their way of learning about things - *through their senses*.

The child's imagination takes him to many strange and wonderful worlds and situations. This imagination is found in children's drawings, stories and dramatic play. The imagination takes form of aiding the child to enter the world of his own making and allowing him to enact anything he wants through drawing, making things, speaking or dramatizing.

*Childhood is measured out by sounds and smells and sights, before the dark hour of reason grows.*

*~John Betjeman, Summoned by Bells*



## 2.2 play

Today's children have many advantages, such as television, computers, greater access to wide travel and the advantages of associating to a greater extent with the community around him. These advantages affect him in many ways one of which is intellectually.

Greater exposure to the world around has opened the gates of information and technology to them at a very early age. Though this has its advantages, it many a times lends them a distorted perspective of the world.

The child discovers the world through play. If one watches a young child at play, growth and learning within the child become apparent. The contradiction of what you want to do and what you are able to do

is done away with in the realm of play. Most important is that the child becomes active and develops creative and analytical talents while playing. Through play, the child works out his understanding of people, situations and experiences.

All classes of development in the initial years of a child need good guidance and encouragement to understand and establish each child's importance and need. This will be very helpful for us designers to know what to give the child by way of playful and learning experiences.



*The most effective kind of education is that a child should play amongst lovely things.*

*- Plato*



## what is play?

Play and work conventionally defined are two drastically different activities. In work the activity is carried out not necessarily because it gives individual enjoyment ( like in play) but rather because of the want of the end result.

Play is entered into voluntarily and without any external force and compulsion. One could conventionally differentiate 'work' and 'play' like this. But the realm of play can be explored effectively to enhance the overall development in children: be it physical, mental and emotional. At least in the initial years (say up to 5 years of age) the realms of play and learning are not or rather should not be distinctly different.

The child's learning is through what the child sees and experiences in the world around. Learning in this phase of child's life is more of exploring and discovering the world around in his / her own way.

Children in the age group of 3 to 5 years are in one of the most interesting periods of growth. Children develop at a fast rate between the ages of 3 to 5 years. Although there are variations amongst children, there are still many characteristics that are common to specific age groups.. Between 3-5 years, at each age level, there appears to be a special need that requires satisfaction on the part of the child.

## 2.3 learning

**Play consists of responses repeated continuously for functional pleasure**

– Piaget



**Learning can be said to be a continuous process of internalizing (by way of observation, assimilation and understanding of objects and situations) and externalizing (by way of responses, interaction, expression and creativity)**

**Learning is another medium by which a child is introduced to the habitable world. This habitable world has both man-made and natural components each having its own macro and micro situations.**

**The realm of learning stretches much beyond ‘education’ or ‘gaining information’ about facts as in conventional schooling. Learning means gaining an awareness of the world around and developing an independent perspective of looking at it. It means a confrontation of the situations that one faces in real life and developing the attitude and skills required to face it and work through it.**

**Today, children have access to a variety of media such as television, computers, greater access to wide travel and the advantages of associating to a greater extent with the community around them. This definitely helps to increase the knowledge bank of the child.**

**These media often prove to be effective in the development of children of older age group (say 8-14 years) where the foundation of overall development is laid. But in younger children (2-7 years) increased media-dependency doesn’t fulfill the basic developmental needs of the child that are discussed above. In many cases it leads to distorted experiences and does not give the child a chance to develop independent thinking.**

*Imagination is more important than knowledge. For while knowledge defines all we currently know and understand, imagination points to all we might yet discover and create"*

- Einstein



*Much learning does not teach understanding.*

- Heraclitus (540 BC - 480 BC),  
*On the Universe*

Learning should give exposure to the world. It should give opportunities to experience the world around in a way that, the child feels almost no sense of forced effort in the same, but willingly accepts the challenge of experiencing it and evoking responses.

## 2.4 learning through play

Play activity needs to enhance the process of learning (awareness by way of exploration) and give it a meaningful quality leading to overall development of children.

### role of instruction

This does not mean that children should be given an open hand at any thing and every thing they do. Development of a child needs good guidance, instruction encouragement and participation of adults. But adult participation should extend only till instilling confidence enhancing interactive capabilities in a child to move ahead and not as a forceful interjection.

We as designers need to design for creating objects and experiences which do not force thoughts on children but which prompt them to search and discover own their own.

## 2.5 theories of learning

Various psychologists and child experts have put forth different theories

to explain learning in children. These theories provide valuable insights, which need to be effectively used to generate design ideas.  
( refer annexure )

- Piaget's theories
- Jerome Bruner's theory of instruction and constructivist theory
- Diene's theory of learning

These theories of learning are helpful in getting an overview of child development. But observing children first hand gave me insights which were much more helpful to understand children's reaction to objects and spaces and the process of play.

## 2.6 values of play

Play develops imagination and creativity.

It develops analytical skills. It helps children to plan, and to check on how their ideas are working out.

Through good play, children learn to live with themselves and with others and to develop a better sense of how our world operates.

Play also offers children the opportunity to experience success and the chance to work through uncomfortable feelings in a secure and supportive way. It has a healing and strengthening power for young children.



*'A child who learns the sky is not always and only blue, a child who will probably find more creative solutions to a problem in future; who will be more ready to argue and not to submit.'*

- Bruno Munari



*Making the air visible*, using strips of paper as a learning device, Bruno Munari, 1969  
Source: Bruno Munari-design as art, Aldo Taachis  
MIT press

Increasing competition in real life demands ability and skill to face and think through various situations. Play gives children experience in creating and rearranging possibilities to reach a solution. Play continually confronts children with real situations and problems and provides them the means for working through them.

The true nature of play is experimentation and a slow sinking in of life's lessons. Play is an activity that is repeated over and over and over again. Play is practice for good living, Many times we can only tolerate activities that seem highly directed to some clear-cut end, with the sure promise of quick results.

In short play is a medium for the overall development of a child: physical, mental and emotional.

We tend to be future-minded and product-minded. We are also time-conscious. Parents and teachers often harbor beliefs that children's play is meaningless and a frittering away of valuable time. There are others who recognize the developmental advantages of play. But they try to put unnecessary emphasis on learning through play and try to force certain methods of play on such. These things result in play becoming not enjoyable but a cumbersome activity for the child.

The basic criterion for any kind of play is that the child should enjoy playing, then only will it enhance development of any kind in the child. The very nature of play should be exciting for the child.

## 2.7 exploration and creativity

*The basis of creativity has always been a new connection. To make connections would take hours using words. Your subconscious has to use pictures"*

- William JJ Gordon



The basic criterion for any kind of play is that the child should enjoy playing.

### exploration

Children have a constant urge to know more about what ever they are confronted with. This urge for exploration and to discover the unknown is inherent in a child.

### benefits of exploration

Exploring makes many contributions to the children's personal and social adjustments. It increases children's knowledge and encourages them to seek information to supplement the knowledge they gain from their own explorations. It encourages development of such desirable personality traits as initiative, self-reliance, good sportsmanship and calmness in the face of emergencies. Its also an aid to socialization.

### nature of exploration

Babies and young children spontaneously explore anything new and different where as older children plan and organize their explorations. Young children explore their immediate environments and enjoy exploring things alone unlike older children for whom exploring is more of a group activity.

### role of instruction in exploration

The exploratory behavior of babies and young children is generally not guided and directed. Directed exploration or supplementary information or help given by adults in the same adds to the enjoyment children derive from these explorations. The exploratory nature of

***We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time."***

**- T.S. Eliot**



Froebel's Gift

consists of 6 soft yarn balls of approximately 2" in diameter of different colours. A ball is often a favorite toy of infants. For Froebel, the ball symbolized unity because it is a complete whole, a pure form. The whole is the beginning of understanding and everything else is derived from the whole.

Learning is derived from impressions formed during play. The child forms his/her first impressions of the physical world by holding, rolling or watching the ball.

children if encouraged in the formative years, benefits children throughout their life.

Exploratory attitude can be encouraged by way of play. Play objects should constantly urge the child to explore more and more but in way that the child enjoys and gets excited with. Exploration and learning should not happen at the cost of the enjoyment gained through play.

Adapted from- characteristics of exploring in childhood table, pg301) child development, Elizabeth Hurlock

## creativity

Most of the toys we commonly see are essentially a microcosm of the adult world; they are all reduced copies of human objects, as if in the eyes of the public the child was, nothing but a smaller man. Invented forms are very rare. As for the others, most toys always *mean something*, and this something is always entirely socialized, constituted by the myths or the techniques of modern adult life. These toys *literally*

prefigure the world of adult functions and obviously prepare the child to accept them all, by constituting for him, even before he can think about it, the alibi of a Nature which has at all times created soldiers, postmen and cars. These toys are pre-conditioning children to the gender roles, professional roles, etc. that they will be expected to assume.

Faced with such a scenario, the child can only identify himself as owner, as user, never as creator; he does not invent the world, he uses it: there are, prepared for him, actions without adventure, without wonder, without joy. Every thing is supplied to him ready made.

He has only to help himself; he is never allowed to discover anything from start to finish.

A set of blocks, provided it is not too refined, implies a very different learning of the world: then, the child does not in any way create objects meaningful to adults; the actions he performs are not those of a user but those of a demiurge (in the philosophy of Plato- the creator of the universe). He creates forms which walk, which roll, he creates life, not property: objects now act by themselves; they are no longer an inert and complicated material in the palm of his hand.

Play should give the chance to the child to create, destroy and recreate new forms and organizations through a process that full of adventure, learning and joy.

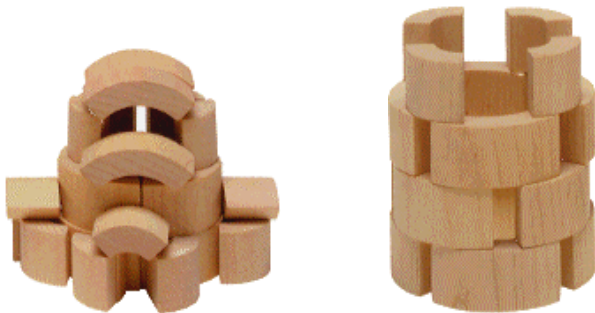
## 2.8 age group establishment

Given below are not very strict classifications. These just give an overview to identify stages of development in children. The development in each child may differ as per interest levels and external factors like socio-cultural influences.

### target age- group

The target age group is primarily 3-5 years.

This is the time when children start making associations with people and objects around them. Also, the urge for exploration is at its peak. Play objects would be designed so that their use could be extended till the age of 6-7 years.



Adapted from: Mythologies by Roland Barthes, translated by Annette Lavers, Hill and Wang, New York, 1984. Copy-edited and spell-checked by Scott Atkins, September 1995. Tagged in html, October 1995. Source: Barthes-toys.htm

## Stages of development from 0 -6 years of age

### Exploratory stage

- Up to 3 months
  - looking at people
  - random attempt to grab objects
- 3 month onwards
  - hands and arms come under voluntary control
  - child is able to grab, hold and examine objects
  - child creep, crawl or walk

### Toy stage (1-6 yrs)

- 1 year
  - explore their toys
- 2-3 years
  - imagine toys have live qualities
  - start enjoying physical activity
- 3-5 years
  - look for challenging, result oriented, complex toys
  - solo activity persists but slowly disintegrates
  - physical activity increases

### Play stage (5-12 years)

- look for group activity, toys become solo activity
- physical activity, outdoor games form major role.

### Daydream stage (12 years onwards)

- studies and other activities form important part of everyday life.

## summary

- Greater exposure to the world around has opened the gates of information and technology to children at a very early age. Though this has its advantages, it many a times lends them a distorted perspective of the world.
- Initial years of a child need good guidance and importance encouragement to understand and establish each child's and need.
- Between 3-5 years, at each age level, there appears to be a special need that requires satisfaction on the part of the child.
- Learning should give exposure to the world. It should give opportunities to experience the world around in a way that, the child accepts the challenge of experiencing it and evoking responses.
- Play should first of all bring happiness to the child's life, and then only will it enhance development of any kind in the child.
- Exploration and learning should not happen at the cost of the enjoyment gained through play.
- Play should give the chance to the child to create, destroy and recreate new forms and organizations through a process that full of adventure, learning and joy.
- We as designers need to design for creating objects and experiences which do not force thoughts on children but which prompt them to search and discover own their own.

## CHAPTER 3

### the process of play

Play is not a merely an act for enjoyment. It is an entire process full of adventure and joy. Observing children play with objects reveals the fact that playing is an elaborate process of interaction with an object, space or an entity filled with various stages of intakes and responses from the child. The child's mind and body are active in variable measures during play (active play, passive play). The process of play can be broken down into various aspects for convenience of understanding.

#### the process of play

##### the first impact

Whenever the child sees an object, first he/she tries to check out whether the object is interesting enough for further exploration. This

*Play activities are those having no rules other than those the player himself imposes, and no intended end result in external reality*

*- Bettelheim*

phase decides whether the child wants to play with the object at all. So, a play object needs to have the quality of attracting the child's attention.

### the dialogue

This phase comes after the first few moments of play, where the child evaluates the play experience to decide whether to continue with it. So, it is important for the play object have the ability to keep the child engaged over a period of time with an ascertained active involvement from the child.

### elements of surprise

There should be an element of surprise in the play process. Every action from the child should be a partial revelation of the known or unknown goal.

### elements of change

Monotony brings in boredom the senses get 'de- activated'. The play process should not land up being repetitive and monotonous. There should be an element of variability in it. This keeps the senses and the mind active to sense and respond at anytime during the play.

### variability in the process of change

Variability in the pace or nature of play helps to keep the tempo going. Also it provides cues of possible progress towards the known or unknown goal.

### bits of discovery- partial revelation of surprises

The process should be dotted with bits of discovery. These provide benchmarks for success or failure and act as exciting punctuations. The object needs to respond to the child's actions –there should be active interaction between the child and the object. These responses could be in the form of small discoveries, surprise elements, small punctuations of achievements and failures. The detour from one punctuation to the other should be full of adventure and enjoyment.

### challenges

Play process should pose challenges to overcome – challenges that are achievable. This should come without a strong suggestion of competition but develop an urge to get over the posed obstacle and become successful. There should be an element of struggle to overcome the challenges but the struggle should be exciting and not be stretched so much that frustration sets in.

### articulation of play process

The process of play should have an articulated structure, which though not forced or restrictive to the child, defines the realm of play. This articulation of play is important because a play activity that is too open ended will leave the child confused and uninterested.

### goal

Process should be directed towards a certain goal (known or unknown, the goal should definitely exist) Play should end with a defined final revelation or result. This should have the quality of a climax or final

**achievement. This leads to a sense of completion and satisfaction, but should intensify the urge to play again. This stage could lead to another more complicated version of the same to keep the challenge going.**

## CHAPTER 4

### play object

#### 4.1 what is a play object?

**A play object (toy) is defined as an artifact to be played with.**

**The definition of play objects as understood by most people is very clinical. From a designer's point of view, a play object should be much more. Play objects have to creatively integrate the playfulness and child development aspects with technology and commerce.**

**a play object should be playful.**

**A play object should be inviting, amusing and inspiring fantasy and desire to discover joy, knowledge and an experience of success. It should arouse the child's curiosity and sustain his interest over the time of play. It should suggest a direction and benchmarks for progress. It should build challenges but end with a feeling of success thereby instilling confidence in the child.**

*A toy is not only technology.... Yet it must be made by available materials and technology*

*A toy is not a social statement alone....yet the social context is basic to the concept of a toy*

*A toy is not just entertainment... but is expected to offer fun and entertainment*

*A toy is not for commerce only...yet for toy manufacturers, the commercial aspect is the main interest*

*A toy is not for education exclusively...yet children learn something useful from a toy*

*A toy is not concerned with child development aspects only... but this is an integral part of the toy*

*A toy is not a creative idea only... yet creativity is a central part of the toy*

*Khanna Sudarshan ( 1997), Toy Design in India  
<http://www.staff.hh.se/ncfincflwebworkshopreport.html>*



**a play object should enhance overall development of the child**

**A play object should :**  
**sharpen the senses**  
**create better inter-sensory co-ordination**  
**develop attentiveness**  
**develop analytical skills**  
**develop exploratory skills**  
**develop creative skills**  
**develop ability to create meanings and associations**

**A play object should activate many senses simultaneously. It is important that the child becomes active and develops exploratory and creative talents while playing. A play object can serve to develop communication between children and between children and adults.**

**Most importantly, the play object should inspire children, making them happy, so that playing becomes an enjoyable experience**

## **4.2 classification of play objects**

**based on actions**

**Conceptual action:** making toys be something other than what they are  
**Analytical action:** building a whole from parts or taking a whole apart

into components

**Classificational action:** sorting things into categories and lining them up into some sort of orderly arrangement

**Narrative action:** do things to play objects (play object as goal) or with play objects (play objects as means)

based on the character of operation of the play object:

**Inert-** the play object contains no moving or moveable parts.

**Articulated-** the play object either has joints or hinges or is in whole or part made of flexible materials, so as to allow parts of it to be moved into different positions.

**Naturalistic-** the way a play object is articulated reflects how the articulation creature or object which the play object represents may move or be moved

**Conventional-** the way a play object is articulated reflects how the articulation creature or object which the play object represents may

**Mobile-** all parts of the play object can be made to move for an indefinite period of time. (Wheels of a play cart)

**Hand- driven-** the energy needed to create movement is produced by the child (a play car, which is not spring, or battery driven.

**Direct control-** the movement play object is directly manipulated by the child

***Remote control-*** the child does not manipulate the play objects itself. (a play cart pulled with the help of a string or an electric car steered by means of remote control)

***Continuous control-*** the child controls the movement of the play object throughout the time when the play object moves (cart pulled with a string)

***Instigatory control-*** the child sets the play object into motion or exposes it to a natural energy source, but does not need to control its movement throughout the duration of the movement ( a clock work driven car is wound up and set on its course)

***Natural power-*** the play object's motion is due to a natural force like wind, water or gravity.

***Artificial power-*** the play object's motion is due to an artificial force like clock work mechanisms or electro-motor.

### based on developmental qualities

***Fine motor development toys*** – shape sorters, pop-up toys with dials, jack in the box, music boxes, large wooden puzzles with handles, blocks, Duplo toys, stacking toys,

***Large motor development toys-*** pull toys push toys, ride on toys, large inflatable balls

***Imagination toys-*** dolls, trucks, stuffed animals, etc

***Creativity toys-*** puzzles, building blocks, Lego, Meccano, crayons, paper, colouring books, paints and play dough.

## fine motor development toys



Stacking  
Stacking multiple pieces successfully  
Provides one of childhood's earliest accomplishments: a sense of completion and satisfaction when parts come together to form a whole



Sorting and building  
In addition to experience of sorting, this gives scope for building different types of elementary forms



Sorting  
Make excellent first puzzles for children between 3-4 years.  
Also child becomes sensitive to variations of size and colour



sorting and nesting  
Develop ability to grasp objects, manipulate and control them  
Provide the earliest sense of achievements  
Enhance hand eye- coordination



Puzzles  
Exercise child's memory  
Gives visual cues like patterns and colours to match pieces together  
Hand-eye co-ordination and control of small muscles in hand  
Fun in gradual shaping of puzzle

## large motor development toys



Pulling toy  
Grasping and pulling



Push chime  
Pull push toys make walking or running one of the most joyous experiences for the child  
The visual or sound effect created when the wheels of the toy move captivates the child's attention and provides enjoyment.  
They encourage motor development- grasping and walking skills



Moving play objects  
Rocking or tricycles are a source of fun because of the movement that they provide, especially because their whole bodies move with the play object. They encourage motor development- grasping and walking skills



## imagination toys



### Dolls

Instigate role playing  
But do not have any specific developmental advantages



### stuffed toys

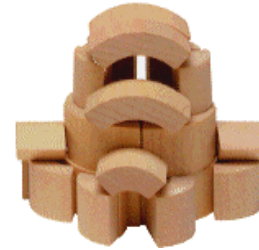
Instigate role playing  
But do not have any specific developmental advantages



### Play Kitchen

Kitchen sets  
Children recreate real life situations

## creativity toys



### Building blocks

These toys are not only result oriented, they provide an entire process of enjoyment which the child needs to enjoy and ends with a feeling of accomplishment. Creative mind needed for this type of play provides varying experience each time.



Use of varied materials provides multi-sensory experiences and provide basics of understanding and relating to their world in a way that is natural for them.



### Modeling clay

### 4.3 analysis of existing play objects

**During the market survey and interactive sessions with children and parents, I came across many play objects of varied nature: some of them very popular, some not . In this section I have tried to analyze certain play objects as per a se criteria.**

**This gave me insights as to into the pros and cons of each and their implication on the process of play.This helped me to understand the merits and loopholes of the existing designs which was very useful in chalking out the design brief.**

In this toy, the child is supposed to match the right colour and number by putting the beads in the rods as per the number written next to the rod.



## analysis

<b>element of play</b>	Children find this toy interesting because of the <b>colorful beads</b> . They like to hold the beads and put them one by one into the rods. The game is <b>simple to play</b> with at the same time it poses the necessary <b>challenge</b> to keep the interest going. Though it is supposed to be played alone, the children enjoy playing in a group. <b>Sometimes, they play with the beads as balls, or move them around the rods, this is because of their liking for mobility in toys.</b>
<b>element of learning</b>	The toy helps children to <b>recognize colours and numbers</b> . It enhances <b>fine motor skills, hand eye co-ordination</b> and the <b>ability to relate</b> things to each other.
<b>overall experience of play</b>	The maximum that a child can play with the game is <b>10 minutes</b> , after which he/ she <b>gets bored</b> as he/she has already got over the challenge many times and there is nothing to look forward to. But the <b>colourful beads</b> are very fascinating for children and they do different things with them.
<b>ergonomic consideration</b>	The balls are sized to suit the <b>child's grip</b> . But because of the spherical shape, the balls tend to <b>slip out</b> of the hands often and go all over the class, the entire toy is <b>sized</b> such that the child can hold it.
<b>material and process consideration</b>	The stand with the rods is wooden. The beads are of plastic and injection moulded. They are heavy enough so that they do not deform.
<b>cost</b>	Moderately priced
<b>maintenance and durability</b>	The wooden component is not colored except for the numbers painted on it. The beads have in built colour. Also, there are <b>hardly any joints</b> in the entire toy. So maintaining it is <b>relatively easy</b> .
<b>safety</b>	The beads are big enough for children not to swallow them, but they are hard and will hurt if thrown like a ball. The ends if the rods are blunt but might hurt or go in the eye if not played under supervision.

**These are rings which the child is supposed to insert into the rods in the right order**



## analysis

Element of play	The act of stacking things one over the other is very enjoyable. This can be played alone but it facilitates group play also.
Element of learning	The toy helps children to <b>recognize and match colours as per the order specified</b> . It enhances <b>fine motor skills, hand eye co-ordination</b> and the <b>ability to relate</b> things to each other. Also when played in group, it enhances group spirit like taking turns, sharing, etc.
Overall experience of play	Group activity results in longer duration of play as children watch each other, point out mistakes, wait eagerly for their turn during which they get time to reflect upon the thing being made. all this improves the alertness of the child. Although only one order makes the 'correct' form as per the instruction, children hardly ever make that form. They feel free to stack the discs as they want.
ergonomic consideration	It is moderately sized , so that gripping won't be difficult, though for the bigger discs, it may be a problem.
Material and process consideration	All the discs and the central rod are made in wood ( turned on lathe)
Cost consideration	Moderately priced
Maintenance and durability	It is quite durable.The discs tend to get lost, they is no packaging integral with the kit to store the entire assembly together
safety	Some children tend to stand on the discs and walk on the floor. They might slip and fall.

**These are L- shaped building blocks of various colours**



## analysis

<b>appearance</b>	The bright colours excites the child
<b>element of play</b>	. The L- shape creates puzzle-like interlocks which the child finds
<b>element of learning</b>	Interesting. The L- shape interlocks give the child a direction to explore the possibilities of construction. The child learns about balance and stability of structure. The child can explore these interlocks in all planes. This game would help to develop fine motor skill, hand eye co- ordination and exploratory skills .
<b>overall experience of play</b>	The kit is engaging for the child because though it is challenging, its assembly is simple to achieve and dismantle and it provides scope for versatile solutions.
<b>ergonomic consideration</b>	Bigger pieces might be a bit heavy and big for the child to grip tightly.
<b>material and process consideration</b>	All blocks are made of wood and painted with different colours.
<b>cost consideration</b>	Moderately priced
<b>maintenance and durability</b>	It is quite durable. The discs tend to get lost, they is no packaging integral with the kit to store the entire assembly together
<b>safety</b>	Some children tend to stand on the discs and walk on the floor. They might slip and fall.

## analysis

In this toy, the child is suppose to put forms into the box, by matching them to the opening. The forms won't go in unless they are matched with the opening.



<b>appearance</b>	The forms generate interest as they are complex and interesting, but the box is house shaped which does not relate to the concept of the game in any way.
<b>element of play</b>	Matching the forms and putting them successfully through the openings gives the children a feeling of success and excitement. The forms inside the box move to produce a rattling sound which adds to the excitement.
<b>element of learning</b>	Children learn to match basic shapes and 3-D forms, they understand the concept of positive and negative.
<b>overall experience of play</b>	It enhances <b>fine motor skills, hand eye co-ordination</b> and the <b>ability to relate</b> things to each other. It also instills a certain competitive spirit when played in group.
<b>ergonomic consideration</b>	Forms can be comfortably gripped, but the box/ container has edges which might hurt.
<b>material and process consideration</b>	The entire kit is made in wood. Forms are made in solid wood, while the box is made with wood patties about ½ " thick, the patties are stuck with adhesives and nailed at places.
<b>cost consideration</b>	Moderately priced
<b>maintenance and durability</b>	It is quite durable.
<b>safety</b>	If the nails used to assemble the box protrude out, they can hurt children.

These are rectangular blocks of various sizes and colours which the child can arrange in different ways .



## analysis

<b>appearance</b>	Brightly painted colours excite children
<b>element of play</b>	These blocks give complete freedom to the child to orient them the way the child prefers and make anything that the child can.
<b>element of learning</b>	The children can visualize and make a variety of things. They understand concepts of balance. It enhances fine motor skills, hand eye-coordination and exploratory skills. These blocks can be played with in a group enhancing social skills, but this leads to confusion as every child wants to make something different.
<b>overall experience of play</b>	This blocks can be easily stacked and easily dismantled, so the child has enormous freedom to explore possibilities, but it does not provide any versatility or element of surprise or discovery, so children may get bored after
<b>ergonomic consideration</b>	white. Bigger pieces might be a bit heavy and big for the child to grip tightly.
<b>material and process consideration</b>	All blocks are made of wood and painted with different colours.
<b>cost consideration</b>	Moderately priced
<b>maintenance and durability</b>	It is quite durable. The blocks tend to get lost, they is no packaging integral with the kit to store the entire assembly together

**Comb blocks that can be interlocked to build varied forms**



**analysis**

<b>appearance</b>	Brightly painted colours excite children
<b>element of play</b>	These comb like interlocking blocks give complete freedom to the child to orient them the way the child prefers and make anything that the child can. There are extra components like wheels etc. which can be integrated in the assembly to create mobile objects.
<b>element of learning</b>	The comb-like interlocks give lot of scope for versatility which edges the child to explore further, It enhances fine motor skills, hand eye-coordination and exploratory skills. Different colours enhance sorting and grouping skills.
<b>overall experience of play</b>	The kit is engaging for the child because though it is challenging, its assembly is simple to achieve and dismantle and it provides scope for versatile solutions.also the resulting assembly stays intact. Ti does not collapse unless the
<b>ergonomic consideration</b>	child dismantles it. Bigger pieces might be a bit heavy and big for the child to grip tightly.
<b>material and process consideration</b>	These are made of plastic. This gives them flexibility as well as cheaper to make.
<b>cost consideration</b>	Slightly Expensive, but the parent feels it is OK 'cause the child really likes play with it.
<b>maintenance and durability</b>	Gathers dust, but flexible and strong, can be washed

**Interlocking blocks that can interlock to produce many forms**

**analysis**



<b>element of play</b>	The pyramid like form of the blocks is very interesting. Also, the fact the blocks fit very easily into one another makes the play activity almost 'effortless'. The blocks have an amazing stability due to the interlocks due to which children can make structures of considerable height- sense of accomplishment
<b>element of learning</b>	The blocks urge the child to keep building varied types of structures. The child learns sorting and matching of forms, about positive negative forms, balance and structure.
<b>overall experience of play</b>	The kit is engaging for the child because though it is challenging, its assembly is simple to achieve and dismantle and it provides scope for versatile solutions.also the resulting assembly stays intact. it does not collapse unless the child dismantles it. It improves fine motor skills, hand- eye co-ordination
<b>ergonomic consideration</b>	Blocks are like square rings which allow gripping and holding. The smallest blocks are very small- children might try and bite/ swallow it.
<b>material and process consideration</b>	Made in moulded plastic The quality manufacture is extremely good with precise edges and corners. This results in good interlocks and add to the stability of the structures constructed.
<b>cost consideration</b>	Slightly costly but cost justified
<b>maintenance and durability</b>	Very sturdy and durable, no odd corners to collect dirt.



children playing on the slide

## 4.4 outdoor play

Most children love playing outdoors. Outdoor play provides limitless possibilities for sensory, large motor and imaginative activity. Through this, children improve their comprehension and spatial perception. Children learn to break free from the man-made world and be a part of nature, observe nature and learn from it. In other words exploratory activity of children extends to the natural world outdoors. Also, children become more active and social.

## 4.5 market scenario

### organized sector

Companies like Mattel Toys and Funskool are the big players in market and have an international standing. These companies are now stressing on play objects that encourage children's participation. They are laying increased emphasis on the 'quality' of the play experience that the child gets. Also, they are looking for conceptualization of play objects to relate them to our cultural roots.



### un organized sector

#### small-scale industries, traditional toys

India is well known for our traditional toys. These toys have deep socio-cultural roots. They are generally based on themes about nature or popular folk-tales. Simple to make and fun to play with, traditional toys provide an entire new world of fun and enjoyment to children.

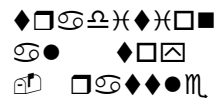
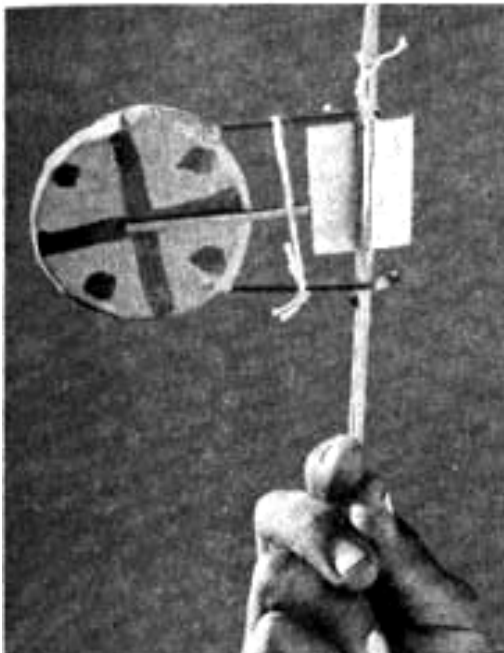


Traditional toys show that through toys, the society can put forward a great deal of practical and useful knowledge to children. The examples of popular indigenous toys in the society only second the fact that toy design has always been a necessity.

Today, the organized sector realizes the growing demand for play objects and in future plans to target all segments of the society.

### summary

- Most children love playing outdoors. Out door play provides limitless possibilities for sensory, large motor and imaginative activity.
- Today, the organized sector realizes the growing demand for play objects and in future plans to target all segments of the society.



## CHAPTER 5

### interactive sessions

**Interactive sessions were conducted with children, parents, teachers, and sellers of play objects**

**Responses to my queries accompanied by observation of children gave me valuable insights into the world of children (their responses to objects and people, their behavioral patterns, capabilities and limitations, extent of development, interests and influences, role of adults in their life...)  
( see annexure for questionnaires)**

#### **5.1 inferences - interactive sessions- children:**

**- Whenever children are confronted with any object, they try to discover the play value of the object. The need for play is inherent in the child.**



Children love physical exploration of objects and spaces. This kind of environment provides them an opportunity of 'effortless play'.

Play becomes a part of day-to-day experience, it gets naturalized, that is it becomes an extension of their senses, faculties, feelings and thinking.

- Children love to personify and personalize objects. Though the object may not be very suggestive, the child tries to relate its appearance to day-to-day objects.

In a way, children in this age are constantly giving new meanings and forming new associations with objects.

- Children understand 'schematic representations'. Only the essence of an object or a formal organization is enough to trigger the child's imagination.

- Children compete with each other to prove their superiority over other children. Healthy competition helps in making the child intellectually and socially active.

- Children love physical exploration of objects and spaces, because their whole body is a part of play. They have full freedom of movement, expression, and interaction with the play object and other children. It provides them an opportunity of 'effortless play', that is, play becomes naturalized and more of an extension of their senses, feelings and thinking.

- Children remember information by relating it to an object, incident or a story they already know.

- Children remember an object either by way of a certain striking feature of the object ( eg. cartoons- exaggerated features). It could be appearance, sound, or relation to some other incident or experience.

Children tend to reproduce, reform, or express the object by reproducing these striking characters of the object, which they remember. ( ' I make a cat out of my sister by tying two pony tails')

- Children try or simplify information to remember it. Objects and formal organizations are used remember more complex information ( ' mango is yellow' is used to remember yellow color. Stethoscope is used to remember the doctor – creating meanings and associations.

## 5.2 inferences - interactive sessions- parents and teachers

- Play and education are seen as distinct activities. Parents are aware of the educational potential of play objects and willingly buy them.

- Due to over emphasis on learning and educational parameters, the play value of most play objects is ignored or overlooked.

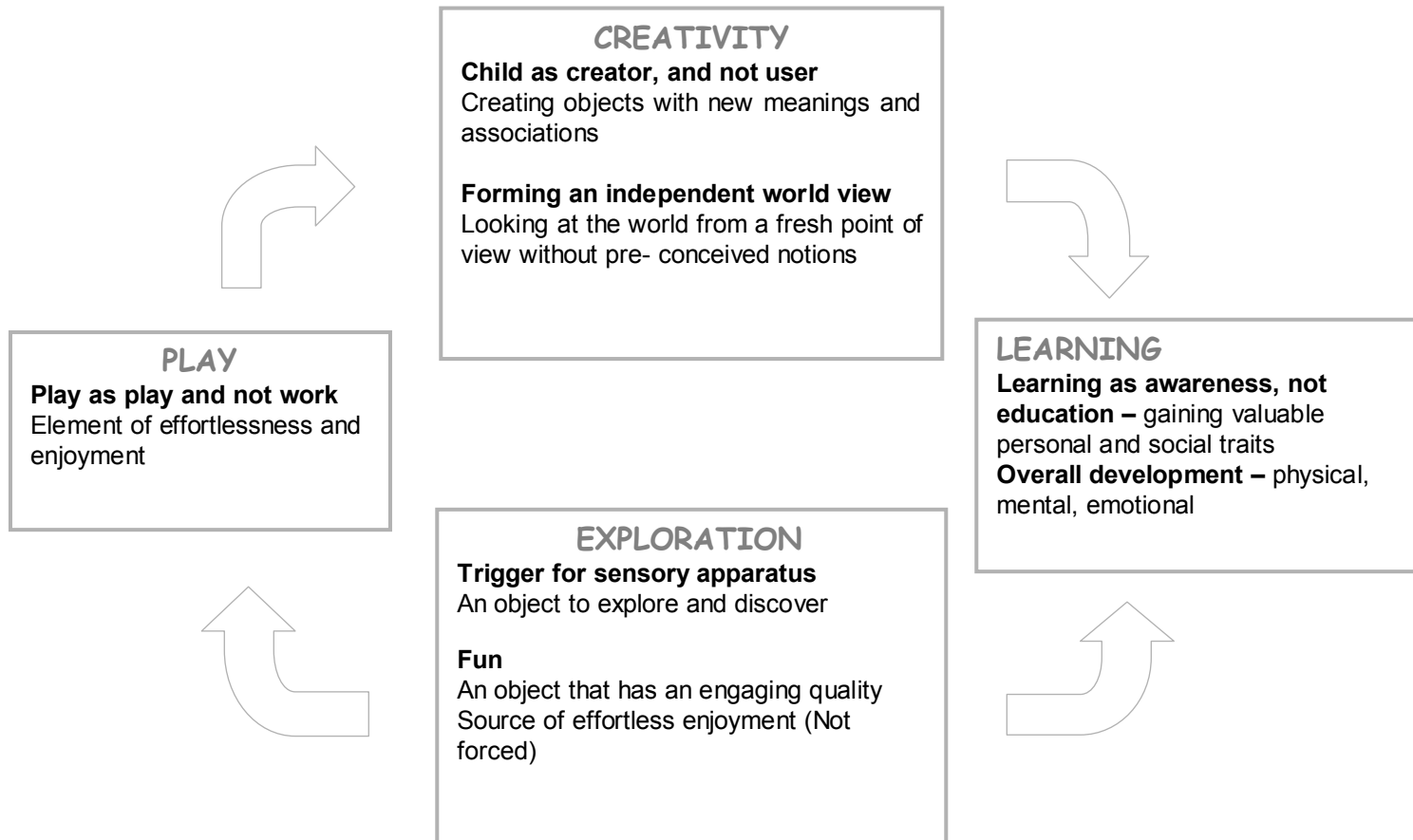
- Designs of most play objects get are influenced by popular trends. (cartoon characters or movies). Play objects should cater to over all developmental needs rather than following popular trends.

- Most play objects are based on western concepts and culture.

- Most play objects don't have a scope for personalization. The play is generally over instructed thereby restricting children from playing 'effortlessly'.

- After some time, children get bored with most play objects. Very few play objects have an inherent quality that gives the child a refreshing experience every time the child plays with it.

This brings a point where it is important to define what attributes should children's play, and consequently, children's play objects should have.



## CHAPTER 6

### design brief and approach

#### 6.1 design brief

**Design of play objects for children aged 3-5 years of age. The play objects should be a source of enjoyment and overall development for the child.**

- It should instigate play that is not forced and keeps the child engaged for a considerable amount of time (10-15 minutes ) Playing with it every time should be a new and fresh experience.
- It should enhance the child's exploratory skills by way of physical exploration of objects and spaces
- It should instigate a play process that directs but does not restrict the child's creativity and urge to explore.

**-Play process should**

**Arouse the child's curiosity,**

**Build achievable challenges,**

**Suggest a direction of progress by way of punctuations  
of success and failures,**

**End with a feeling of accomplishment, and**

**Success should inspire urge to play more and take up  
more complex challenges**

**- It should contribute to the overall development of the child- physical,  
mental and emotional**

**It should**

**trigger sensory apparatus**

**create better inter-sensory co-ordination**

**develop imagination and creativity**

**develop analytical skills**

**develop ability to create new meanings ,associations**

**- It should allow playful participation from other children and adults. Role  
of instruction and participation from adults should be to enhance play  
process and not as a forced intervention.**

**- It should be safe to handle and easy to maintain and store and moderately  
priced.**

**- Most importantly, it should provide a constant source of engagement to  
the child. Play should be 'naturalized' and seemingly effortless. It should  
become an extension of the sense, feeling and thinking of children.**

## 6.2 approach

The initial approach was to explore possibilities of providing micro and macro- situations of play to children: situations created by a single play object, a group of play objects or play objects and spaces.

Later on the approach was focused on designing a single play object of hand-held scale.

### play object

Play object is the focus of play activity  
Object as a source of exploration, creativity and enjoyment  
Object activates body movement in the surrounding space  
Scale: handheld object

### play environment

An environment created by one or more objects  
The objects define or modulate space  
Object and space both are source of exploration, creativity and enjoyment  
Body movement is more for spatial experience  
Scale: environmental

### play object and space around

Play object is the focus of play activity, but playing with the play object is a spatial experience  
Scale: hand held, or environmental

## ANNEXURE

# Questionnaire1: children

Name:

Age:

Background:

*What is his/her favorite subject? Why?*

*What is his/her favorite colour? Why?*

*What all animals/birds does he/she know? What is your favorite animal / bird? Why?*

*What is his/her favorite cartoon character/ hero/ fiction character? Why?*

*Does he/she like coming to school? Why?*

*What does the child do through out the day at school?*

*What all is the child taught at school (ABC..., 123..., nursery rhymes, songs, etc.)*

*What does he/she like best about the school? Why?*

*What toys and games does he/she play in school?*

*What is his/her favorite toy/ game? Why?*

*What all toys does he/she have at home? Which is his/ her favorite? Why?*

*What is his/her hobby? What does the child do other than work and play? What is his/her favorite pass time?*

*Does he/she watch TV? For how long? What does he/she like most on TV?*

*Does the child play computer games? Which ones? For how long? Why does he/she like it?*

POINTS FOR ENQUIRY	RESPONSE FROM CHILDREN	NOTES
Age group	2-5 years	
background	Middle class and upper middle class	
<b>Favorite subject, colour, animal, bird, cartoon character</b>	<p>Children still don't understand the meaning of 'subject'- distinguish activities into work and play</p> <p>able to identify all primary and secondary colours. Red – most popular</p> <p>know all the commonly known animals, birds</p> <p>Cartoons are very popular children – tom and jerry, Thomas, pokemon, Scooby-Dooby-Doo, Popeye</p>	<p>do most of the activities only as per how attractive they find them. If they are interested, then they do it very effortlessly, other wise they just ignore it. Brightly coloured objects attract their attention.</p> <p>remember information by relating it to an object, incident or a story.</p> <p>remember information either by way of a striking feature of its appearance, sound, etc. or by relating it to his/her personal experience with the object. Also, they try to express the object by reproducing a certain characters of the same.</p> <p>exaggerated features, mobility, speed and dynamism, humour create a sensational experience ( animation movies)</p>
<b>Activities in school that interest the children</b> <b>What games or toys does the child play the most with</b>	<p>understand difference in character of different activities like English, Hindi, math, songs, stories, etc</p> <p>like playing out doors the most</p> <p>like to follow their own methods of play.</p> <p>didn't like toys at school because they have better toys at home</p> <p>not yet comfortable playing in-group and sharing</p>	<p>LKG children are very moody and rash as compared to UKG.</p> <p>Children love to experience sense of motion (kinesthetic experience of movement- movement of body in space).</p> <p>Children do not like to be over instructed</p> <p>Some of them are not yet comfortable playing in-group and sharing</p>

<b>Child's favorite play object</b>	boys - cars and aero plane. GT Joe Girls- kitchen sets, dolls Block games, Lego, Doplo, etc. Motion toys Computer games, interactive CDs Magnet toys balls	very fond of motion toys. like role playing. Like sensational experience of play( computer games, interactive CDs- its like magic to them. Are trend driven and outgrow toys very fast
<b>Feature of the play object that interest the child</b>	cars and aero planes- because of motion and light effects. They can recreate what they see on TV Block games- element of challenge and scope of exploration Interactive nature of CDs Balls are simple to play with and respond immediately to the child's actions.	Prefer to control the play object and feel important in the process Prefer if the play object is multi-featured Need responses to map their progress and finally need a proof of accomplishment cannot play continuously for more than 10-15 minutes
<b>Concentration span with play object</b>	cannot play continuously for more than 15-20 minutes	Even if they play for more time, the way they play with the same object is different Play objects of exploratory nature engage them for a longer time. Engage in physical activity like playing out doors, or jumping in the house.
<b>Peculiar observations</b>	When at home, plays alone. Tries to imitate an elder sibling Likes playing with objects like phone, remote control. Imagines one object to be another- like a wooden block as a car. Takes utensils from the kitchen to add to the kitchen set.	Children like to recreate real life situations in play They like personalizing object for the purpose of play- imaginative play They like role playing
<b>Gender preferences</b>	building blocks are popular with all. Girls - kitchen sets, dolls, etc.while boys - cars, cricket bat,etc	Imaginative play objects are gender based, creativity based objects are not.

## Questionnaire2: parents

Name: Age: Background:

How old is the child?

Which school does he/she go to?

Why did they choose that particular school?

What is the child's daily schedule?

How much time does the child spend at school, at home, outdoors, any other place?

What kind of activity does he prefer – prefers playing alone, prefers being in group, playing indoors, playing outdoors, both?

What is the child's favorite pastime?

What kinds of toys does he/she possess?

What kind of toys does the child like to play with at home?

How much time does the child spend with different toys?

In what all ways does the child play with the toy? What all does he do with the toy other than what it is meant to do?

Who buys the toys for the child?

Does the parent take the child along while buying a toy?

Does the parent buy what the child asks for? Why?

What kind of toys does the parent prefer to buy for the child? Why?

How much time does the parent spend with the child?

What activity does the parent engage in

engage in while he/she is with the child?

Do the parent and the child play together with any of the child's toys? Which ones? For how long?

What all does the child see on TV?

Does he/she use the computer? What does the child like doing on the computer?

Where do the parents store the child's toys? How much space does it take?

How long does a toy last? How long does the child show interest in it?

What, in the parents opinion should the child engage in by way of play? What all should a play object offer to a child? What does the parent see in a 'buyable' play object?

POINTS FOR	RESPONSE FROM CHILDREN	NOTES
<b>ENQUIRY background</b>	Housewives, clerical workers, computer professionals, teachers	
<b>daily routine-time spent at various places</b>	Crèche/ playschool for 4/5 hours, 3hours at school, around 4-8 hours with parents, grand parents or maid servant	
<b>Time spent with the child</b>	4/5 hours every day but quality time spent is around 1-2 hours	
<b>preferred activities</b>	Most children prefer playing outdoors At home most children prefer playing alone Drawing, colouring TV- cartoon television, movies Interactive CDs and computer	Children enjoy physical exploration of spaces Elders interference might result in over instruction and the child will feel restricted Increased effect of media leads to passive modes of entertainment
<b>Child's favorite play object</b>	games Not one toy in particular, depends on the mood boys - cars and aero plane. GI Joe Girls- kitchen sets, dolls Block games, Lego, Dopló, etc.Motion toys Magnet toys, Balls	very fond of motion toys. like role playing. Like sensational experience of play( computer games, interactive CDs- its like magic to them. Are trend driven and outgrow toys
<b>Features of the play object that interest the child</b>	cars and aero plane- movement and lights GI Joe- due to popularity amongst peers. Block games- challenge, sense of making something own their own Easy assembly and dismatlability	<b>fast</b> Prefer to control the play object and feel important in the process Prefer if the play object is multi-featured Need responses to map their progress and finally need a proof of accomplishment.toys break because the child exercises maximum freedom over it! Also they feel as if they have power over the toy

<b>Material of the play object</b>	<p>Mostly plastic- it is light, does not have sharp edges ( safe) and affordable</p> <p>Wood- very limited variety available, wooden toys are heavy and if thrown can hit children, but more durable</p>	<p>Wooden toys tend to be very expensive as compared to plastic toys</p>
<b>Concentration span with the play object</b>	<p>15-20 minutes maximum</p> <p>Creativity based play objects and physical activity ( outdoor play, toy train, etc) can keep them engaged for long.</p>	<p>Child needs change of focus after every 15-20 minutes, this can be achieved by a play object that is multi-featured and gives scope for further exploration</p>
<b>Peculiar observations</b>	<p>When at home, plays alone but at school likes playing with other kids</p> <p>Likes playing with objects like phone, remote control.</p> <p>Takes utensils from the kitchen to add to the kitchen set.</p> <p>In games like cricket, expects the parent or elder sibling to</p>	<p>Children like to recreate real life situations in play</p> <p>They like personalizing object for the purpose of play- imaginative play</p> <p>They like role playing</p> <p>They enjoy participation from adults only when it is without instruction</p>
<b>Gender preferences</b>	<p>play building blocks are popular with all. Girls - kitchen sets, dolls, etc.while boys - cars, cricket bat,etc</p>	<p>Imaginative play objects are gender based, creativity based objects are not.</p>
<b>Buying play object for children</b>	<p>Parents buy it themselves or gifts</p> <p>As per developmental needs of children</p> <p>Sometimes as per what child demands</p> <p>What they see with other children</p> <p>Media, market trends</p> <p>Some internationally acclaimed games ( Lego, Duplo, etc.)</p>	<p>Parents are aware of developmental qualities of play objects</p> <p>Willing to spend on play objects</p> <p>Selection is influenced by media and market trends</p>

<b>Activities that children enjoy doing</b>	<p>Most children prefer playing outdoors</p> <p>At home most children prefer playing alone</p> <p>Drawing, colouring</p> <p>TV- cartoon television, movies</p> <p>Interactive CDs and computer games</p>	<p>Children enjoy physical exploration of spaces</p> <p>Elders interference might result in over instruction and the child will feel restricted</p> <p>Increased effect of media leads to passive modes of entertainment</p>
<b>Idea if an ideal play object for children</b>	<p>One with which they can learn something-overall development</p> <p>One with which they are more actively involved- they can make something themselves</p> <p>One which engages them for a long time</p>	
<b>Affordable price range</b>	<p>Depends on the toy</p> <p>Generally up to 250-300, but if the toy/game is really good then even up to 500-800</p> <p>When given as gifts to other children- 150-200</p>	<p>Preferable range is 150-500</p>
<b>Frequency of buying toys</b>	<p>Birthdays and special occasions</p> <p>Keep buying something or the other every month</p>	<p>Average once in a month- not very hard and fast</p>
<b>How were your toys different than your child's toys</b>	<p>Today lot of variety available- but playing has become a luxury</p> <p>Today's toys are consciously projected as learning aids- we looked at toys more like objects of desire and play</p> <p>We had less and cheap play objects</p> <p>We often made play objects ourselves</p>	<p>Play element is fast disappearing from play objects. Today they try to stuff so much of learning element into it, that the child feels restricted and loses interest.</p>

## **Questionnaire3: teachers**

Name: Age: Background:

*How many children in one class? Any particular reason?*

*What is the basic concept of education that is followed in the school- does the school follow any particular line of thought?*

*What all does a child learn in school?*

*What is the child's routine at school?*

*How much time is devoted to classroom teaching, indoor play and outdoor play?*

*What all equipment are the children provided with – for what all activities?*

*What all play equipment does the school have? Why was it chosen?*

*How many no.s does the school have? Do all children play at a time or they have to take turns?*

*Where is the play equipment stored? Who maintains it?*

*For how long is the play equipment used? When was it last updated?*

*Which is the most popular play object amongst children? why?*

*What is the favorite activity of children? Why?*

*If the school has to buy new play equipment, what will it be? Why?*

*What is their opinion about the play objects available in the market today? Do they help in development of children? In what way? Any suggestions for change?*

## CHAPTER 7

### 7.1 IDEATION play environment

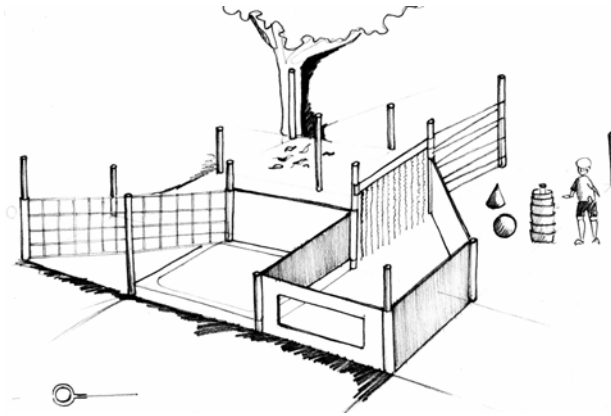
**This was an exploratory stage where the intention was to overcome pre-conceived notions and confusion, and look at 'play' and 'play object/s' from a fresh perspective.**

**Thoughts have not been developed as full-fledged concepts. They are open ideation which later would be developed into concepts.**

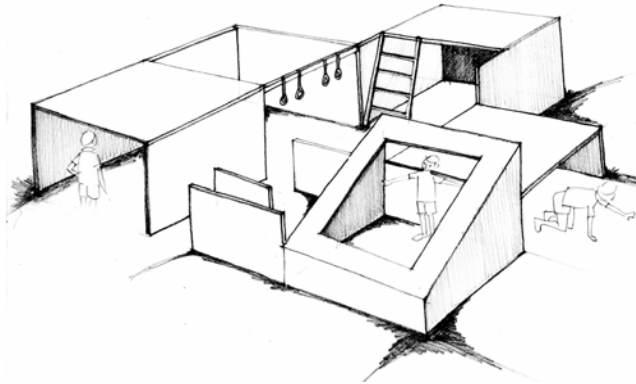
## GROUP 1

### spaces defined by objects...

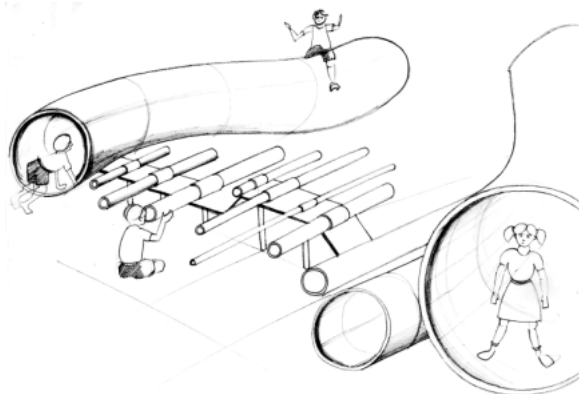
#### variation 1 poles and planes



#### variation 2 enclosures



#### variation 3 sound and space



#### Nature of play

Playing in spaces defined by objects ( poles, planes of varied materials). Each space reveals surprises and sensory experiences. Spaces trigger different activities and games and experiences. Solitary, group play and overlaps

#### Context

parks, outdoor play areas of schools, indoor public spaces (malls)

#### Values and skills imbibed

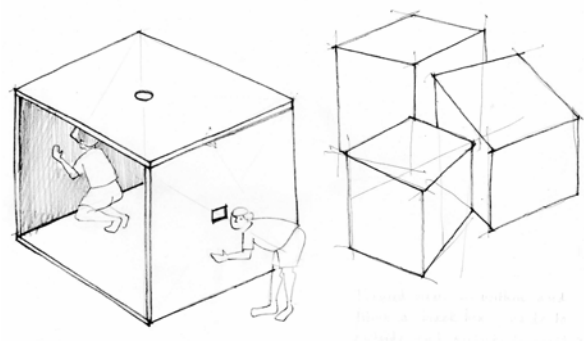
large motor skills, enhances sensory apparatus, exploratory skills, analytical skills

#### Limitations

too open-ended, exploration is not articulated, form and spaces created not organic and playful enough (too formalized)

## looking at the world differently...

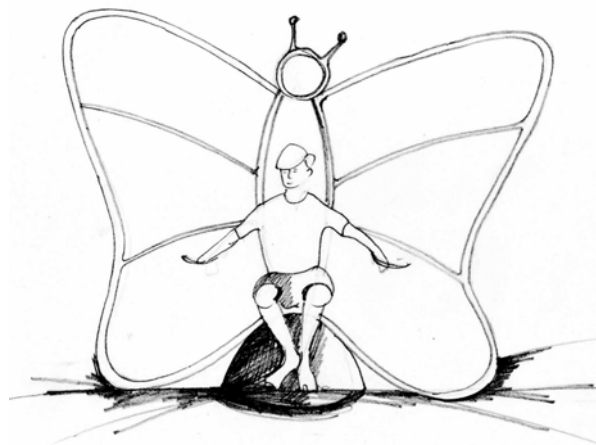
### variation 1 framing the world!



#### Nature of play

Child experiences space and volume  
Child sees spaces through frames of varied sizes and shapes. The same space looks different from each frame.

### variation 2 I m butterfly!



#### Nature of play

Scaled installations of birds, insects with movable wings

Child 'becomes a butterfly' to experience the movement of its wings (looking at the world from another viewpoint- imaginative play)  
Movement of wings leads to fun and excitement

Material: thin frame of metal rods – sturdy but light enough to be moveable

#### Values and skills imbibed

active play, large motor skills, enhances sensory co-ordination and imaginative play

#### Context

parks, play areas of schools (indoor and outdoor), indoor public spaces like shopping malls

#### Limitations

does not have pronounced exploratory potential, after some-time child will get bored

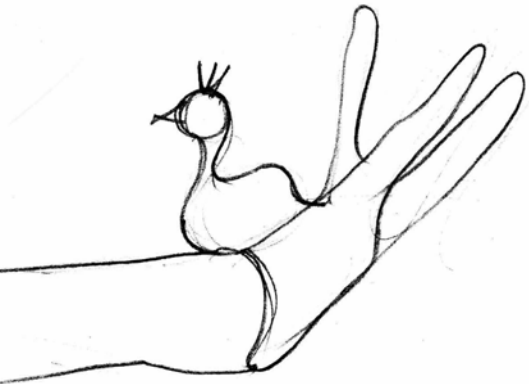
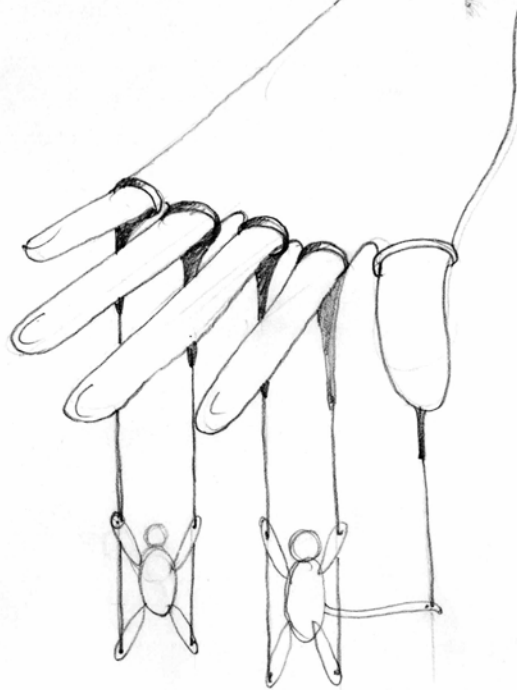
## 7.2 IDEATION play object

**This was an exploratory stage where in the intention was to overcome pre-conceived notions confusion and look at 'play' and 'play object/s' from a fresh perspective.**

**Thoughts have not been developed as full- fledged concepts. They are more open ideation which later would be developed into concepts.**

# GROUP 1

## hand puppets



### Nature of play

Controlling movement of puppets with the palm and fingers of the hand . This accompanied by auditory input from the child ( speaking, singing, etc) trigger different activities and games with the puppets as focus.

Solitary, group play and overlaps

### Values and skills imbibed

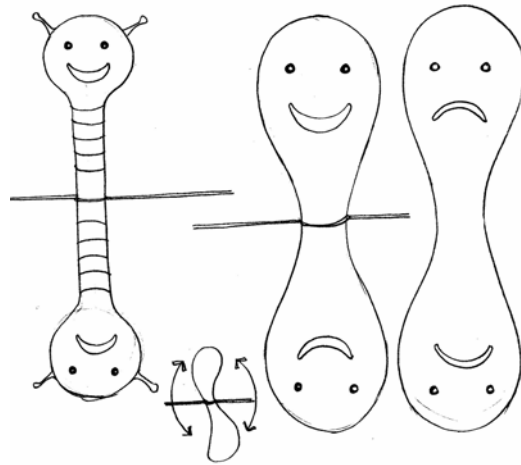
fine motor skills, enhances inter-sensory co-ordination,, imagination, enhances interaction and group play

### Limitations

Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. the element of surprise will gradually die out.



## GROUP2 smilies



Smiling faces on one side of the play object alternate with the sad faces on the other side. This creates an animated effect as the component pivots around its center tied to the string.

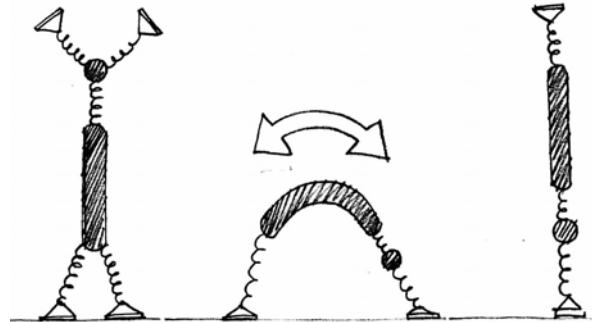
### **Nature of play**

The child twists the string such that the play object pivots around the center as fast as possible. Engagement is offered by repetitive mode of play

### **Play value**

The animated effect created by the alternating smiling and sad faces is exciting for the child.

## GROUP3 springies



Wood/ plastic components are connected to vacuum pods by way of springs.

### **Nature of play**

Children have to stick one set of pods to a surface and then try to stick the opposite set too. This pulls the first set apart from the surface. The same process repeats.

### **Play value**

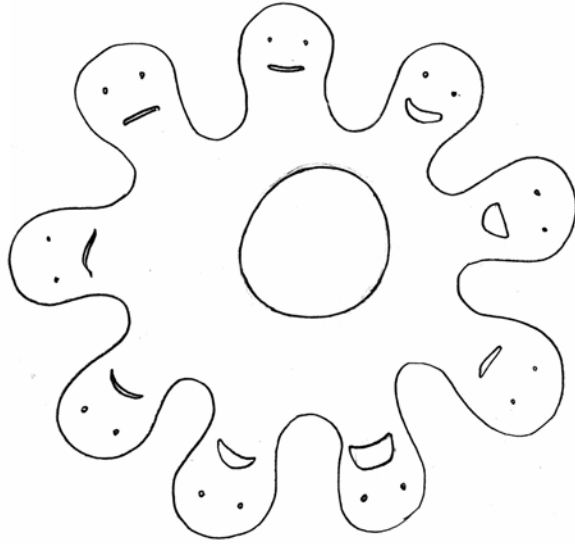
Springy nature of the object makes stretching, pulling it an exciting act. Engagement is offered by the repetitive mode of play.

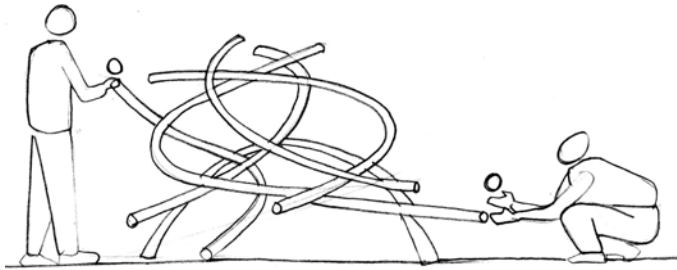
### **Values and skills imbibed**

Fine motor skills, visual motor co-ordination

### **Limitations**

Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. The element of surprise will gradually die out.





**An installation of hollow pipes having a maze like organization**

*nature of play*

**This is for play in pairs or group play. One child puts a ball in one of the pipes. The other child/ children have to figure out it will come out from which opening at the other end and try to catch it.**

*play value*

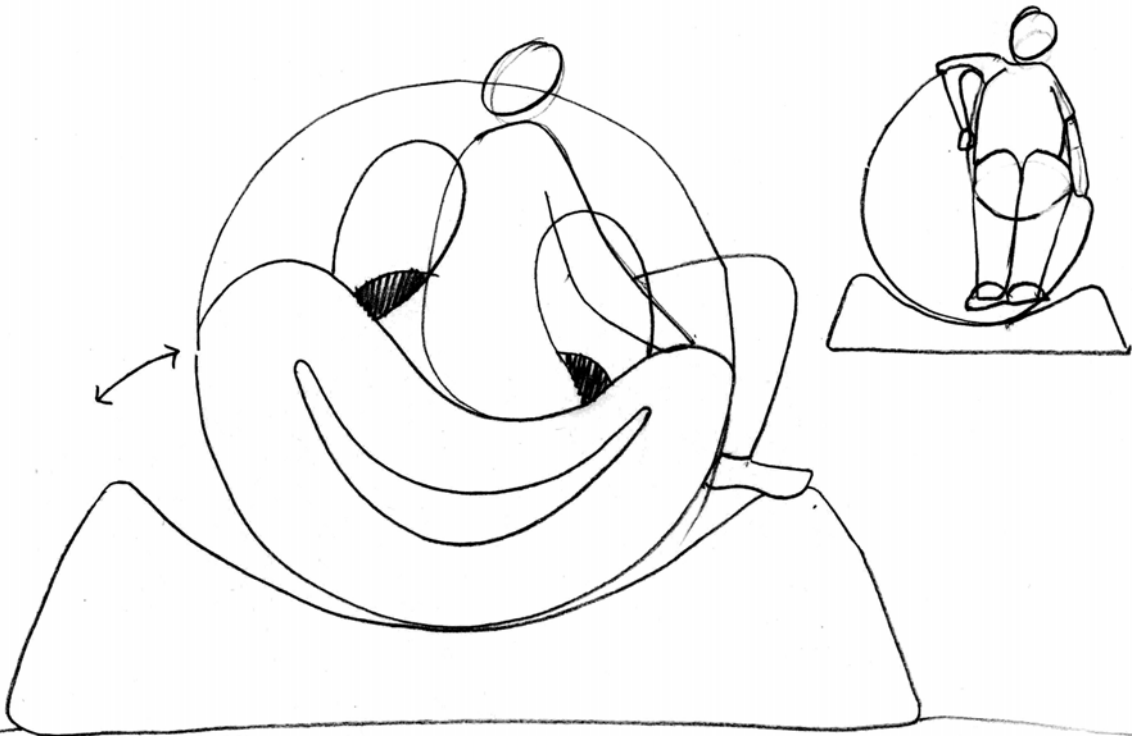
**Establishing co-ordination, healthy competition and feeling of accomplishment on catching the ball makes play activity exciting.**

*values and skills imbibed*

**Large motor skills, visual motor co-ordination, concentration, analytical skills**

*limitations*

**This kind of play needs minimum two children.  
The ball might tend to get lost.**



### 7.3 CONCEPT - STAGE1 play environment

**At this stage, ideas were formalized into full concepts. Concepts were elaborated based on the nature of play, play value offered, developmental advantages offered, material and manufacturing considerations, safety, context of play, etc.**

**The following concepts are based on the approach of creating a 'play scape' with one ore more play objects. Most of these encourage open exploration of forms and spaces .**

**GROUP1**  
**rock rock away !**

An installation of rocking toys having a ladder like structure.

**nature of play**

This is mostly for solitary play and play in pairs. When a child sits on it, because of its shape, it starts rocking. The child climbs up and down the ladder resulting in rocking movement.

**play value**

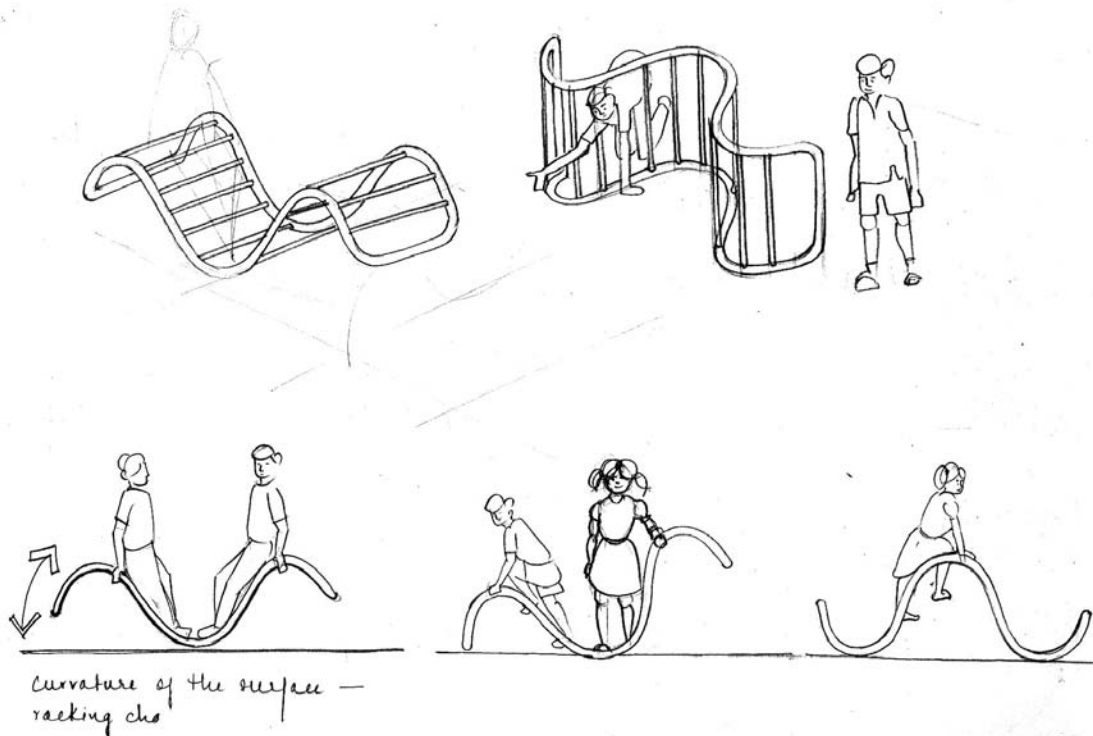
Sense of movement – the child's entire body moves with the play object. This movement is exciting.

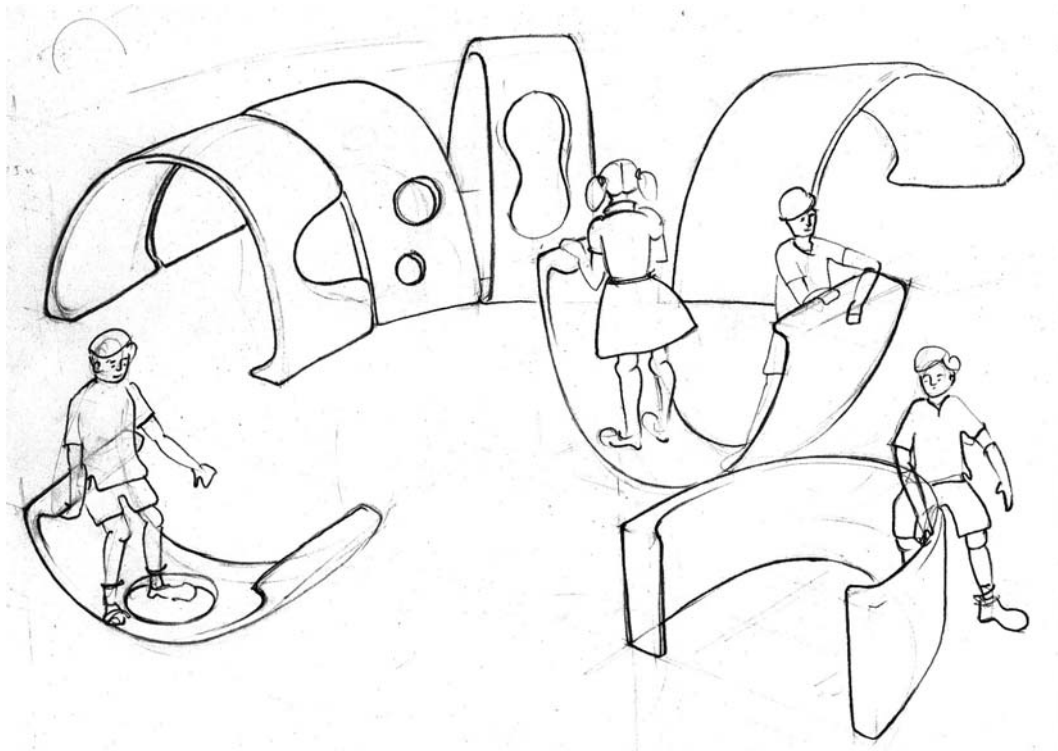
**values and skills imbibed**

Large motor skills, visual motor co-ordination, concentration, analytical skills

**limitations**

This kind of play needs minimum two children. Rocking toy may topple sideways – safety issues





**An installation of plastic moulded rocking toys that can be configured in various ways offering different modes of play.**

#### **nature of play**

**Components can be configured in different ways forming tunnels, enclosures and rocking toys. Children are free to play the way they enjoy.**

#### **play value**

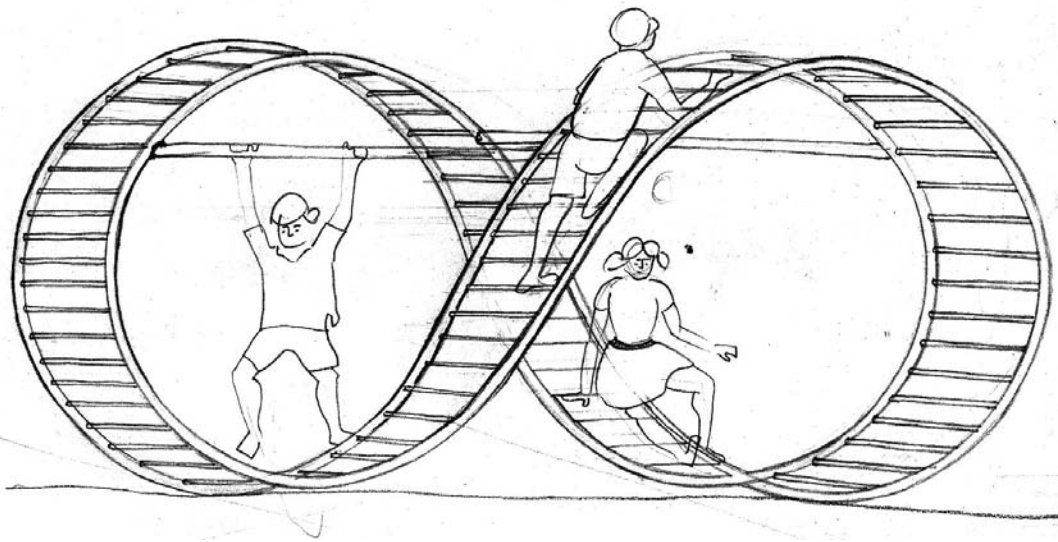
**Sense of movement – the child's entire body moves with the play object. This movement is exciting. The objects form a playscape which opens a world of sensory experiences to children. Various games ( running catch, hide n seek) can be played in this playscape.**

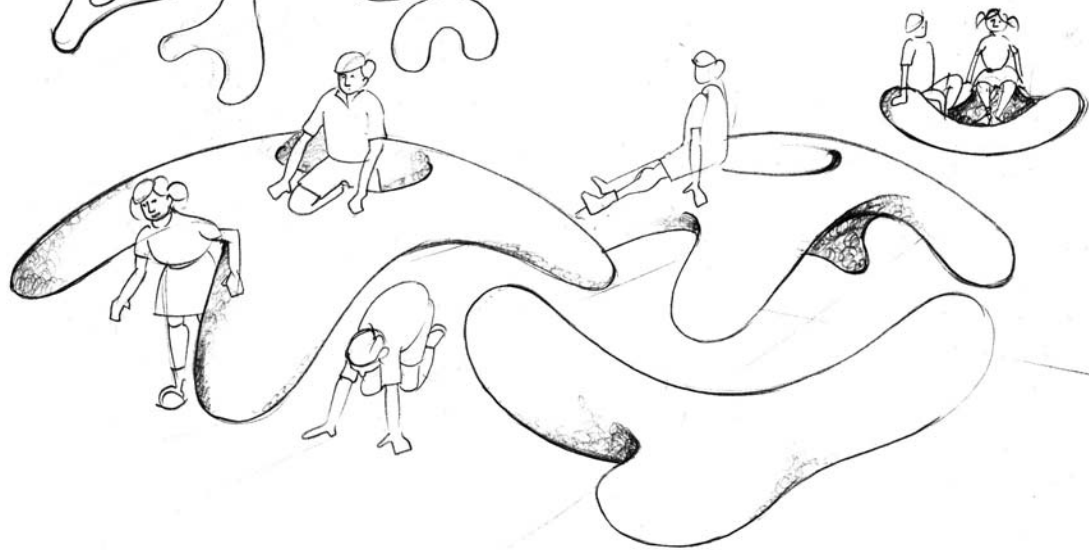
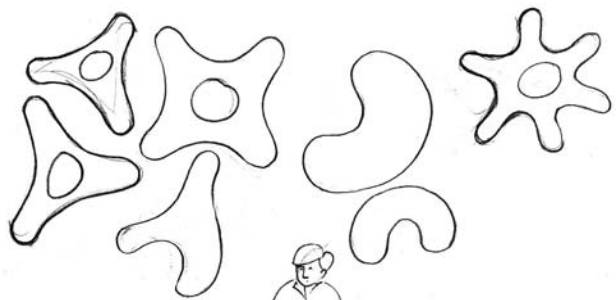
#### **values and skills imbibed**

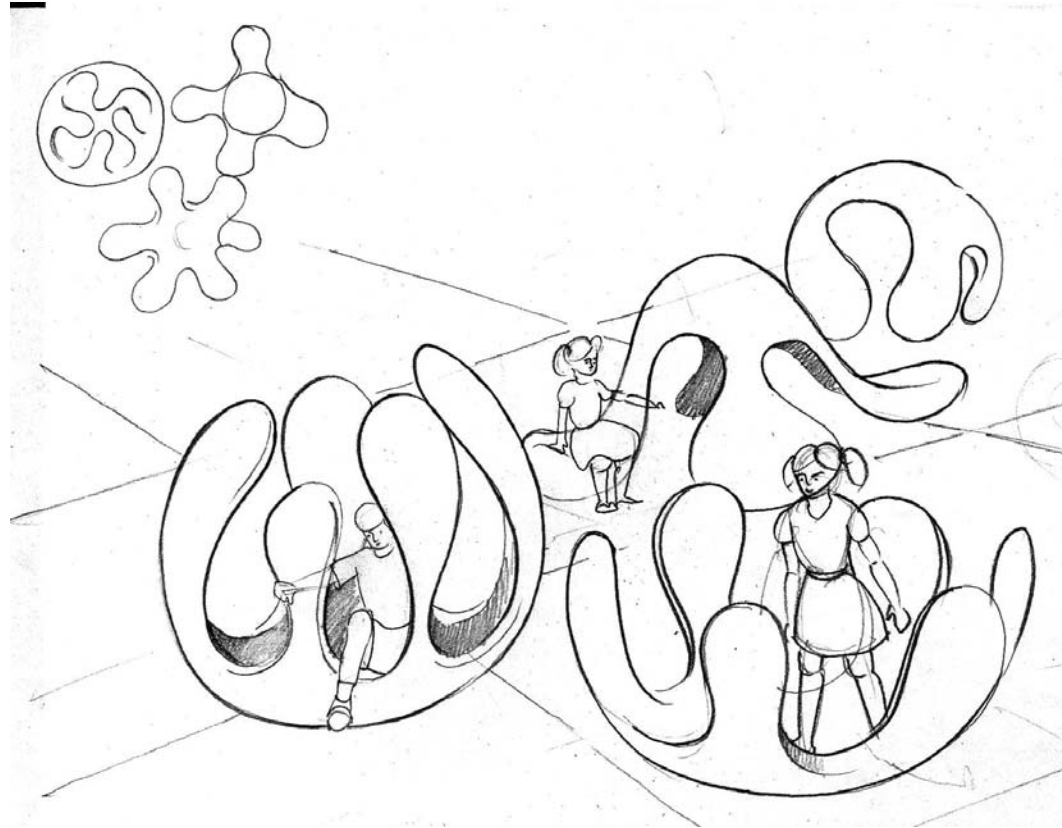
**Large motor skills, inter-sensory co-ordination, exploratory nature, social skills**

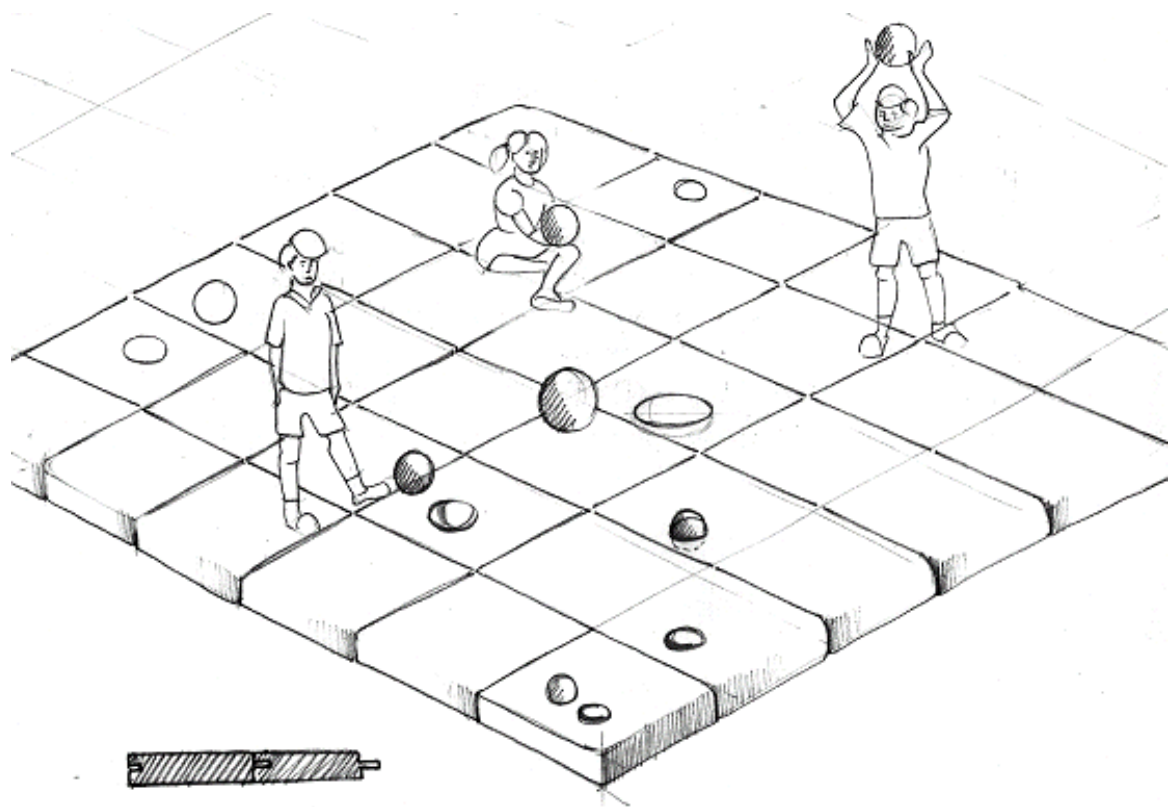
#### **limitations**

**This kind of play needs minimum two children. Rocking toy may topple sideways – safety issues**









## 7.4 CONCEPT - STAGE1 play object

**At this stage, ideas were formalized into full concepts. Concepts were elaborated based on the nature of play, play value offered, developmental advantages offered, material and manufacturing considerations, safety, context of play, etc.**

**The following concepts are based on the approach of creating a 'play object' , which is a source of exploration for children. Most of these are for solitary play.**

## CONCEPT1 form within a form



### nature of play

**One form reveals many smaller hidden forms**

### first impact

**undulated form –the element of strangeness in the form makes child curious to hold, feel and explore it..**

### dialogue

**Process of separation of forms, results in a gradual revelation of surprise. The child opens up the form to reveal hidden forms. Each separated element - ball like play quality-hold, throw, catch, bounce**

### play process

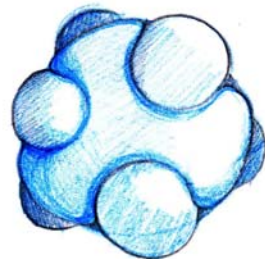
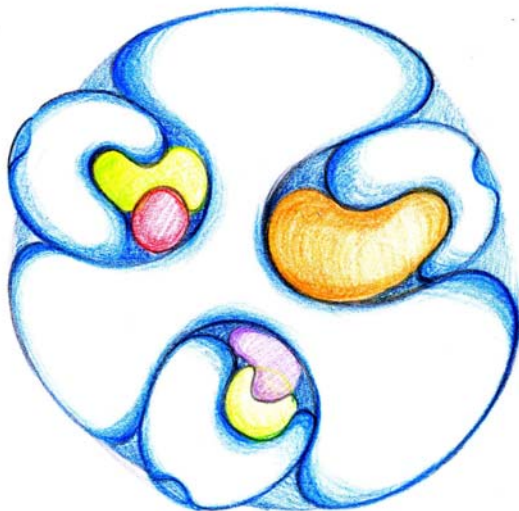
**Separating and assembling forms., hold, press, twist, throw, catch...is the source of fun and excitement. This establishes the play process**

### values and skills imbibed

**visual- motor co-ordination, analytical skills, concentration skills, fine motor skills, large motor skills, sorting and matching**

### limitations

**Play process is not well articulated. Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. the element of surprise will gradually die out.**





## CONCEPT2 bendies

Objects with bendable arms. It is made of flexible, springy material and has a rich tactile quality ( slimy, rubbery) which urges the child to keep playing with it.

### first impact

Strangeness of form makes the child curious to explore- hold, feel, press, bend, twist

### nature of play

Manipulating bending of forms to achieve a formal order-play process with fun- filled punctuations.

### dialogue

The child bends the arms and sticks them to each other to create new forms. Arms spring back when released and regain original form so that the child can start afresh.

### play value

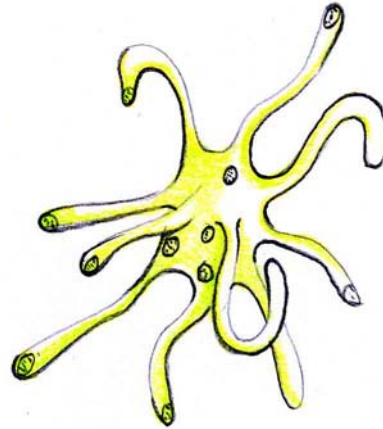
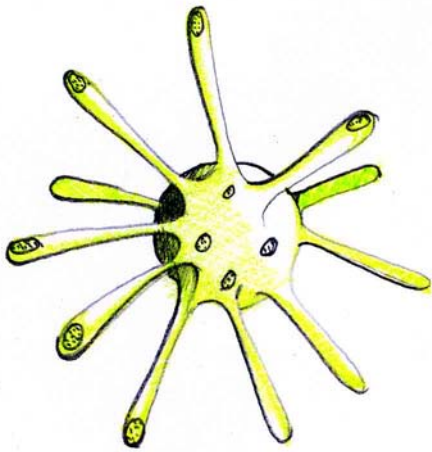
The act of stretching and pulling the arms and sticking them to the spots of Velcro is an exciting act. forms created every time are different- refreshing quality

### values and skills imbibed

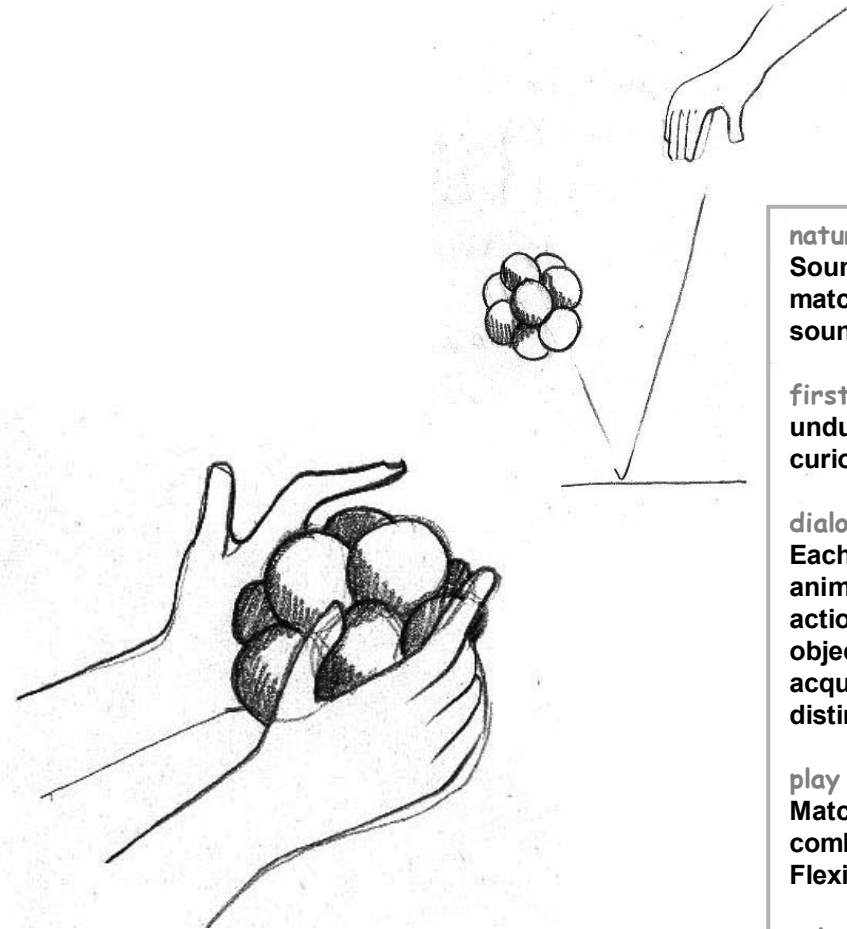
exploratory skills, analytical skills, creative skills  
fine motor skills, concentration skills

### limitations

Definition of play activity is not articulated and tends to be too open ended. In the absence of a clear goal and punctuations, after few moments of curiosity, child might lose interest.



## CONCEPT3 sound balls



### **nature of play**

Sounds produced by pressing different spots on the object can be matched and complemented to produce interesting combinations of sounds.

### **first impact**

undulated form –the element of strangeness in the form makes child curious to hold, feel press, twist...

### **dialogue**

Each lobe when pressed produces distinct sound ( musical notes, birds, animals, etc.)sound responses provide distinct punctuations to the child's action of pressing at different locations with different intensities.In the first object, different globes can be distinctly identified. Once the child gets acquainted with it, he/she can be introduced to the other object where distinguishing locations making a specific sound is difficult.

### **play value**

Matching and complementing various sounds to produce interesting combinations having an auditory order – establishes the play process. Flexible, springy material makes pressing the form exciting.

### **values and skills imbibed**

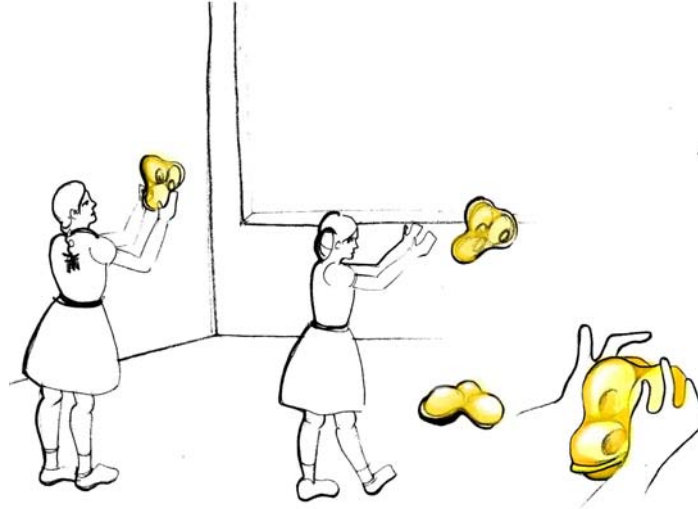
exploratory skills,analytical skills, creative skills, inter-sensory co-ordination,concentration, fine motor skills

### **limitations**

Child's involvement would be limited till he/she gets acquainted with the basic mode of play. The element of surprise will gradually die out.



## CONCEPT4 fun omelets



Undulated form filled with liquid, bubbles and colorful forms floating in the liquid

### nature of play

Manipulating the movement of colored forms to take them to the chamber of matching color

### first impact

Strangeness of form urges the child to hold , feel, press, twist-explore the object

### dialogue

On pressing colored forms move haywire in the liquid. Pressing, twisting, turning the form to achieve result- establishes play process. The game ends when all forms and chambers are matched. They can be reshuffled to start playing afresh.

### play value

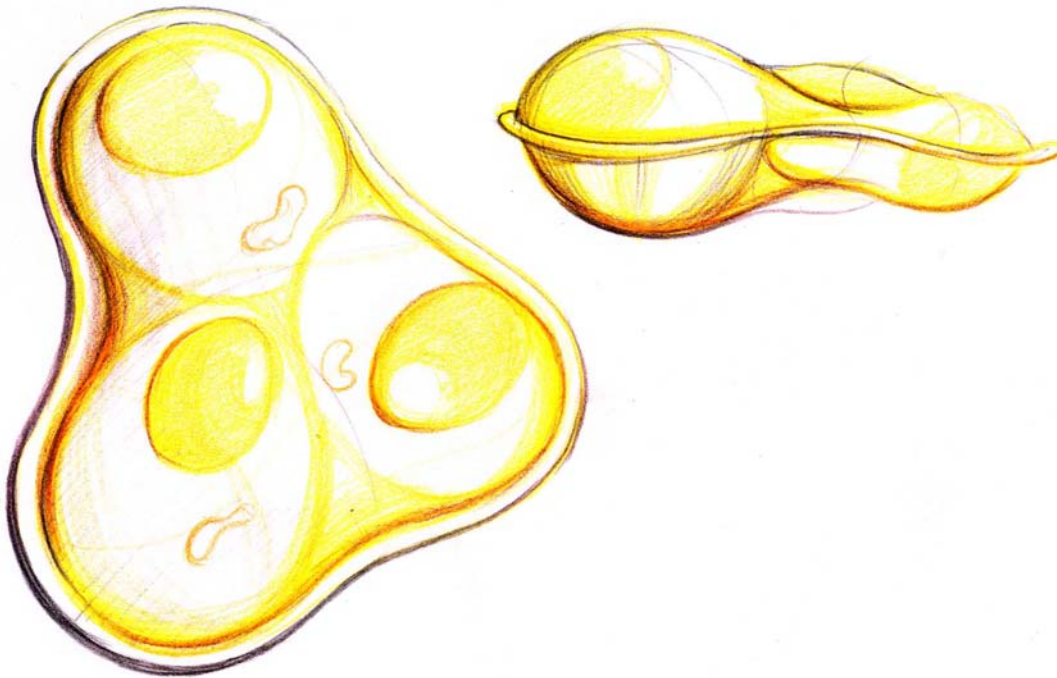
Pressing the form to move the floating objects is full of excitement and challenge

### values and skills imbibed

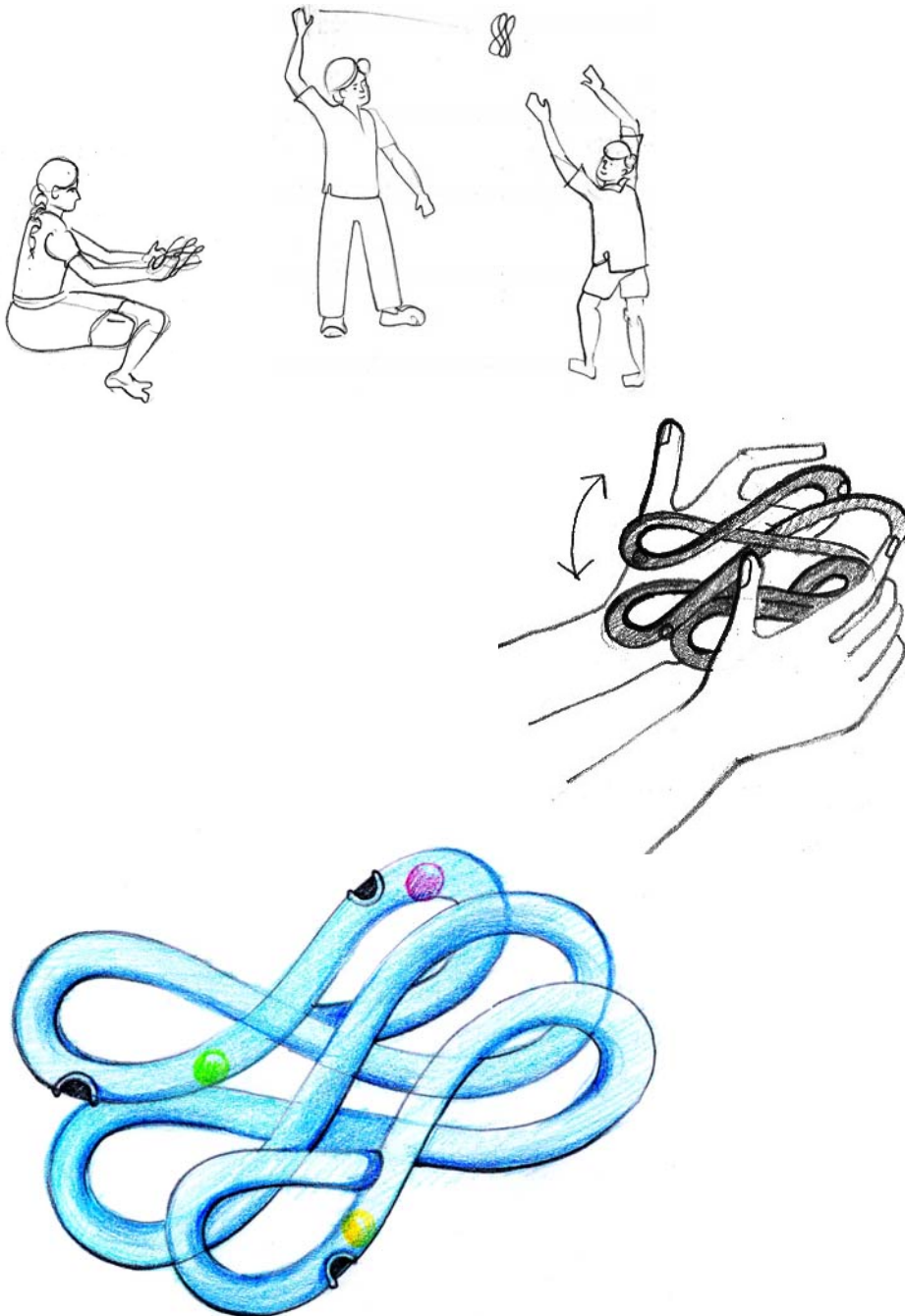
Visual motor co-ordination, analytical skills, concentration, fine motor skills

### limitations

Might be too difficult for a 3 year old



## CONCEPT5 flexi maze



### **nature of play**

**Movement of object such that all balls come out of the holes**

### **first impact**

**Strange mazelike form- child feels curious to hold and feel it. Its springy material gives it a tactile quality- hold, press, twist, stretch**

### **dialogue**

**Manipulating and control of relative movement of each ball to builds a play process filled with fun  
Movements of the balls forward and backward result in exciting punctuations of success and failure.  
The game ends when all balls are out. The balls are again put in to start the game afresh.**

### **play value**

**Controlling active movement of the ball to and fro results in challenge and excitement.**

### **values and skills imbibed**

**Visual motor co-ordination, analytical skills, concentration, fine motor skills, large motor skills**

### **limitations**

**Balls, when taken out will tend to get lost  
Safety: balls of this size may pose the danger of getting swallowed by children**

## 7.5 CONCEPT EVALUATION criteria for evaluation

**First impact – quality to initiate play**

**Definition and structure of play process**

**play process – fun filled and adventurous detour**

**punctuations of success and failure**

**scope for exploration and creativity**

**analytical skills – brain teasing quality**

**ever refreshing experience -elimination of monotony**

**effortless play**

**challenging but not frustrating**

**Element of fun – what leads to fun?**

**Element of overall development- physical, mental, emotional,  
exploratory**

**skills, creative skills**

**Role of instruction**

## 7.6 CONCEPT STAGE2 play object

At this stage, thoughts were focused on designing play object/s of a handheld size. Some of the previous ideas were either refined further or thought about with a fresh perspective to come up with a series of concepts.

### play object

Play object is the focus of play activity  
Object as a source of exploration,  
creativity and enjoyment  
Object activates body movement  
in the surrounding space  
Scale: handheld object

### play environment

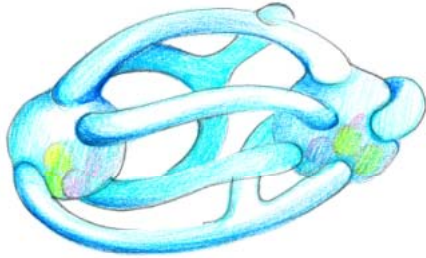
An environment created by one or more  
objects  
The objects define or modulate space  
Object and space both are source of  
exploration,  
creativity and enjoyment  
Body movement is more for spatial  
experience  
Scale: environmental

### play object and space around

Play object is the focus of play  
activity, but playing with the  
play object is a spatial  
experience  
Scale: hand held, or  
environmental

## CONCEPT1 flexi maze

A flexible object made of hollow flexible tubes connecting three hollow lobes. Each lobe carries three balls each of different colours. These balls can be taken from one lobe to the other through the hollow tubes.



### *nature of play*

The child has to find the path and take the balls from one lobe to the other till each lobe has all balls of the same colours (or the same set of colours in each lobe or all balls of the same size in each lobe).

### *process of play*

The path has a maze- like quality. It has dead ends that lead nowhere and closed loops that get the ball back from where it started. It also has short cuts that get the ball to the destination faster. Also all balls are not of the same size. So it will not be possible to move all of them along the same path. This is because, though a smaller ball can take the route of a bigger ball, it will not work vice versa.

### *goal and challenge*

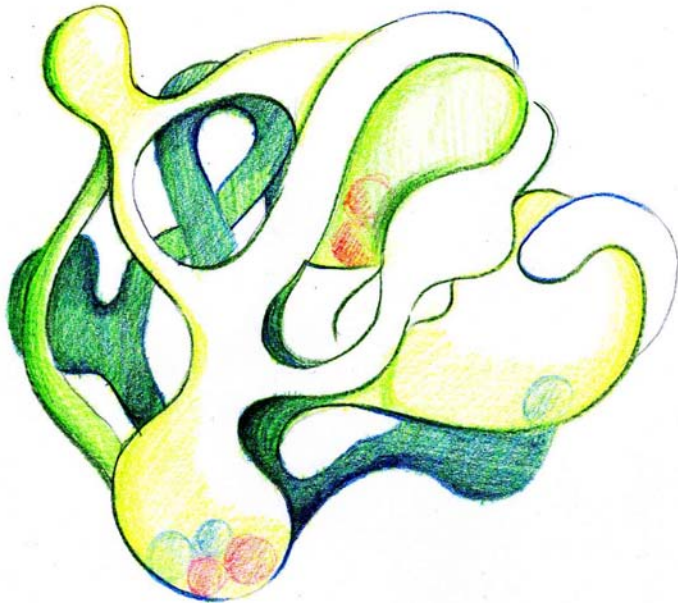
The task for the child is to arrive at the quickest possible way to acquire the desired grouping of balls.

### *further urge to play...*

Once a desired grouping is achieved , play process can resume with the goal of achieving another set of groupings. Thus, every encounter with the play object is as exciting as the previous one

### *values and skills imbibed*

Visual motor co-ordination, analytical skills, concentration, fine motor skills, large motor skills



## form that changes form..

A set of forms connected to each other with pivots. The forms move with respect to each other to reveal a further series of forms hidden within.

### nature of play

The child has to move the forms relative to each other to reveal ball hidden at the center. Once the ball is revealed, the child has to get the form back to its original closed form.

### process of play

The play has a maze- like quality. the forms have to be moved in a strategic way to reach the central form. It also has short cuts to reach the destination faster. The child has to move the forms strategically to achieve the goal.

### play value

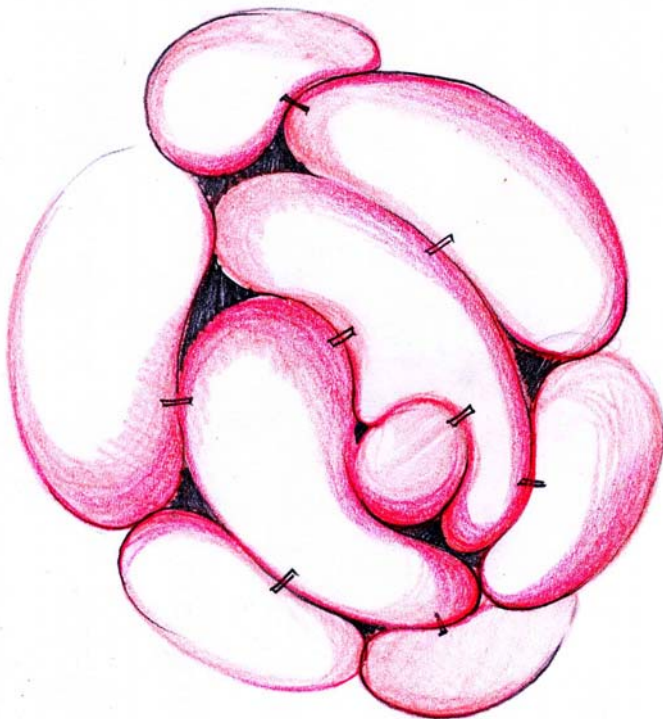
The relative movement of forms itself is an exciting action. In the process of play, the object constantly changes form to reveal new components. This provides a constant element of surprise throughout the play process.

### values and skills imbibed

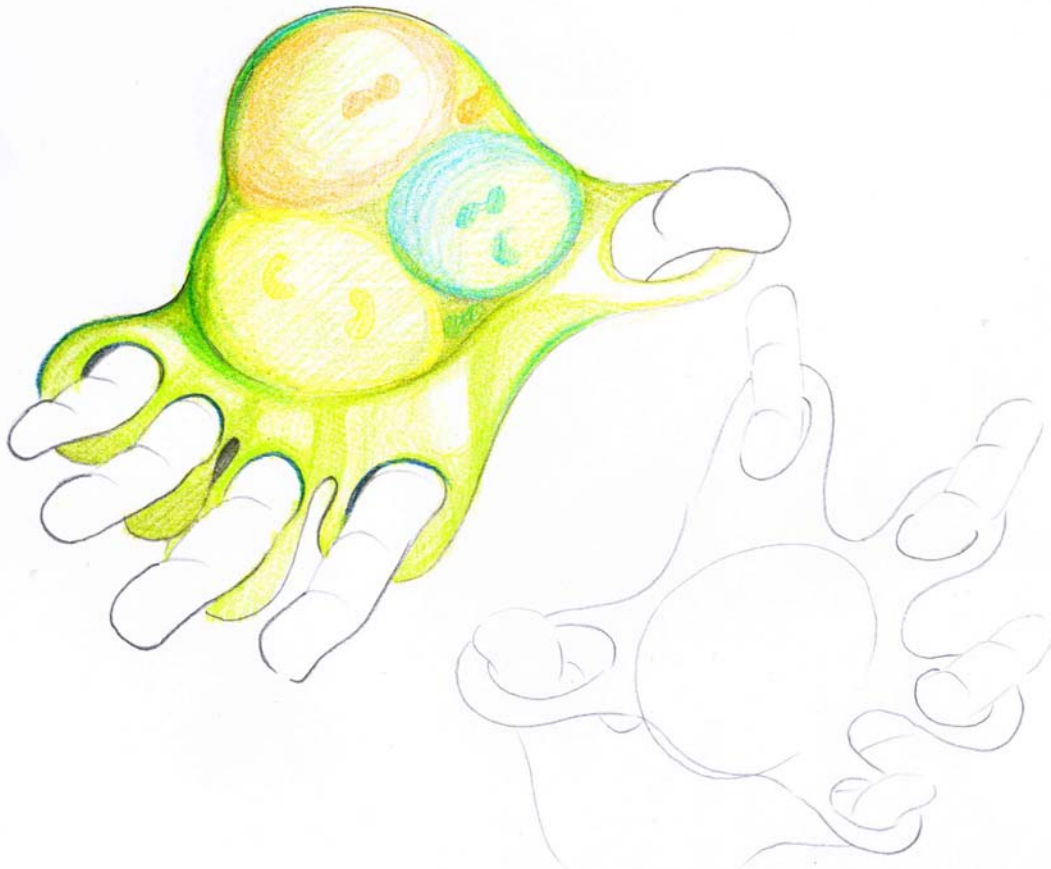
Visual motor co-ordination, analytical skills, concentration, fine motor skills, large motor skills

### limitations

Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. the element of surprise will gradually die out.



## CONCEPT3 wriggly palm



**Palm mounted play object filled with liquid and forms floating in it.**

### **nature of play**

**Manipulating the movement of colored forms to take them to the chamber of matching color**

### **first impact**

**Strangeness of form urges the child to hold , feel, press, twist-explore the object**

### **dialogue**

**On pressing colored forms move haywire in the liquid. Pressing, twisting, turning the form to achieve result- establishes play process. The game ends when all forms and chambers are matched. They can be reshuffled to start playing afresh.**

### **play value**

**Pressing the form to move the floating objects is full of excitement and challenge**

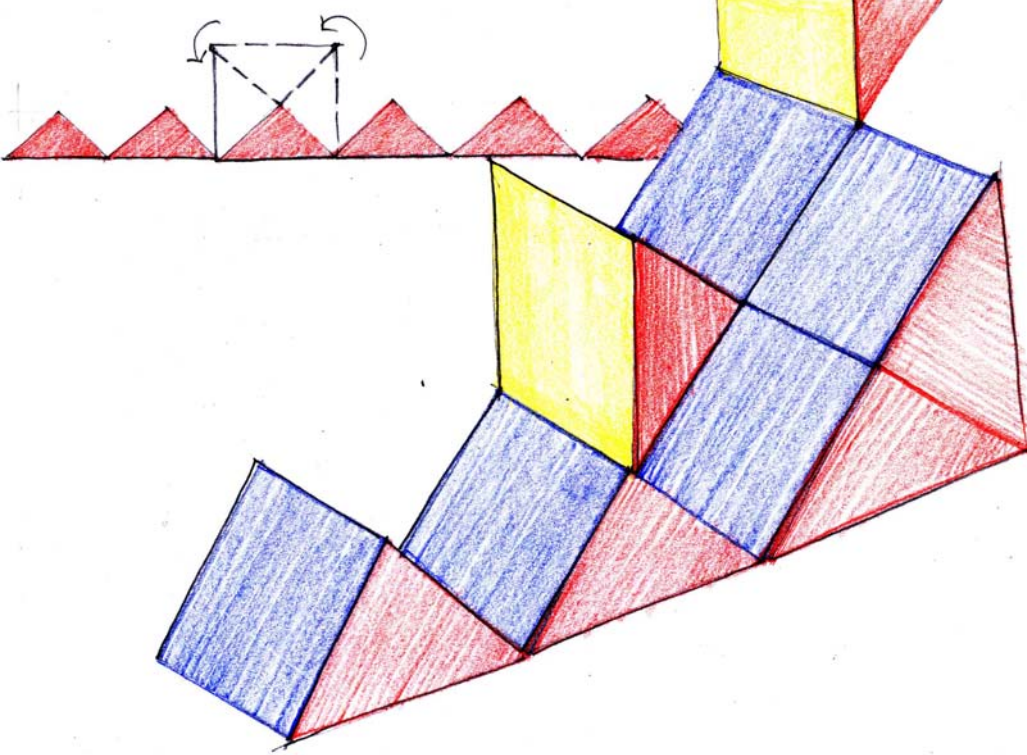
### **values and skills imbibed**

**Visual motor co-ordination, analytical skills, concentration, fine motor skills**

### **limitations**

**Might be too difficult for a 3 year old  
Play is incidental and does not have a defined structure- tend to get boring and repetitive**

## CONCEPT4 Combi-ne-Tricks



A coherent object that gradually opens up in stages to offer more than one mode of play. In other words a single entity splits in stages, to reveal various components. These components fold and unfold along each other to result in various assemblies .

### nature of play

The child has to keep juggling with it to arrive at formal organizations having a certain visual order. The task is to arrive at a logical sequence of moves to arrive at the desired form.

### process of play

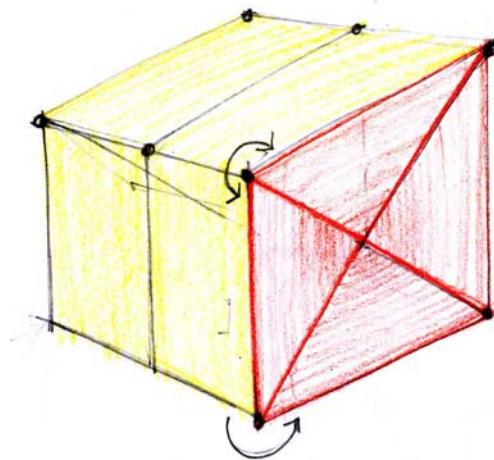
Splitting the object reveals more. It has a component of surprise. The child has new challenges to overcome which results in a fresh surge of interest in playing with the play object.

### play value

In every encounter, the object opens up a fresh dimension of play to the child. The fold like movement of the components makes moving them an exciting act. Also, every move reveals a new form, so there is a constant element of surprise.

### values and skills imbibed

Visual motor co-ordination, analytical skills, concentration, fine motor skills



## CONCEPT5 catch the match!

A set of two objects made of ring like components that rotate around a central rod. each of these components has fragments of many images.

### nature of play

The child has to rotate each of the components and align them to complete a particular image.

### first impact

Colorful outlook and element of strangeness in the form attracts the child's curiosity. It looks like a series of rings, each with fragments of images. These fragments bring in an element of *incompleteness* in the form which makes the child curious

### the dialogue

The child is constantly trying to find a visual order which gradually reveals the complete image. In the process, He/ she comes across many punctuations of success and failure in the form of dead ends The child has to think about every move, to move closer to the goal.

### further urge to play...

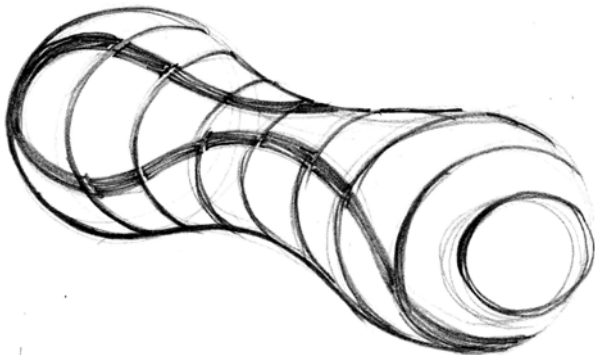
Gradual revelation of the image intensifies the child's urge to play further. An element of effortlessness and excitement is present in the very act of moving the components. This prevents frustration from setting in.

### values and skills imbibed

Visual motor co-ordination, analytical skills, concentration, fine motor skills

### limitations

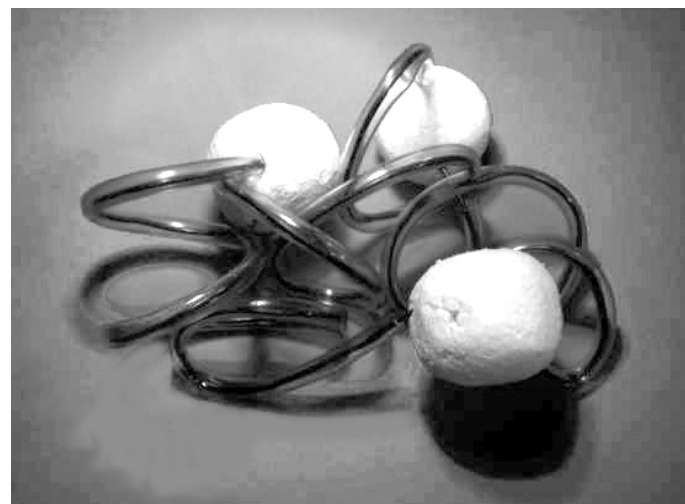
After a few encounters, the child will know how to make all images and will need a fresh mode of play.

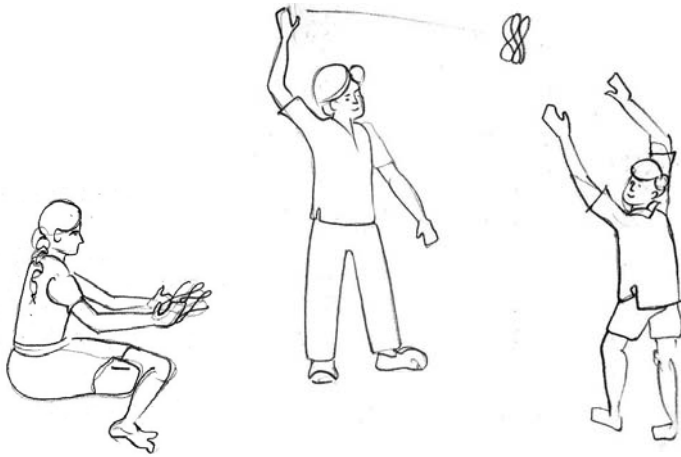


## 7.7 FINAL SET OF CONCEPTS alternatives

**The concepts till this stage were fragmented and not articulated . Further refinement of the concepts was carried out to define three alternative approaches to the final concept.**

CONCEPT1  
flexi maze





hold, press, twist, turn...

A flexible object made of hollow flexible tubes connecting three hollow lobes. Each lobe carries three balls each of different colours. These balls can be taken from one lobe to the other through the hollow tubes.

The child has to find the path to take the balls from one lobe to the other till each lobe has all balls of the same colours (or the same set of colours in each lobe or all balls of the same size in each lobe).

The path has a maze- like quality. It has dead ends that lead nowhere and closed loops that get the ball back from where it started. It also has short cuts that get the ball to the destination faster. Also all balls are not of the same size. So it will not be possible to move all of them along the same path.  
Nature of play

The play activity consists of moving the balls along the right path from one lobe to the other in a logical sequence to achieve a desired grouping of balls.

Varied importance can be given to different lobes in terms of points. So if the child gets the desired grouping in lobe A, he/she gets maximum points. (Points can be displayed as graphics on the lobes or in form of a point chart that can be put up anywhere in the house/ play areas. (Give reference of pokemon point cards that children collect)

When in transit, play can take place without consideration for points. Certain modes actually do not need the point chart. The point chart could be in the form of a book-let tag secured strongly to the flexi maze, so that it goes everywhere with the flexi maze.

## play process

### First impact

Colorful outlook and element of strangeness in the form attracts the child's curiosity. It looks like a mass of entangled tentacles. (It almost looks like a live animal- octopus!) When the child sees it first, he/she may not understand what it is supposed to do. But the form would arouse the child's curiosity urge to explore.

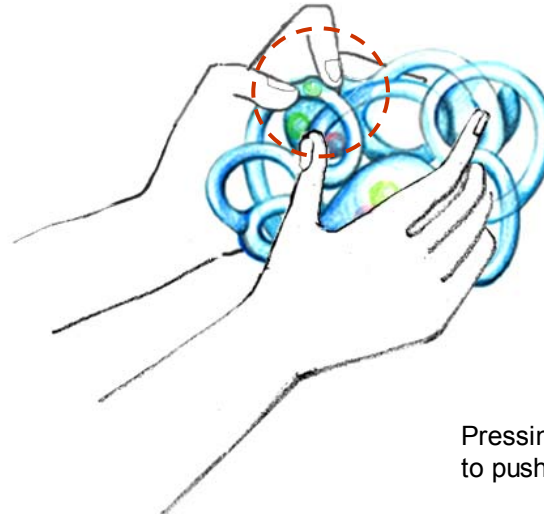
### The dialogue

The object is made of flexible material. This urges the child to hold it and feel it, press it, twist it, turn it. It has a rich tactile quality. Pressing it results in tickling sensation to the fingers and palm, which is very enjoyable for the child.

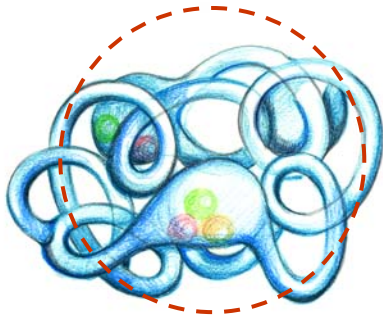
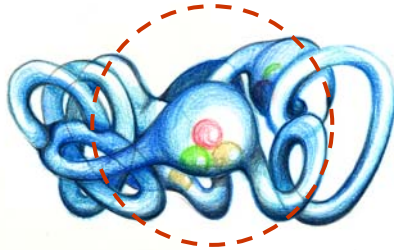
Some adult assistance would be needed in the first encounter to help the child know what is the nature of play activity. Various goals in the form of possible groups are established for the child by way of the instruction booklet. The child's task is to achieve each of these by moving the balls from one lobe to the other in a logical order.

In the process, the child is constantly trying to find the right path. He/ she comes across many punctuations of success and failure in the form of dead ends and loops that come back to the starting point. The child has to calculate every move, to move closer to the goal.

The urge to find the right way to reach a goal establishes a process of play. An element of effortlessness and excitement is present in the very act of pressing the rubbery pipe to push the ball ahead. This prevents frustration from setting in.



Pressing the flexible pipe to push the ball ahead



achieving the desired grouping  
of balls in the three lobes

An average child of age 3 can play with this object continuously for 5-10 minutes

The child spends the first few minutes of play just trying to get acquainted with the way the ball has to be pushed in the flexible tube. The nature of the first few instances of play will be random.

The child gradually gains control over this movement and is in a position to manipulate the movements of balls to achieve the desired grouping.

### **Challenge**

Achieving a particular grouping is posed as the goal to the child. The challenge is find the right path to reach the goal. Each significant move of the child takes the child nearer or farther from the goal. The child has to think strategically to achieve the goal.

### **Punctuations**

Certain stages in the process act as punctuations. These come in the form of small packages of success and failure. For eg. getting two balls of the same color in the same lobe would be a punctuation ascertaining the direction towards the goal. This could be misleading also, but in any case it does act as significant step in the process.

### **Fun filled de tour**

The progress from one punctuation to the other is exciting. The act of pressing, twisting and turning a rubber like material and the springiness of the form, makes moving the balls exciting.

### **Feeling of accomplishment**

Arriving at a known goal in the form of a desired grouping of balls gives the child a feeling of achievement. It marks the completion of a process of play. at the same time, it instills an urge and confidence in the child to achieve various other types of groupings possible.

### **Further urge to play...**

Once a desired grouping is achieved , play process can resume with the goal of achieving another set of groupings. Thus, every encounter with the play object is as exciting as the previous one

## CONCEPT 2

### catch the match!

A set of two objects made of ring like components that rotate around a central rod. each of these components has fragments of many images.

The child has to rotate each of the components and align them to complete a particular image.

Only one image / set of images gets completed at a time.

So as the child tries to complete more images, the previous ones get disintegrated.

#### Stage 1

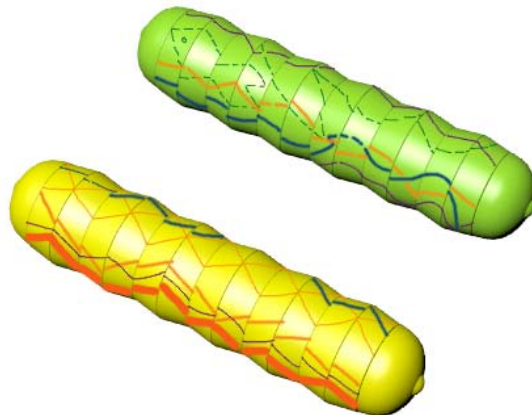
There are two play objects, as shown, which can be independently played with as discussed below.

#### nature of play

The play activity consists of aligning the ring components to each other in a logical sequence to achieve a desired image. The challenge is to decide on a sequence of moves to achieve the desired image.

The images that can be discovered on the object can be illustrated in an instruction booklet explaining the nature of play. This will help to set desired goals.

When in transit, book-let can be secured strongly to the object in the form of a tag, so that it goes everywhere with the object.



## play process



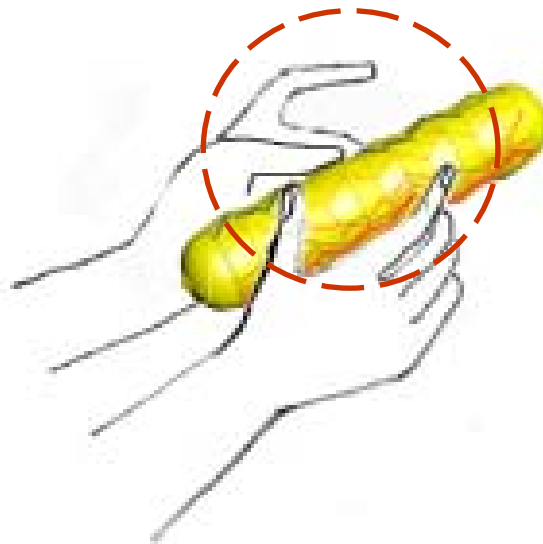
### First impact

Colorful outlook and element of strangeness in the form attracts the child's curiosity. It looks like a series of rings, each with fragments of images. These fragments bring in an element of *incompleteness* in the form which makes the child curious. On holding the object for the first time, the child realizes that the components rotate about a central rod. The child's first intention would be to move the components randomly to get a hang of what it is all about.

This along with a little explanation from an adult, will help the child play further.

### The dialogue

The fragmented look of the object urges the child to hold it and feel it, turn it. It has a tactile quality. Feeling it results in tickling sensation to the fingers and palm, which is very enjoyable for the child.



Some adult assistance would be needed in the first encounter to help the child know what is the nature of play activity. Once the child knows what to do, the child will have to keep rotating components and align them to complete various images, challenges and punctuations and feeling of accomplishment

The child is constantly trying to find a visual order which gradually reveals the complete image. In the process, He/ she comes across many punctuations of success and failure in the form of dead ends. The child has to think about every move, to move closer to the goal.

### fun filled de tour

The detour towards completing an image is not predictable as it will always depend on the relative position of each ring at the time the play is resumed. So each encounter with the play object is a fresh start for the child.

### further urge to play...

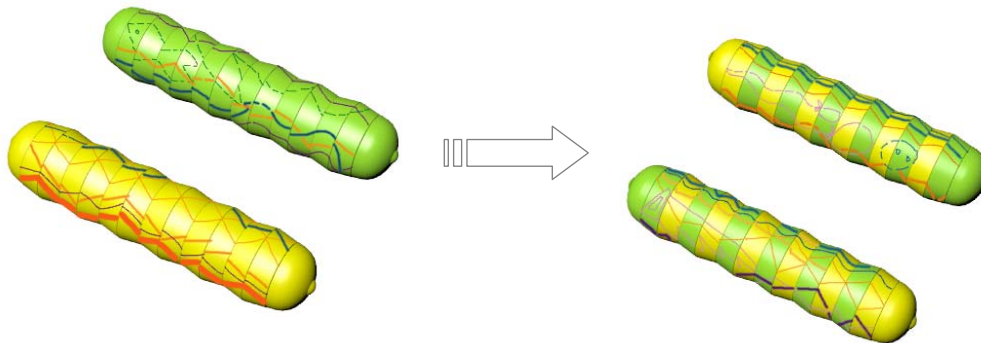
Gradual revelation of the image intensifies the child's urge to play further. An element of effortlessness and excitement is present in the very act of moving the components. This prevents frustration from setting in.

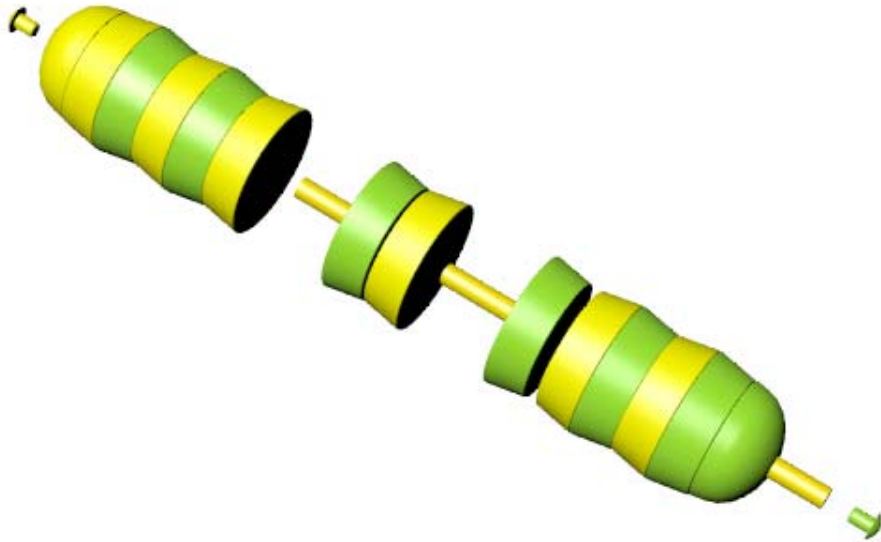
### Stage 2

### need for more.....

As the child grows, the child will get used to the play object. Due to repeated playing with it, the child will overcome all the challenges offered and become familiar with methods to complete the images. Playing with it will tend to get boring.

Also, as the child grows, s the child would want something more challenging to play with.





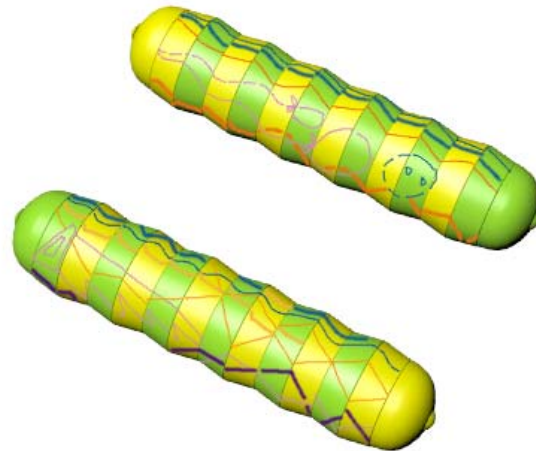
#### *re-shuffling of components*

Components of both objects are dismantled and re-shuffled ( in a particular order stated in the manual) as shown.

This will create two new play objects offering fresh challenges of making images that are more complicated to complete.

This renews the child's interest in the play object. The nature of play is same, but more complex.

Sketch detail of rotation joint  
What is imbibed by the child?  
Merits demerits of concept



## **CONCEPT 3**

### **Combi-ne-Tricks**

**An object with several elements that combine in different ways resulting in the creation of various coherent forms that have a formal definition that the child can recognize.**



initial explorations

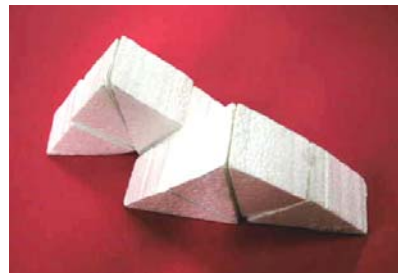
variation 1

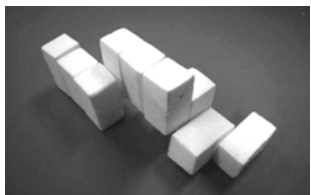
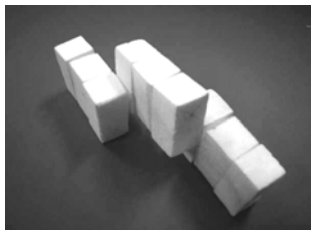
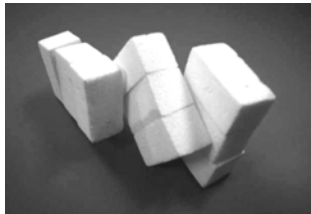
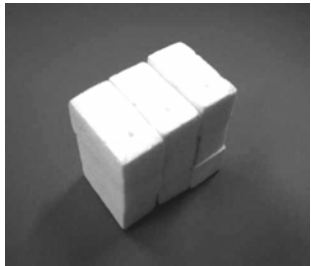
Prisms connected by hinge joints . Hinge allows 270 deg. rotation of elements. Prism elements align along each other in various ways resulting in different forms. In this configuration, 2 no.s of forms are possible.

1



2

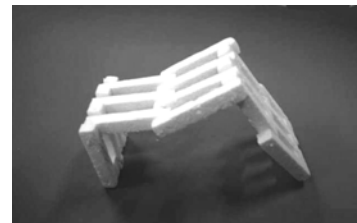
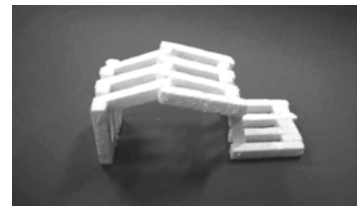
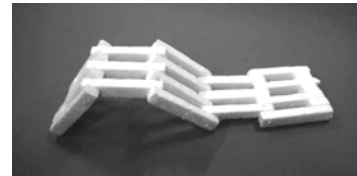
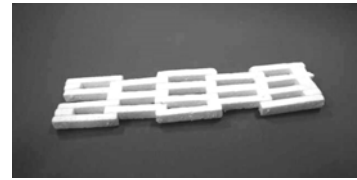




### variation 2

A cube splits open to reveal various elements. Elements are connected with pivots, which allow total freedom of movement along one plane.

limitation:  
Movement of elements is too open- ended to establish play process



### variation 3

Various elements connected by pivots create a fabric like structure which folds and unfolds .

limitation:  
Movement of elements is too open- ended to establish play process

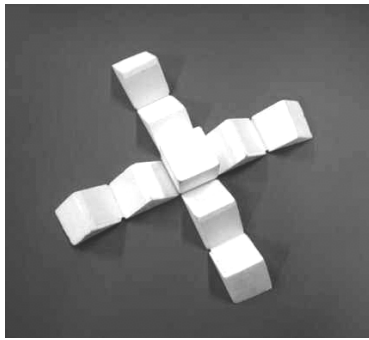
1

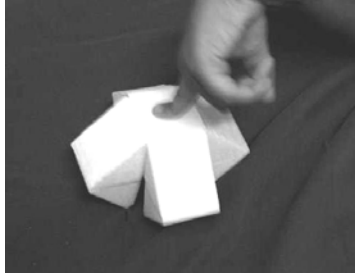
2



## further development - variation 1

Variation 1 was further developed into configurations which could yield more number of formal organizations.





## 7.8 user feedback

### first impact

The element of strangeness in the object makes the child curious to explore it. The folding unfolding kind of movement between the components is very exciting for children. The child spends the first few moments of play to get familiarized with the mode of play. So nature of play is random.

### the dialogue

In the process, the child realizes that components align only in a certain way and in a certain way they don't. Also, the child now wants to make something out of it. So, he tries to achieve a certain visual order in the form of the play object.

### level of complexity

The capabilities of a 3yr and a 5yr old child differ a lot. So a configuration that was challenging for a 3yr old ended up being too simple for a 5yr. Old. Also, a 3 yr old could only relate to very basic forms ( cube or box like forms)

### time factor

A 3 yr old children were able to play for 5-7 minutes. The attention span of 5 yr olds spanned from 8-15 minutes.



## 7.9 inferences

There concept performed well in terms of quality of play and time factor. It gave enough scope for exploration and trial and error without frustration setting in.

It gave valuable insights to fix the following parameters

### *size of components*

As per the comfort of grip for children between 3-5 yrs, size of blocks was fixed as 50mmx50mmx50mm.

### *springiness of action*

The components needed something to stay put in the position assigned to them for the child to comfortable control them. Magnets were used for this purpose.

### *role of instruction*

There was a need to established known goals for the child in order to not let the exploration become too open ended. For this the idea of an instruction booklet illustrating all forms possible was thought of. This way the child would know where the play process is heading.

**The most important insight was :**

**After a few encounters, the child gets acquainted with the play object and wants something new to continue with, other wise the child loses interest in the object.**

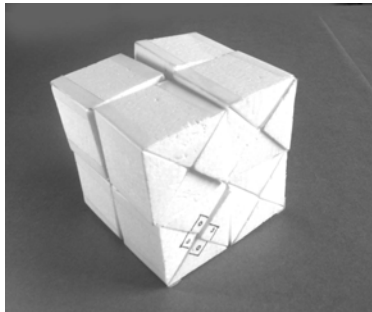
**Further concepts have been developed to fulfill this requirement in different ways.**

## 7.10 FINAL CONCEPT alternative approaches

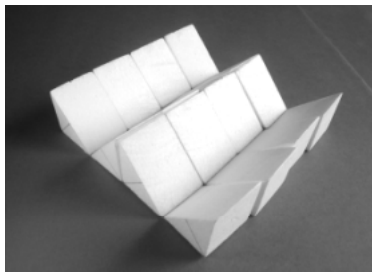
Three approaches were defined within this concept :

- **approach A**  
a set of individual play objects with growing complexity of play.
- **approach B**  
an object that grows and reconfigures to become more and more complex.
- **approach C**  
an object that reveals itself partially in stages the scope increasing and complexity of 'combinetric' organization

## 7.11 FINAL CONCEPT DEVELOPMENT



stage1



stage2

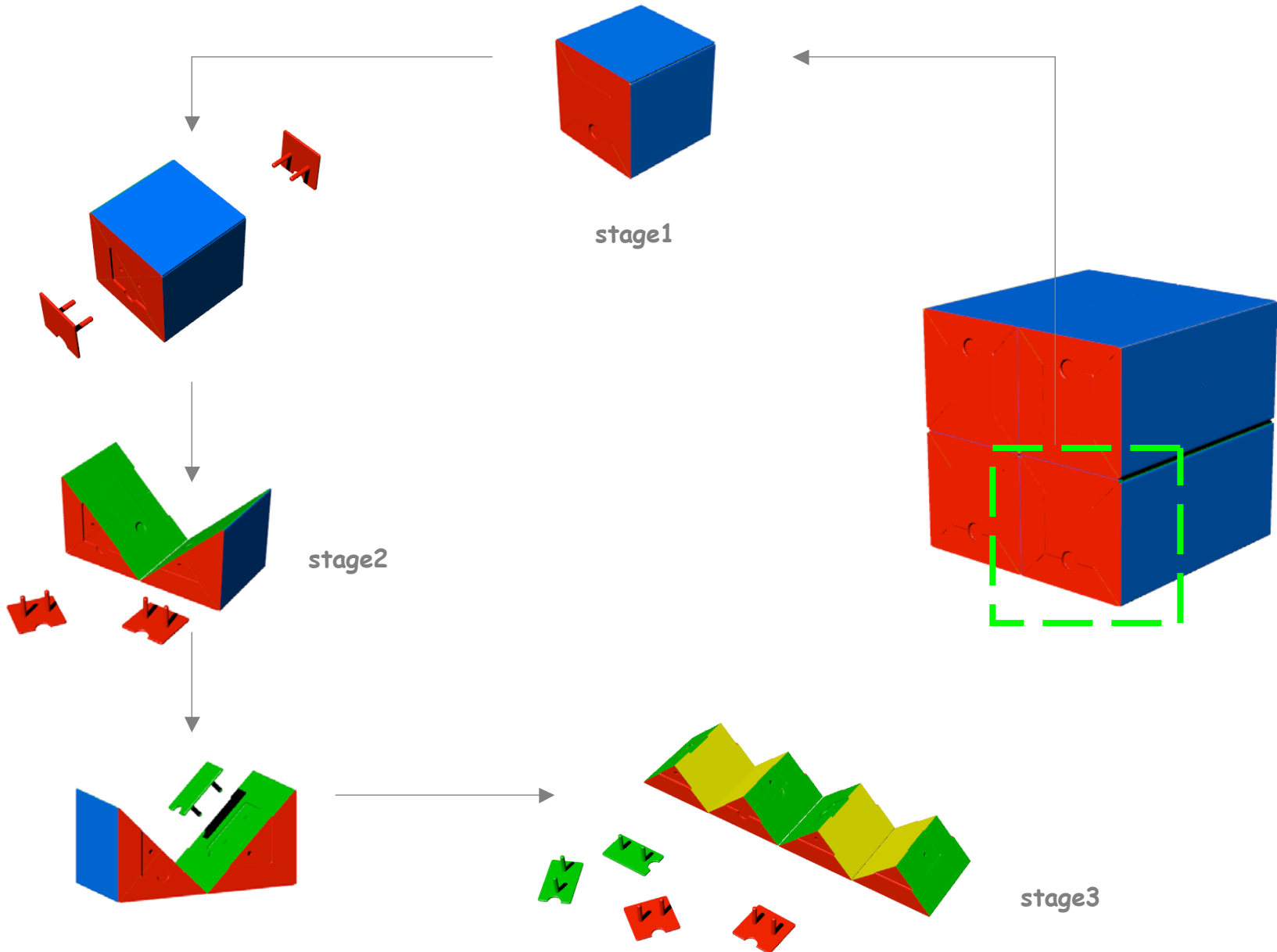


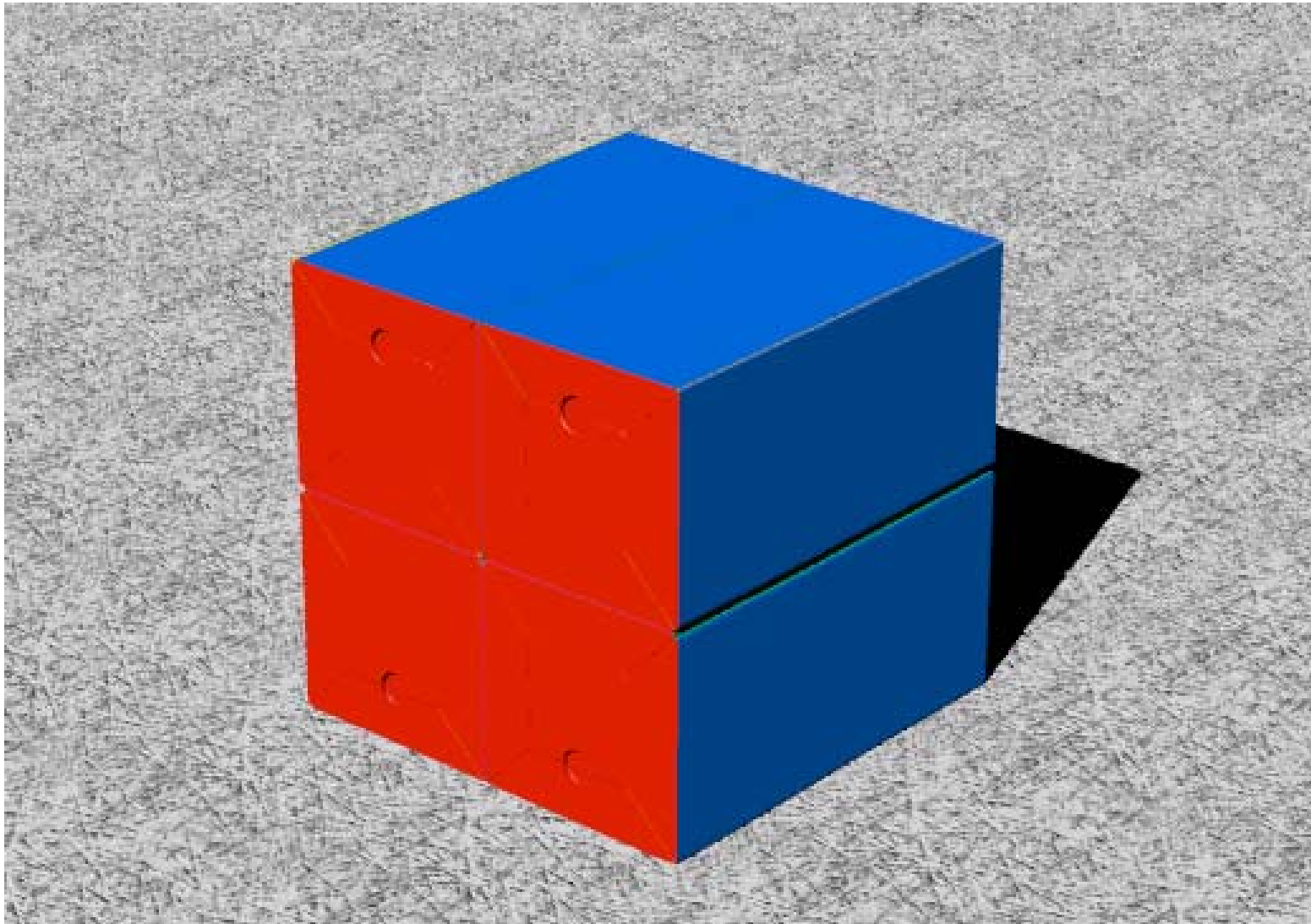
stage3

**Final concept was chosen as per the following criteria**

- genuinity of concept
- play value
- learning and development objectives
- challenges and punctuations in play process
- variety of forms achieved
- growth in complexity of play
- versatility
- characteristic features
- safety and ergonomic considerations
- manufacturability

# splitting of a component

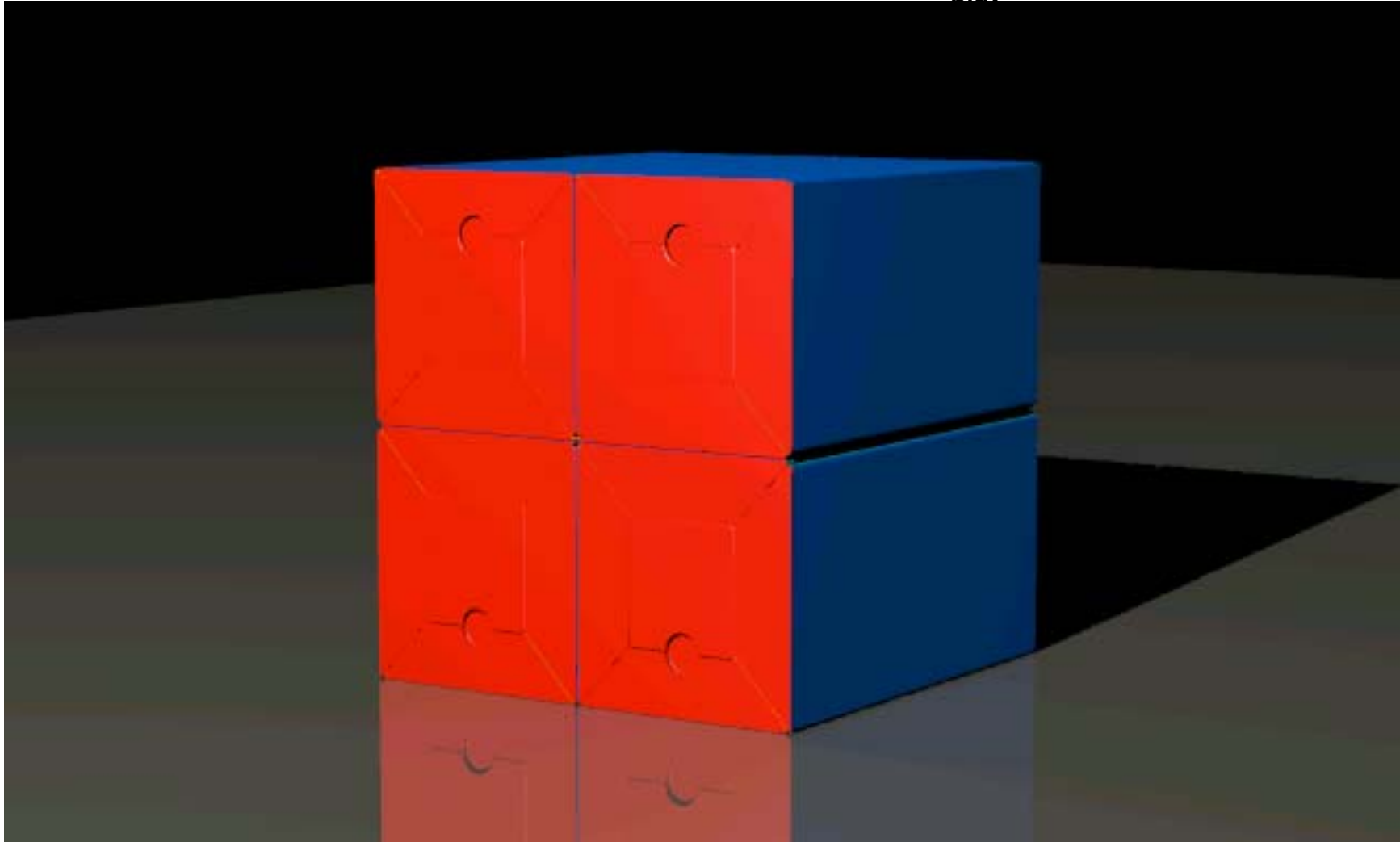




the final concept

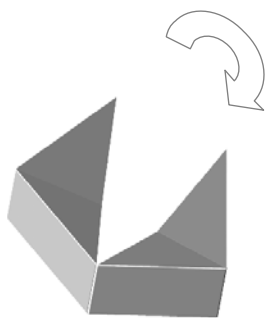
## final concept

**The final concept is a cube that reveals different sub-systems of components for different modes of play**

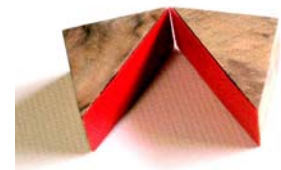
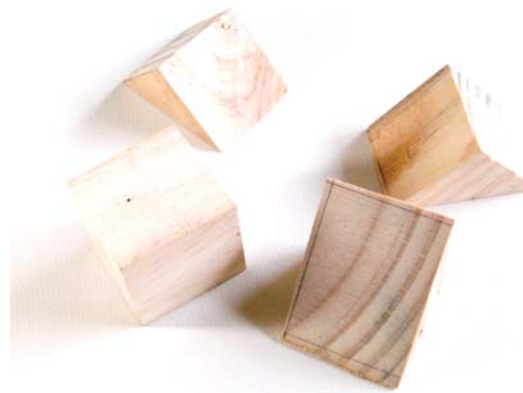


## CHAPTER8 model making live hinge

The model was made of blocks of pine wood. Thin PP sheet /paper was used to create live hinge.. A rotation of 270 deg. was achieved



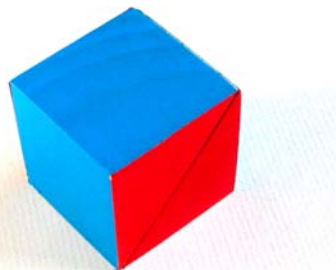
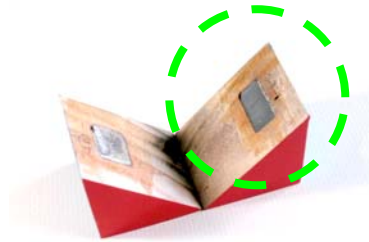
hinge movement

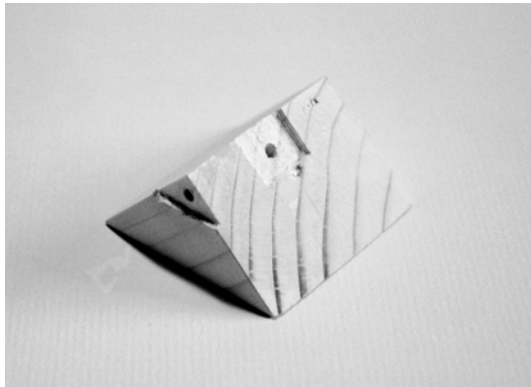


## inserting magnets

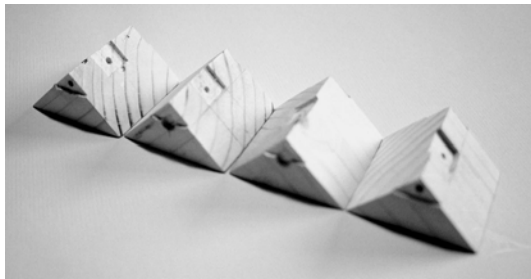
Magnets were inserted in wood blocks to simulate springiness in the folding action.

Blocks were covered with stickers of different colours.

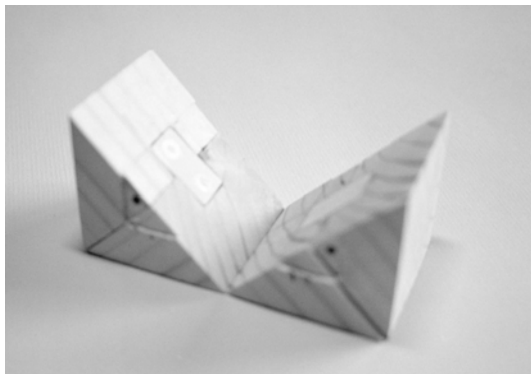




**single component**

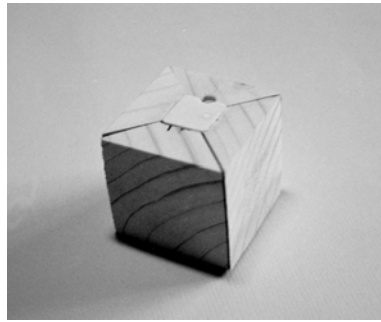


**components of one cube unit**



**components held together by pins**

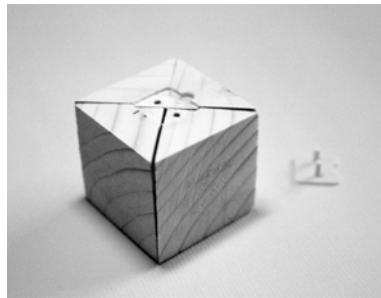
**1**



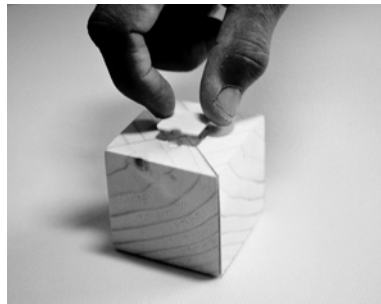
**2**



**3**



**4**



**sequence showing putting  
and  
removing of pins between  
components**

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### books

Hurlock E, 1981, *Child Development*, 6<sup>th</sup> edition, McGraw Hill International, Auckland

Moseberg Stewart, *The Best of Children's Product Design*, Hearst books International

Stant Margaret. A, 1972, *The Young Child- His Activities and Materials*, Prentice-Hall, Inc., New Jersey

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### web sites

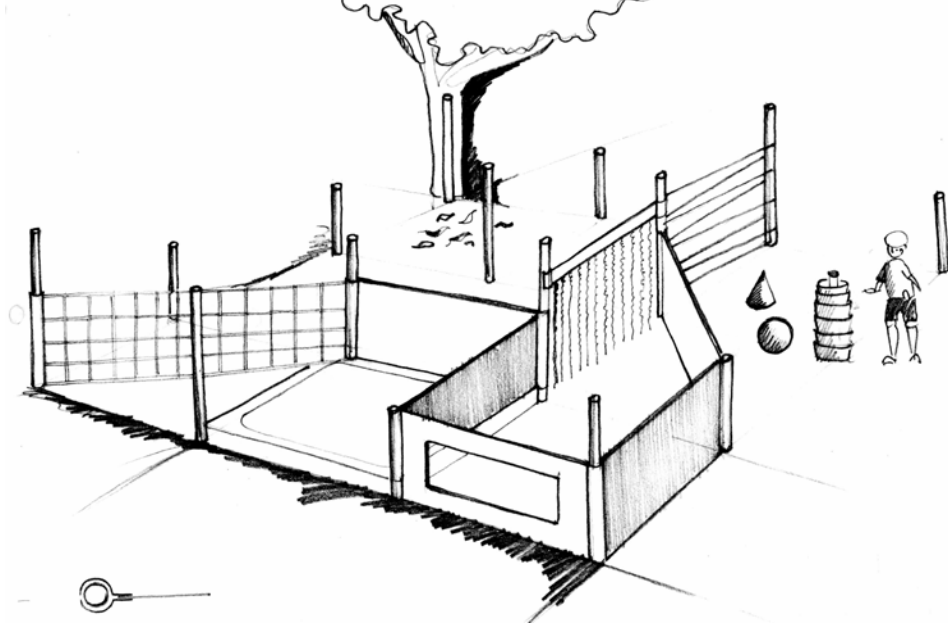
<http://www.babycenter.com>

[www.learningpathways.com/toys.html](http://www.learningpathways.com/toys.html)

<http://www.funsci.com>

<http://www.lego.com/eng/explore/drcohen.asp?x=x#5>

[http://www.chennaiibest.com/cityresources/Sports and Recreation/funskool.asp](http://www.chennaiibest.com/cityresources/Sports_and_Recreation/funskool.asp)



variation 1  
poles and planes

## GROUP 1 spaces defined by objects...

### nature of play

Playing in spaces defined by objects (poles, planes of varied materials). Each space reveals surprises and sensory experiences. Spaces trigger different activities and games and experiences. Solitary, group play and overlaps

### context

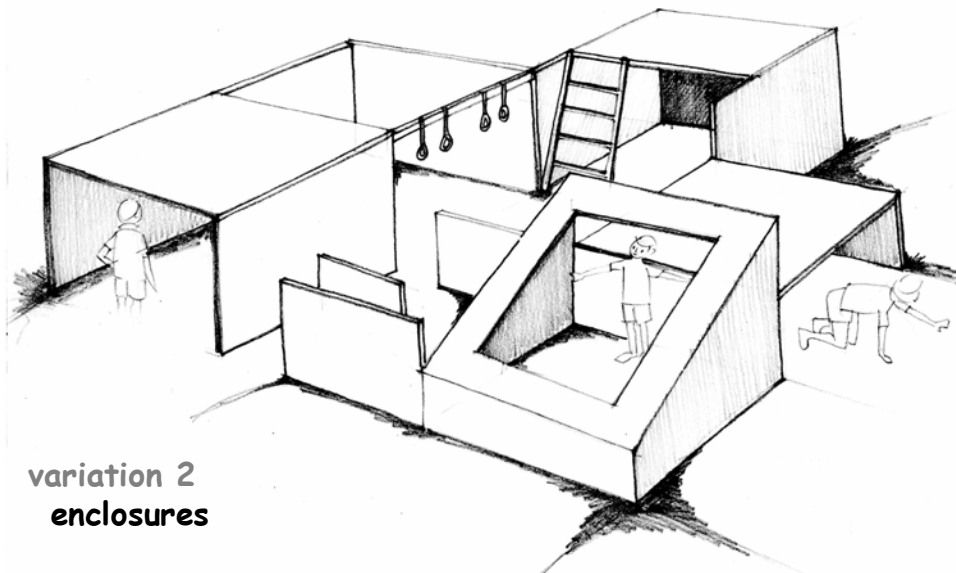
parks, outdoor play areas of schools, indoor public spaces (malls)

### values and skills imbibed

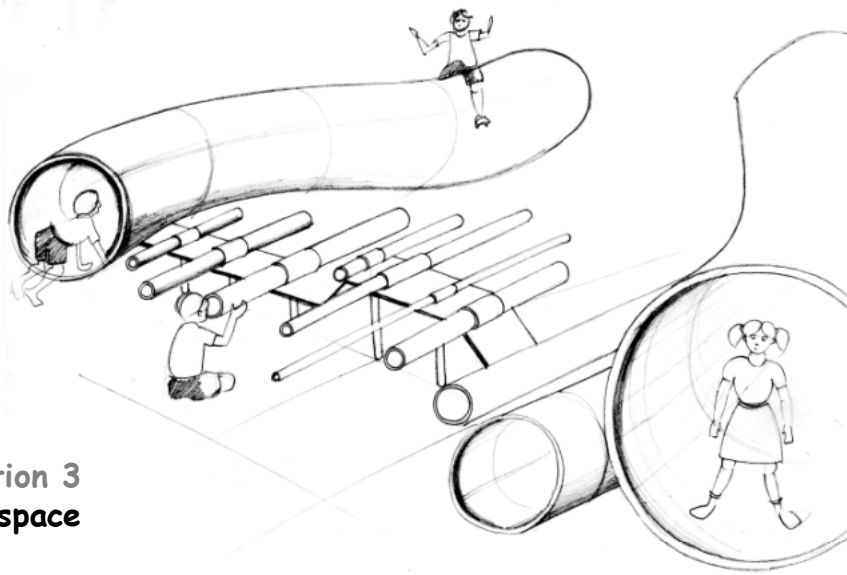
large motor skills, enhances sensory apparatus, exploratory skills, analytical skills

### limitations

too open-ended, exploration is not articulated,



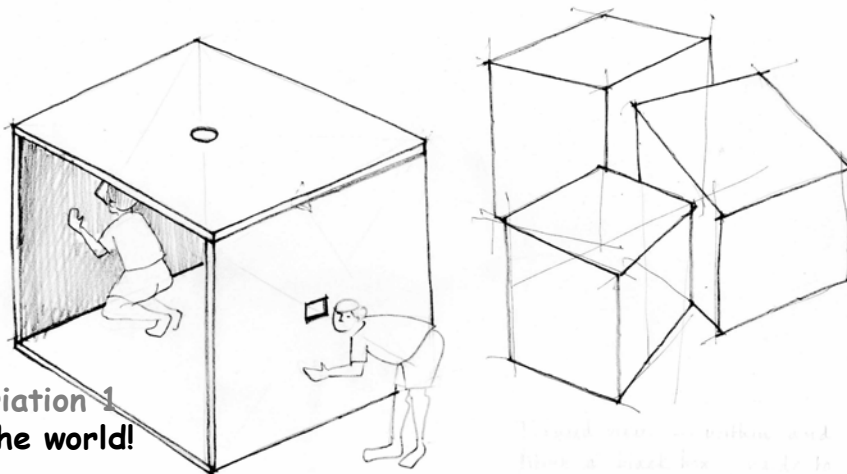
variation 2  
enclosures



variation 3  
sound and space

form and spaces created not organic and playful enough (too formalized)

GROUP2  
looking at the world differently...

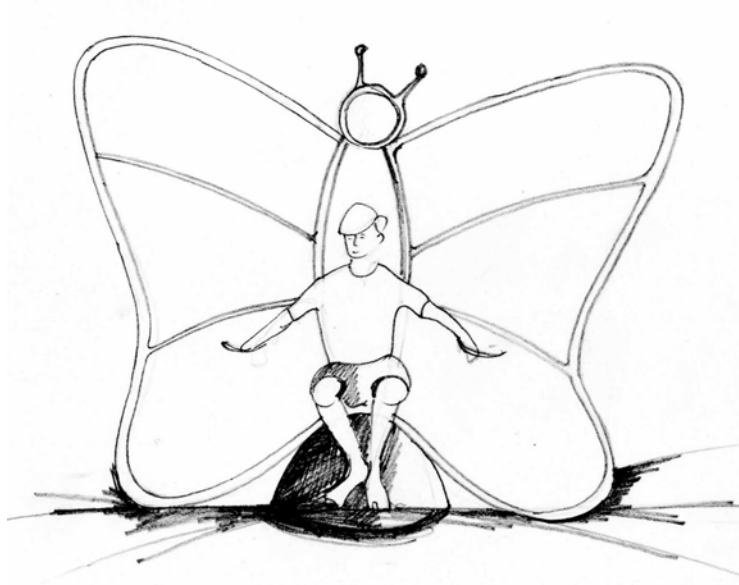


variation 1  
framing the world!

nature of play

Child experiences space and volume  
Child sees spaces through frames of varied sizes and shapes. The same space looks different from each frame.

variation 2  
I m butterfly!



#### nature of play

Scaled installations of birds, insects with movable wings

Child 'becomes a butterfly' to experience the movement of its wings (looking at the world from another viewpoint- imaginative play)

Movement of wings leads to fun and excitement

Material: thin frame of metal rods – sturdy but light enough to be moveable

#### values and skills imbibed

active play, large motor skills, enhances sensory co-ordination and imaginative play

#### context

parks, play areas of schools (indoor and outdoor), indoor public spaces like shopping malls

#### limitations

does not have pronounced exploratory potential, after some-time child will get bored

## GROUP1 hand puppets

### nature of play

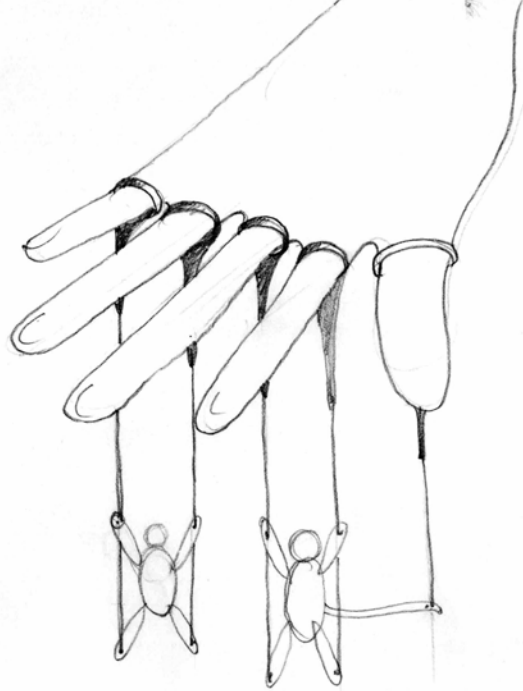
Controlling movement of puppets with the palm and fingers of the hand . This accompanied by auditory input from the child ( speaking, singing, etc) trigger different activities and games with the puppets as focus.  
Solitary, group play and overlaps

### values and skills imbibed

fine motor skills, enhances inter-sensory co-ordination,, imagination, enhances interaction and group play

### limitations

Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. the element of surprise will gradually die out.



## GROUP2 smilies

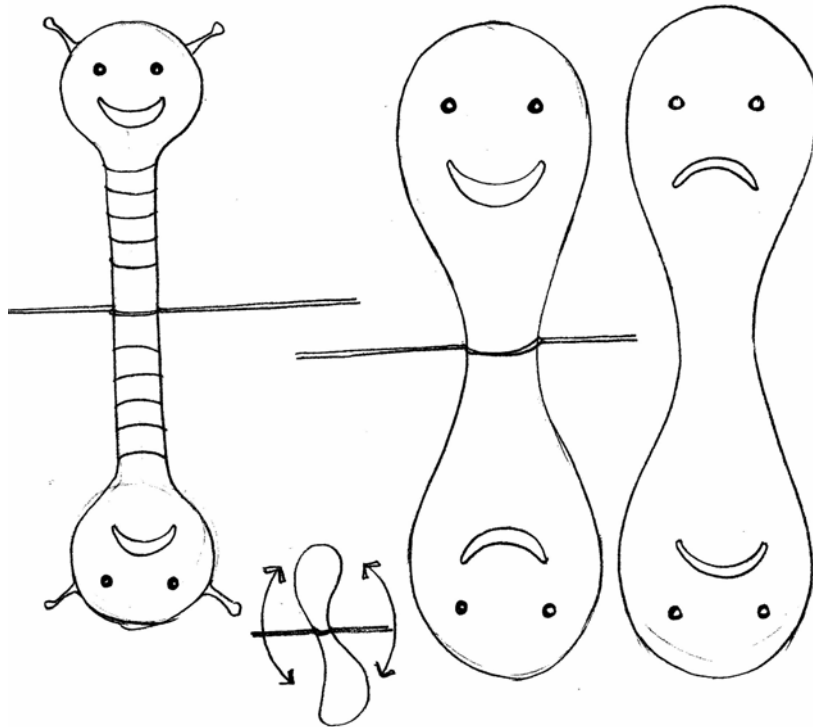
Smiling faces on one side of the play object alternate with the sad faces on the other side. This creates an animated effect as the component pivots around its center tied to the string.

### nature of play

The child twists the string such that the play object pivots around the center as fast as possible. Engagement is offered by repetitive mode of play

### play value

The animated effect created by the alternating smiling and sad faces is exciting for the child.



## GROUP3 springies

Wood/ plastic components are connected to vacuum pods by way of springs.

#### nature of play

Children have to stick one set of pods to a surface and then try to stick the opposite set too. This pulls the first set apart from the surface. The same process repeats.

#### play value

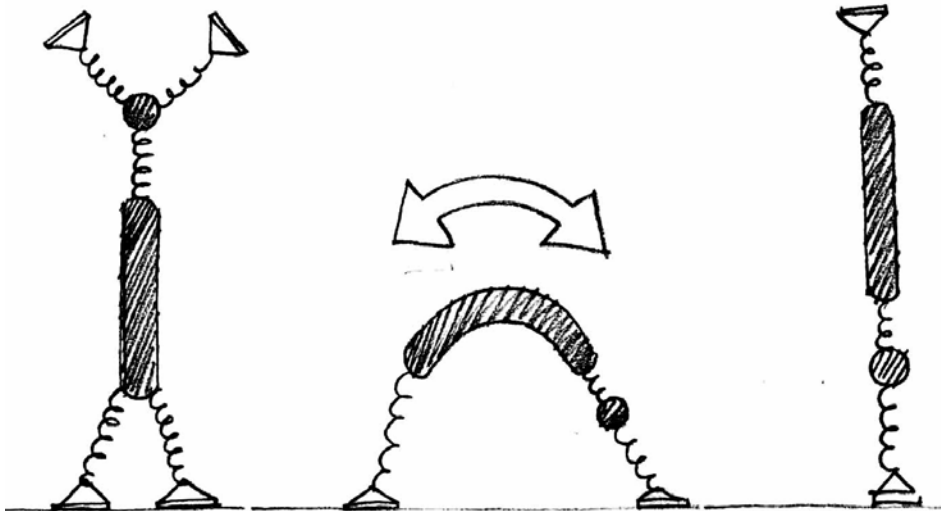
Springy nature of the object makes stretching, pulling it an exciting act. Engagement is offered by the repetitive mode of play.

#### values and skills imbibed

Fine motor skills, visual motor co-ordination

#### limitations

Child's involvement with the play object would be limited till he/she gets acquainted with the basic mode of play. the element of surprise will gradually die out.



## GROUP4 installations for play

An installation of hollow pipes having a maze like organization

nature of play

This is for play in pairs or group play. One child puts a ball in one of the pipes. The other child/ children have to figure out it will come out from which opening at the other end and try to catch it.

play value

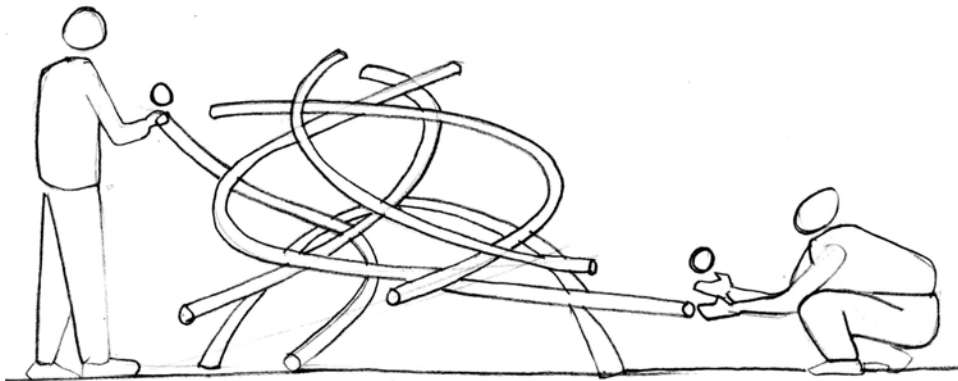
Establishing co-ordination, healthy competition and feeling of accomplishment on catching the ball makes play activity exciting.

values and skills imbibed

Large motor skills, visual motor co-ordination, concentration, analytical skills

limitations

This kind of play needs minimum two children. The ball might tend to get lost.



variation 1  
catch the ball!

An installation of rocking toys in moulded plastic..  
These can be based on themes like  
( sun and planets, or fruits, flowers)

#### nature of play

This is mostly for solitary play and play in pairs.  
When a child sits on it, because of its shape , it can  
rock in all directions.

#### play value

Sense of movement – the child's entire body  
moves with the play object. This movement is  
exciting.

#### values and skills imbibed

Large motor skills, visual motor co-ordination,  
concentration, analytical skills

#### limitations

This kind of play needs minimum two children.  
The ball might tend to get lost.



variation 2  
rock rock away!

# GROUP1 rock rock away !

An installation of rocking toys having a ladder like structure.

## nature of play

This is mostly for solitary play and play in pairs. When a child sits on it, because of its shape , it starts rocking. The child climbs up and down the ladder resulting in rocking movement.

## play value

Sense of movement – the child's entire body moves with the play object. This movement is exciting.

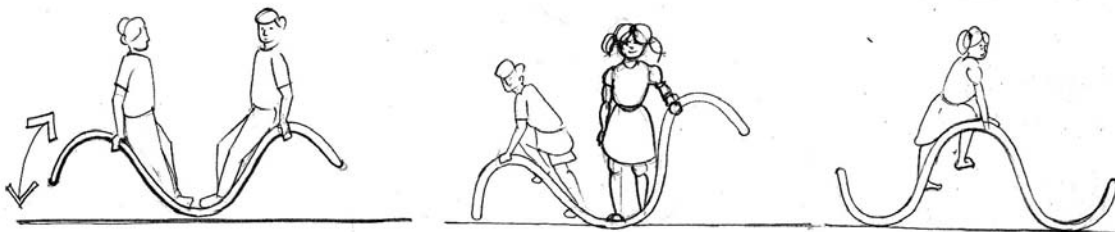
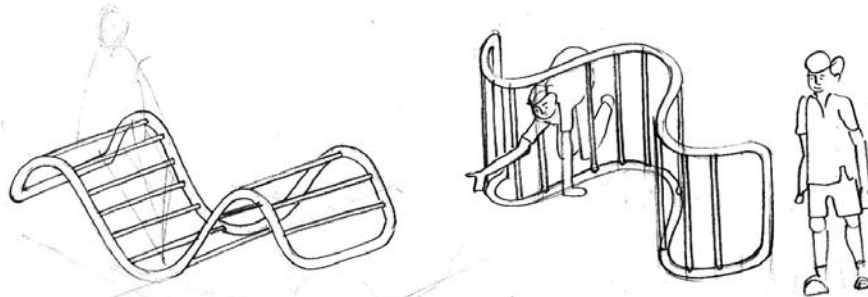
## values and skills imbibed

Large motor skills, visual motor co-ordination, concentration, analytical skills

## limitations

This kind of play needs minimum two children. Rocking toy may topple sideways – safety issues

## variation 1 rock rock away!



curvature of the surface –  
rocking chs

An installation of plastic moulded rocking toys that can be configured in various ways offering different modes of play.

#### nature of play

Components can be configured in different ways forming tunnels, enclosures and rocking toys. Children are free to play the way they enjoy.

#### play value

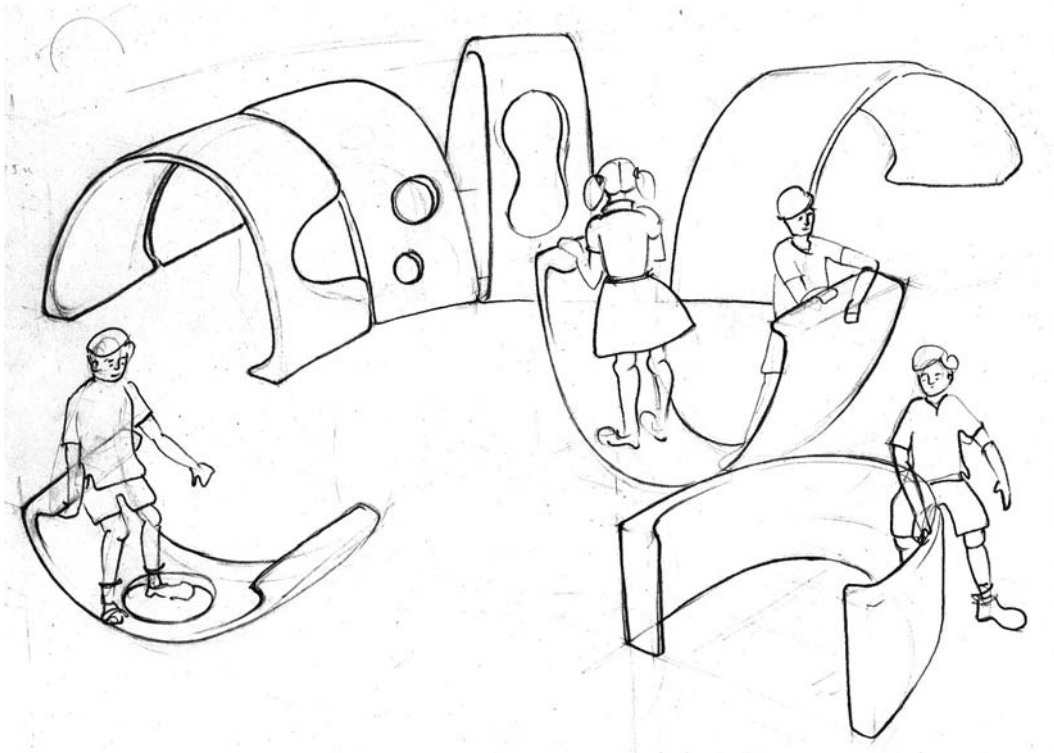
Sense of movement – the child's entire body moves with the play object. This movement is exciting. The objects form a playscape which opens a world of sensory experiences to children. Various games ( running catch, hide n seek) can be played in this playscape.

#### values and skills imbibed

Large motor skills, inter-sensory co-ordination, exploratory nature, social skills

#### limitations

This kind of play needs minimum two children. Rocking toy may topple sideways – safety issues



variation 2  
reconfigurable rockers

## GROUP2 never ending ladder!

An installation of a continuous ladder

nature of play

This is both for solitary play and group play. Children can climb up and down, jump, hang from bars, experience different heights. Different games can be woven around the ladder.

play value

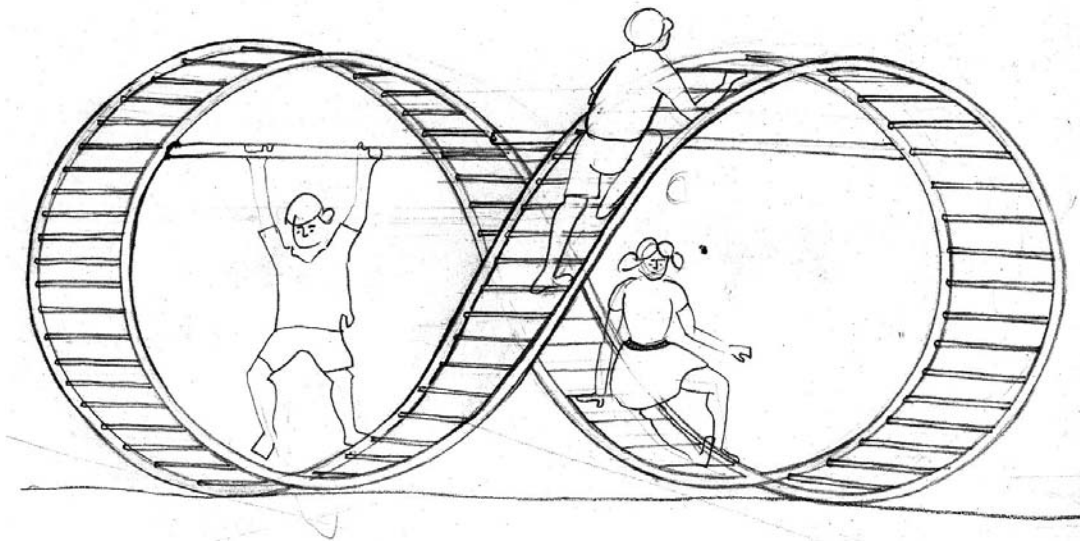
Never ending nature of climbing up and down, experiencing different heights is exciting.

values and skills imbibed

Large motor skills, inter-sensory co-ordination, alertness, exploratory nature, social skills

limitations

Heavy, not reconfigurable  
Distance between rods may result in children's feet getting stuck resulting in injury.



variation 1  
never ending ladder

## GROUP3 ball and hole

A set of floor boards of hard foam-like material which can be assembled to create a small play ground for children ( home, schools, public spaces)

### nature of play

This is both for solitary play and group play. The floor boards make a play ground like structure. Some play boards have holes of different sizes. Children have to throw balls into the right holes to score points.

### play value

Its like a golf game played without golf sticks and with balls of different sizes. Throwing, kicking the ball is exciting for children.

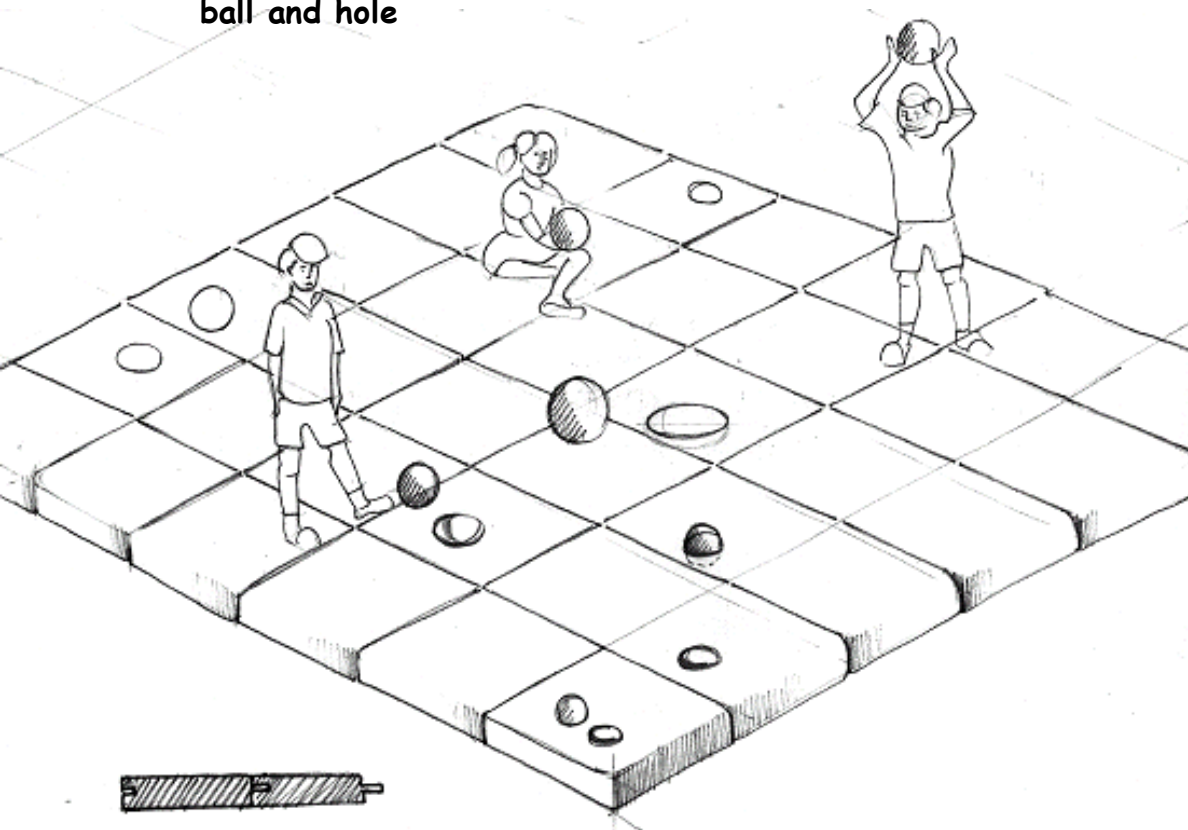
### values and skills imbibed

Large motor skills, inter-sensory co-ordination, alertness, exploratory nature, social skills

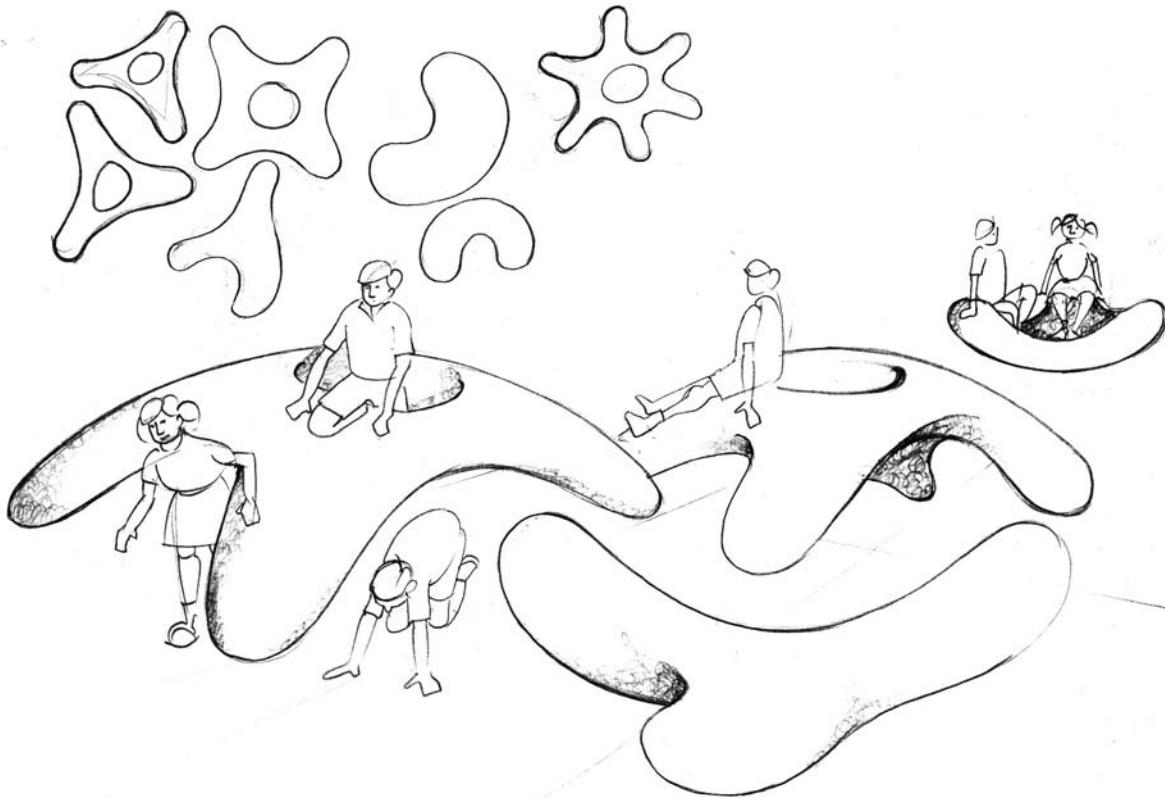
### limitations

Balls may tend to get lost  
Needs a big space indoors.

### variation 2 ball and hole



## GROUP4 fun scape



An installation of forms made of moulded plastic or hard foam like material.

### nature of play

The forms are undulated with gently curved surfaces of different colours and textures. They can be oriented in various ways to bring in an element of freshness. Children can climb up and down, go underneath, jump... they are free to explore.

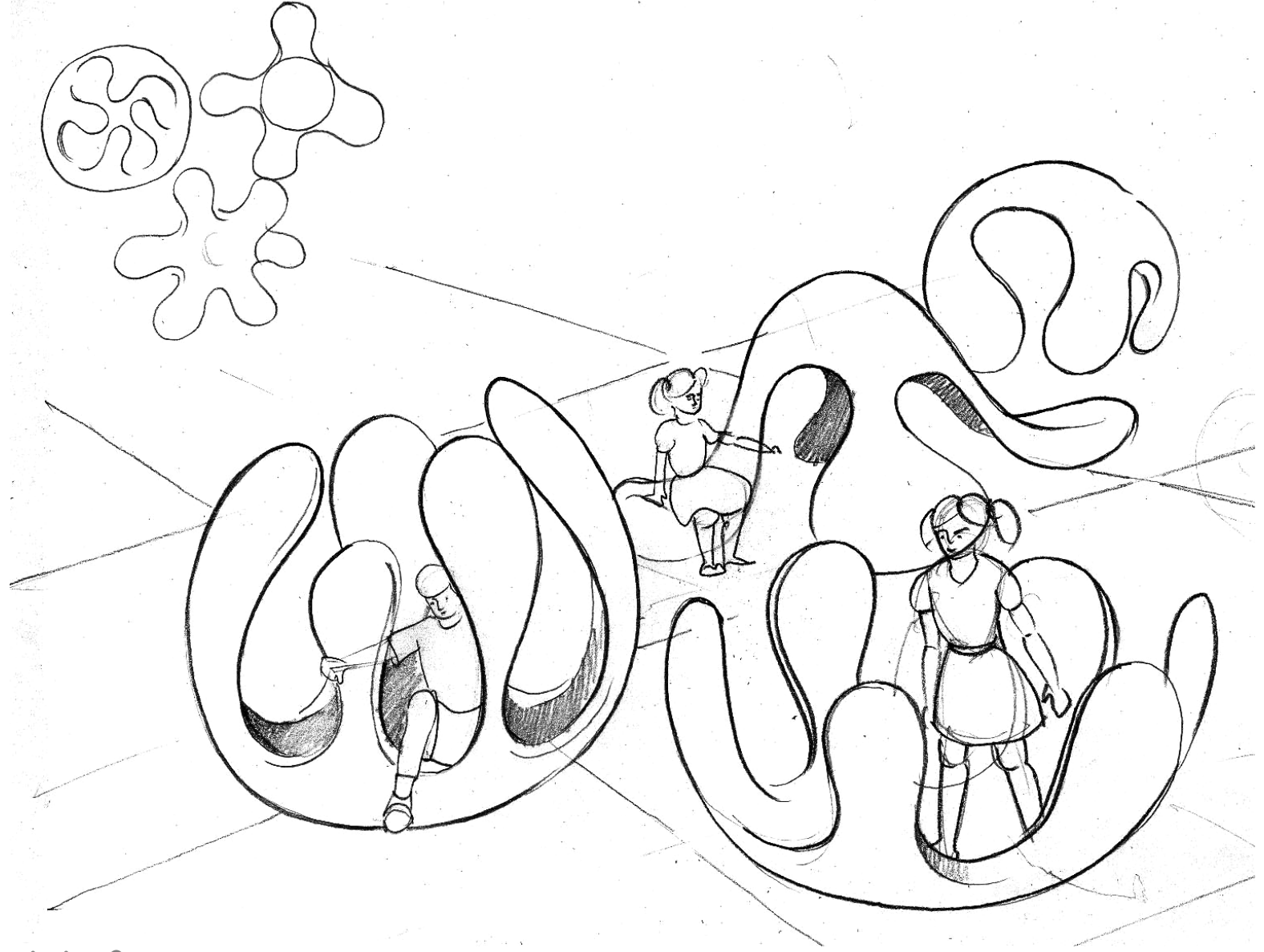
### play value

The objects form a playscape which opens a world of sensory experiences to children. Various games ( running catch, hide n seek) can be played in this playscape.

### values and skills imbibed

Large motor skills, visual motor co-ordination, concentration, exploratory skills, social skills, alertness

variation 1  
leaves



variation 2  
buds and flowers

A flexible object made of hollow flexible tubes connecting three hollow lobes. Each lobe carries three balls each of different colours. These balls can be taken from one lobe to the other through the hollow tubes.

The child has to find the path to take the balls from one lobe to the other till each lobe has all balls of the same colours (or the same set of colours in each lobe or all balls of the same size in each lobe).

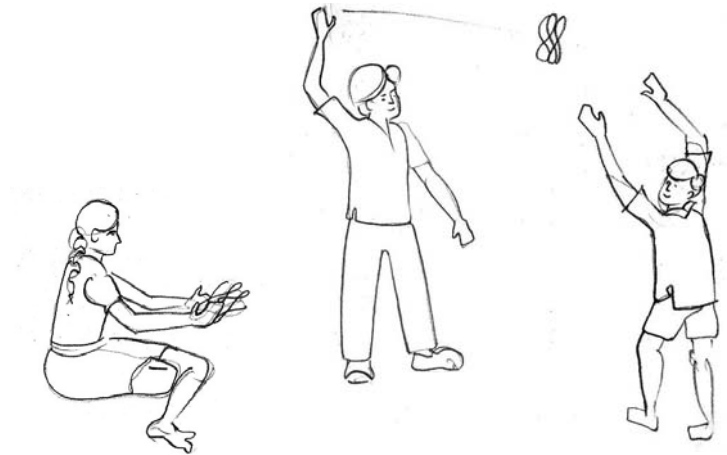
The path has a maze- like quality. It has dead ends that lead nowhere and closed loops that get the ball back from where it started. It also has short cuts that get the ball to the destination faster. Also all balls are not of the same size. So it will not be possible to move all of them along the same path.

#### nature of play

The play activity consists of moving the balls along the right path from one lobe to the other in a logical sequence to achieve a desired grouping of balls.

Varied importance can be given to different lobes in terms of points. So if the child gets the desired grouping in lobe A, he/she gets maximum points. (Points can be displayed as graphics on the lobes or in form of a point chart that can be put up any where in the house/ play areas. (Give reference of pokemon point cards that children collect)

When in transit, play can take place without consideration for points. Certain modes actually do not need the point chart.



hold, press, twist, turn...

The point chart could be in the form of a book-let tag secured strongly to the flexi maze, so that it goes everywhere with the flexi maze.

play process

first impact

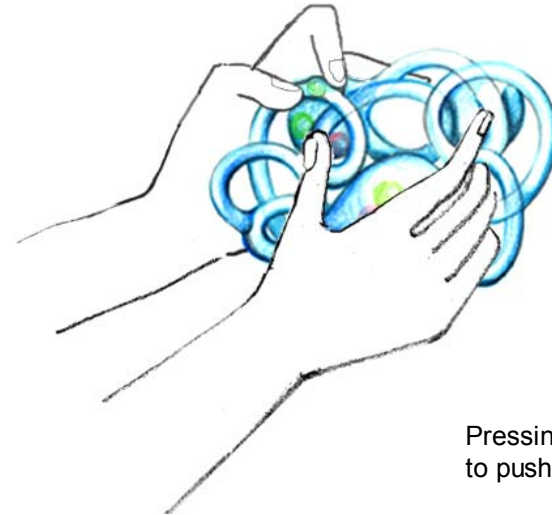
Colorful outlook and element of strangeness in the form attracts the child's curiosity. It looks like a mass of entangled tentacles. (It almost looks like a live animal- octopus!) When the child sees it first, he/she may not understand what it is supposed to do. But the form would arouse the child's curiosity urge to explore.

the dialogue

The object is made of flexible material. This urges the child to hold it and feel it, press it, twist it, turn it. It has a rich tactile quality. Pressing it results in tickling sensation to the fingers and palm, which is very enjoyable for the child.

Some adult assistance would be needed in the first encounter to help the child know what is the nature of play activity. Various goals in the form of possible groups are established for the child by way of the instruction booklet. The child's task is to achieve each of these by moving the balls from one lobe to the other in a logical order.

In the process, the child is constantly trying to find the right path. He/she comes across many punctuations of success and failure in the form of dead ends and loops that come back to the starting point. The child has to calculate every move, to move closer to the goal.



Pressing the flexible pipe to push the ball ahead

## CONCEPT 1 flexi maze

The urge to find the right way to reach a goal establishes a process of play. An element of effortlessness and excitement is present in the very act of pressing the rubbery pipe to push the ball ahead. This prevents frustration from setting in.

An average child of age 3 can play with this object continuously for 5-10 minutes. The child spends the first few minutes of play just trying to get acquainted with the way the ball has to be pushed in the flexible tube. The nature of the first few instances of play will be random.

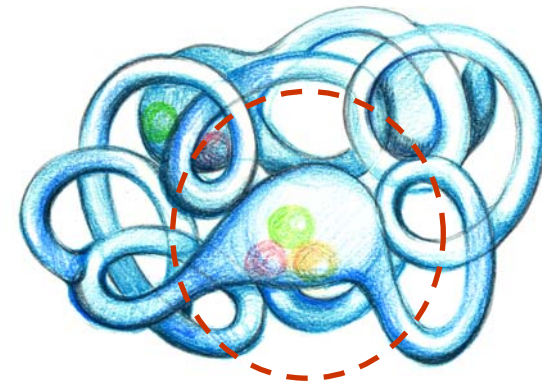
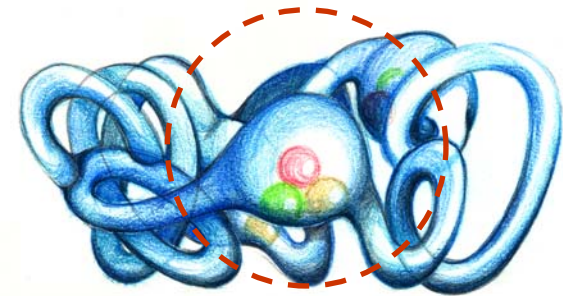
The child gradually gains control over this movement and is in a position to manipulate the movements of balls to achieve the desired grouping.

### challenge

Achieving a particular grouping is posed as the goal to the child. The challenge is find the right path to reach the goal. Each significant move of the child takes the child nearer or farther from the goal. The child has to think strategically to achieve the goal.

### punctuations

Certain stages in the process act as punctuations. These come in the form of small packages of success and failure. For eg. getting two balls of the same color in the same lobe would be a punctuation ascertaining the direction towards the goal. This could be misleading also, but in any case it does act as significant step in the process.



achieving the desired grouping  
of balls in the three lobes

fun filled de tour

The progress from one punctuation to the other is exciting. The act of pressing, twisting and turning a rubber like material and the springiness of the form, makes moving the balls exciting.

feeling of accomplishment

Arriving at a known goal in the form of a desired grouping of balls gives the child a feeling of achievement. It marks the completion of a process of play. at the same time, it instills an urge and confidence in the child to achieve various other types of groupings possible.

further urge to play...

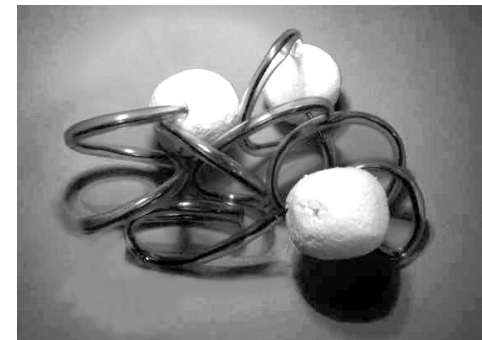
Once a desired grouping is achieved , play process can resume with the goal of achieving another set of groupings. Thus, every encounter with the play object is as exciting as the previous one

values and skills imbibed

Visual motor co-ordination, analytical skills, concentration, fine motor skills, large motor skills

material and manufacturing considerations

The object will have to be moulded of elastic material ( lot of plastics with elastic properties are available ).



A set of two objects made of ring like components that rotate around a central rod. each of these components has fragments of many images.

The child has to rotate each of the components and align them to complete a particular image. Only one image / set of images gets completed at a time. So as the child tries to complete more images, the previous ones get disintegrated.

### stage 1

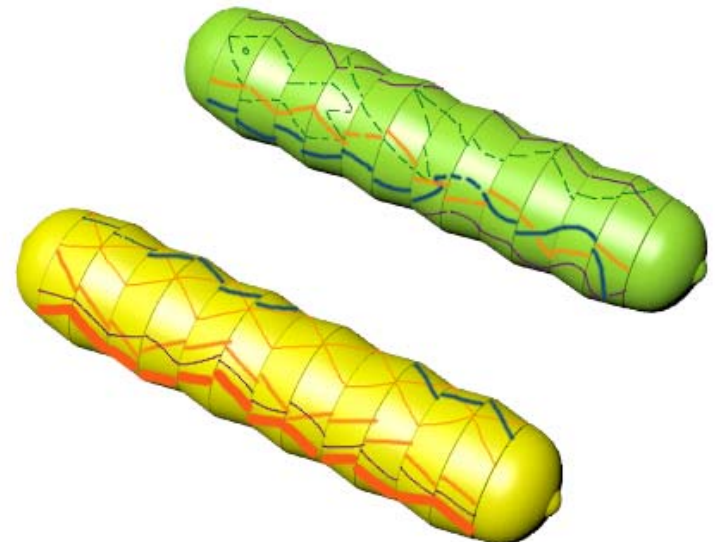
There are two play objects, as shown, which can be independently played with as discussed below.

### nature of play

The play activity consists of aligning the ring components to each other in a logical sequence to achieve a desired image. The challenge is to decide on a sequence of moves to achieve the desired image.

The images that can be discovered on the object can be illustrated in an instruction booklet explaining the nature of play. This will help to set desired goals. When in transit, book-let can be secured strongly to the object in the form of a tag, so that it goes everywhere with the object.

### play process



### first impact

Colorful outlook and element of strangeness in the form attracts the child's curiosity. It looks like a series of rings, each with fragments of images. These fragments bring in an element of *incompleteness* in the form which makes the child curious. On holding the object for the first time, the child realizes that the components rotate about a central rod. The child's first intention would be to move the components randomly to get a hang of what it is all about.

This along with a little explanation from an adult, will help the child play further.

### the dialogue

The fragmented look of the object urges the child to hold it and feel it, turn it. It has a tactile quality. Feeling it results in tickling sensation to the fingers and palm, which is very enjoyable for the child.

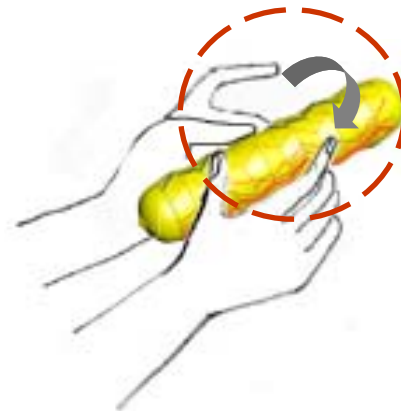
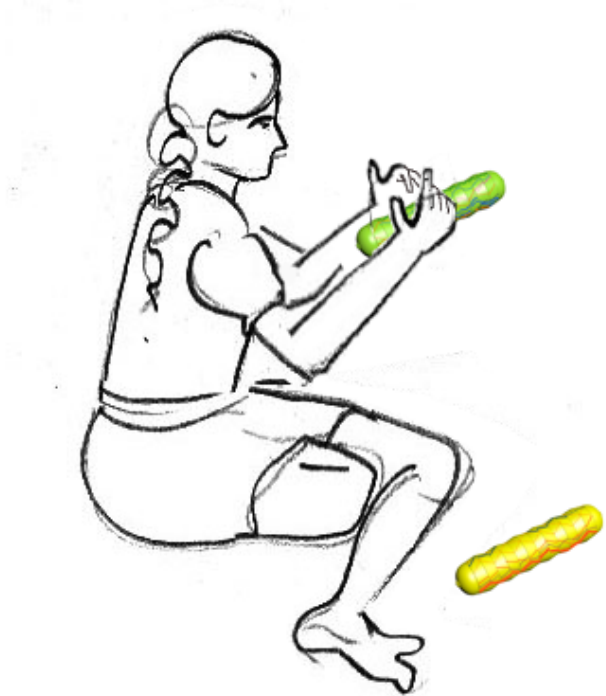
Some adult assistance would be needed in the first encounter to help the child know what is the nature of play activity. Once the child knows what to do, the child will have to keep rotating components and align them to complete various images.

### Challenges, punctuations and feeling of accomplishment

The child is constantly trying to find a visual order which gradually reveals the complete image. In the process, He/ she comes across many punctuations of success and failure in the form of dead ends. The child has to think about every move, to move closer to the goal.

### fun filled de tour

The detour towards completing an image is not predictable as it will always depend on the relative position of each ring at the time the play is resumed. So each encounter with the play object is a fresh start for the child.



## CONCEPT 2 catch the match !

further urge to play...

Gradual revelation of the image intensifies the child's urge to play further. An element of effortlessness and excitement is present in the very act of moving the components. This prevents frustration from setting in.

stage 2

need for more.....

As the child grows, the child will get used to the play object. Due to repeated playing with it, the child will overcome all the challenges offered and become familiar with methods to complete the images. Playing with it will tend to get boring. Also, as the child grows, the child would want something more challenging to play with.

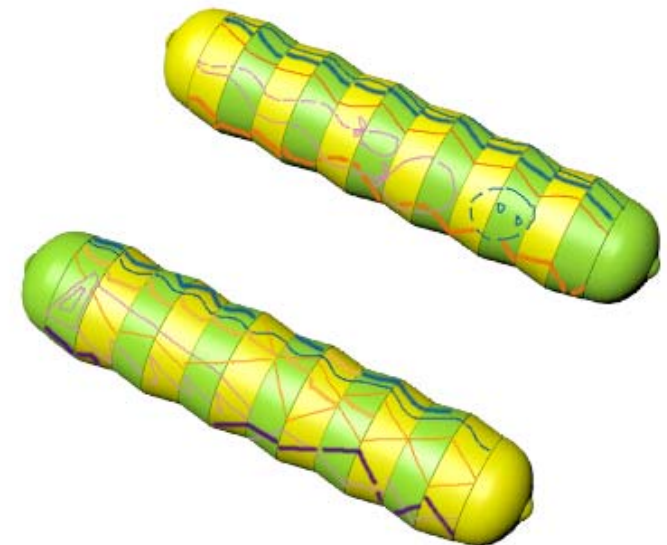
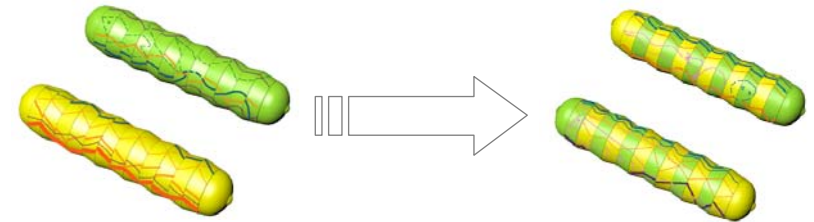
re-shuffling of components

Components of both objects are dismantled and re-shuffled ( in a particular order stated in the manual) as shown. This will create two new play objects offering fresh challenges of making images that are more complicated to complete. This renews the child's interest in the play object. The nature of play is same, but more complex.

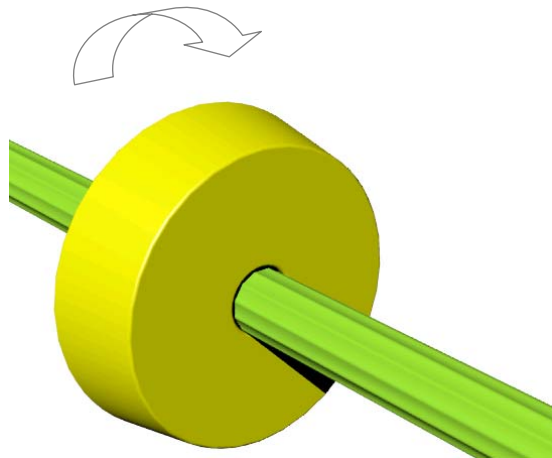
values and skills imbibed

Visual motor co-ordination, analytical skills, concentration, fine motor skills, large motor skills

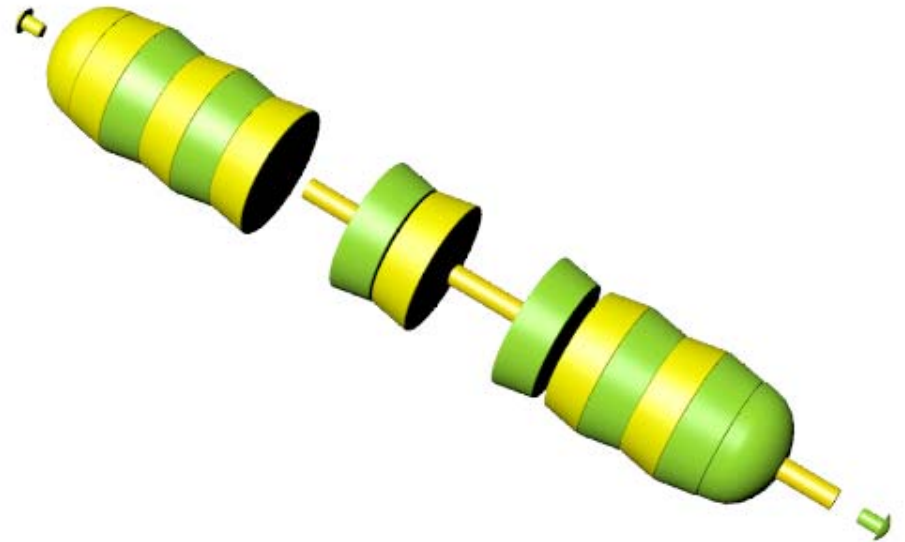
material and manufacturing considerations



The play object can be made of wood. Wood pieces can be post painted with fragments of images. It can also be made in molded plastic. The fragments of images can be stuck as stickers with adhesives or printed post molding.



component rotates about central rod



exploded view of components

**A set of play objects with increasing complexity of play.  
The packaged whole consists of a set of 6no.s of objects which offer  
varying complexities of play.**

#### **nature of play**

**The play activity consists of combining components to achieve  
coherent forms. The child starts with objects that have less  
components and are simple in configuration. The child had to align  
the components in various ways to reach a desired form. This  
process of achieving them becomes more complicated and  
challenging with every object.**

#### **role of instruction**

**Various formal organizations possible at each stage are illustrated in  
an instruction booklet. The child has to see the image and find a  
method to achieve the desired formal organization.**

#### **adult participation**

**All objects are not introduced at a time to the child. The child starts  
with the most simple one. An adult will have to once in a while  
monitor when the child has overcome all the challenges posed by  
the play object. At this time the object will tend to get boring for the  
child. At such a time, the adult has to introduce the child to the next  
level of play which poses new challenges to the child.**

## **play process**

### **first impact**

The starting form of the play object is as shown in the figure. The form suggests a fabric consisting of similar forms connected by live hinges. There is an element of strangeness in it, which evokes the child's curiosity and urges the child to try and explore the object.

### **the dialogue**

The nature of the fold like joint allows the child to explore aligning of components to each other in various ways.

The first few moments of play is random where the child moves components against each other. In the process the child is constantly trying to check which alignment works and which doesn't.

The goal is set for the child by way of illustrating the formal organizations possible in the instruction manual. Once the child is familiar with the movement of the basic components, he/she tries to achieve the illustrated forms one by one. Every move of the child takes him near or farther from the goal. This instigates an urge to discover a particular formal order in the play object.

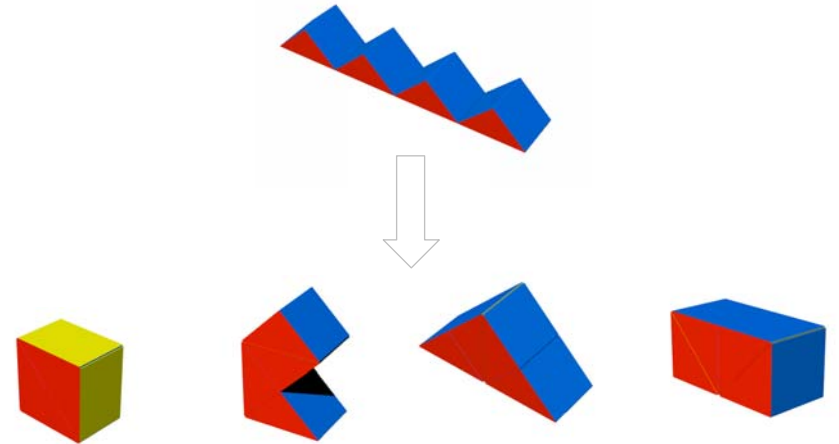
An element of effortlessness and fun is present in the way the components move against each other. the child derives lot of fun by mere movement of components and this prevents frustration from setting in.

## stages of play

### stage 1

The first two objects of the kit are introduced to the child. This kind of play would an average 3 yr old child continuously for about 5-10 minutes. Since this is the child's first encounter with the play object, the child spends the first few time of play just trying to get acquainted with the movement of components. The nature of the first few instances of play will be random.

The child gradually gains control over the movement of components. Then the child is in a position to manipulate the movements of the components to achieve a particular formal organization as illustrated in the booklet.



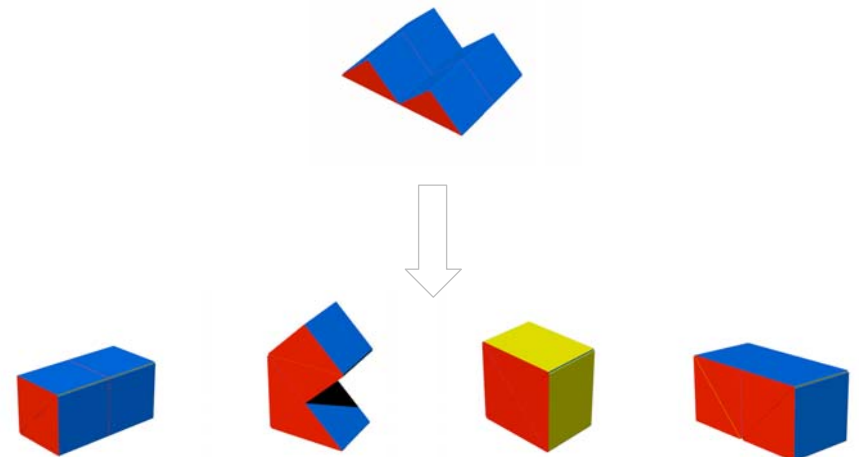
### challenge

Achieving a known formal organization is posed as the goal to the child. The challenge is to find a method to reach the goal.

Each movement of the component takes the child nearer or farther from the goal. The child has to think strategically to achieve the goal. Also the child has to experience success or failure in the process to achieve the final goal.

### punctuations

The process of assembly of components has certain stages that act as punctuations. These punctuations ascertain the direction towards the goal. In other words, they partially define the final form so that the child knows that he is on a right track.



## fun filled detour

The progress from one punctuation to the other is exciting. The 'fold-like' nature of the joint and the springy movement achieved due to the magnetic action makes the movement of components an exciting act.

## feeling of accomplishment

Arriving at a known goal in the form of a formal organization gives the child a feeling of achievement. It marks the completion of a process of play. at the same time, it instills an urge and confidence in the child to achieve various other formal organizations possible. Thus continues the process of play. Thus every time the child plays with it, the child has something new to explore and achieve.

## need for more...

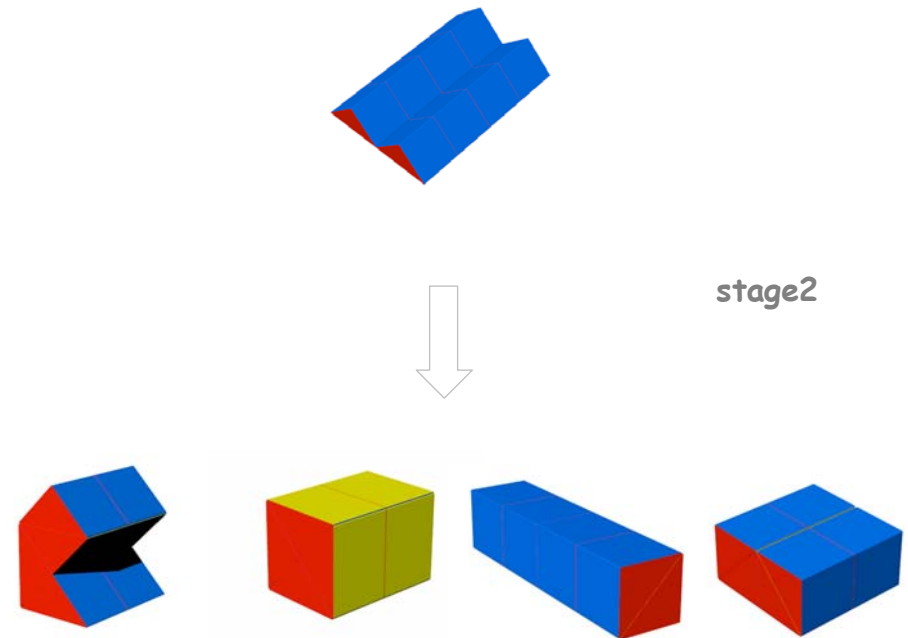
As the child grows, the child will get used to the play object. Due to repeated playing with it, the child will tend to get bored with it as it no longer has anything challenging to offer. As the child grows the child would want something more challenging to play with.

## stage 2

In this stage an object from the kit with the next level of complexity is introduced to the child.

## adult assistance

Over the time the parent or instructor is expected to monitor when the child is ready to reach the next level of play. When such a time comes (3-4 months) adult assistance is required to 'activate' the second stage of play by introducing the next object in line.



## APPROACH A

This opens another set of varied possibilities of increased complexity to the child. The basic nature of play remains same but it becomes more challenging and complex.

In stage 2,

The number of components is more

The no of possibilities of formal organization are more

Formal organizations achievable are more complex

Process to achieve the same is more challenging and complex

Finer control of the movements of components is required

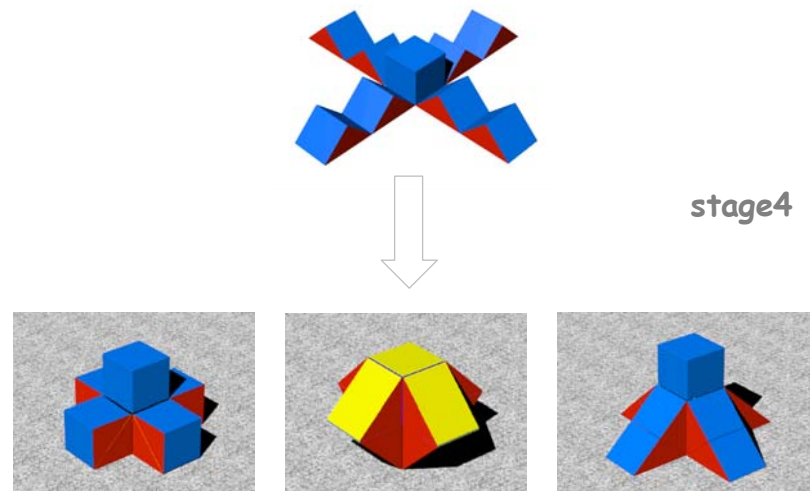
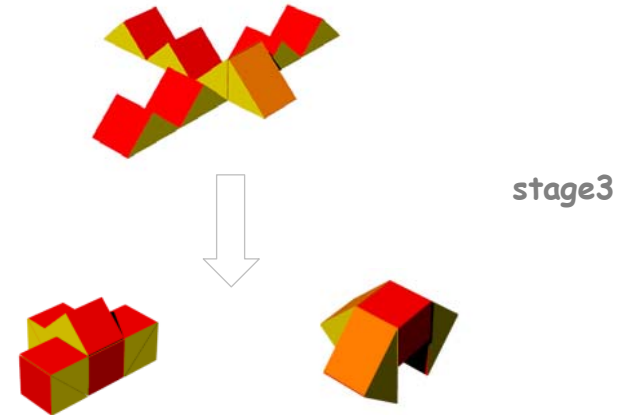
Further stages are revealed to the child by adult assistance as per how fast a child gets over with the previous stage ( generally each stage could be introduced with a gap of 6-8 months)

stage 3 and 4, 5,

Each of the play objects in the kit are revealed at different times.

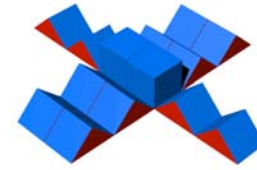
stage 6

In this stage, two or more objects are joined ( connected- by way of pin/pivot joints) increase the complexity of play further. The method to connect the objects would be specified in the instruction manual. This will have to done by an adult.

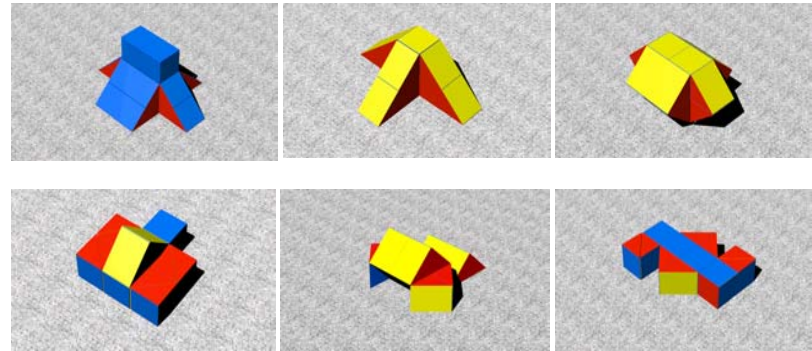


values and skills imbibed

visual- motor co-ordination, analytical skills, concentration skills  
fine motor skills, large motor skills, sorting and matching



stage5



A coherent object that gradually opens up in stages to offer more than one mode of play. In other words a single entity splits in stages, first to reveal various components and further splits to form two independent play objects.

The packaged whole consists of a single object (pair of cube lets)

nature of play

combining components to achieve coherent forms. Splitting at each stage reveals more .More number of components require more control of movement and analytical thinking to reach a desired form. This makes the process of achieving them more complicated and challenging with every stage . Also the forms achieved have a more complex visual order.

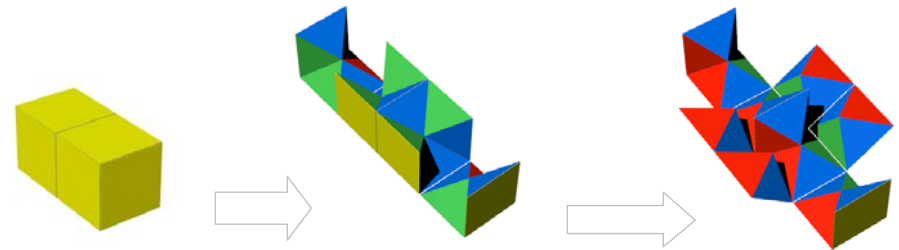
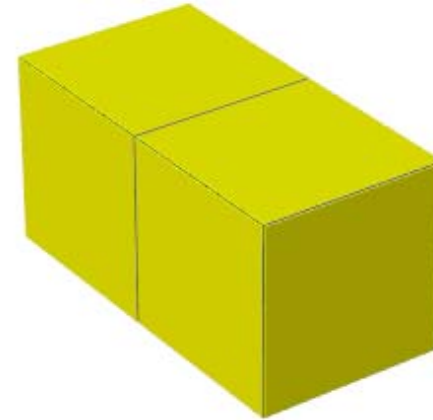
role of instruction

Various formal organizations possible at each stage are illustrated in an instruction booklet. The child has to see the image and find a method to achieve the desired formal organization.

play process

first impact

The starting form of the play object is a pair of (notional) cubes. Though the form is cube- like, an element of strangeness in it evokes the child's curiosity. These cubes suggest the existence of components (within the cube. This urges the child to try and open up the object.



object opens up to reveal components

## the dialogue

The child opens up the object to reveal a series of forms as shown in the sketch. The nature of the fold like joint allows the child to explore aligning of components to each other in various ways.

The child moves components against each other. In the process the child is constantly trying to check which alignment works and which doesn't. Every move of the child takes him near or close to the goal. This instigates an urge to discover a particular formal order in the play object.

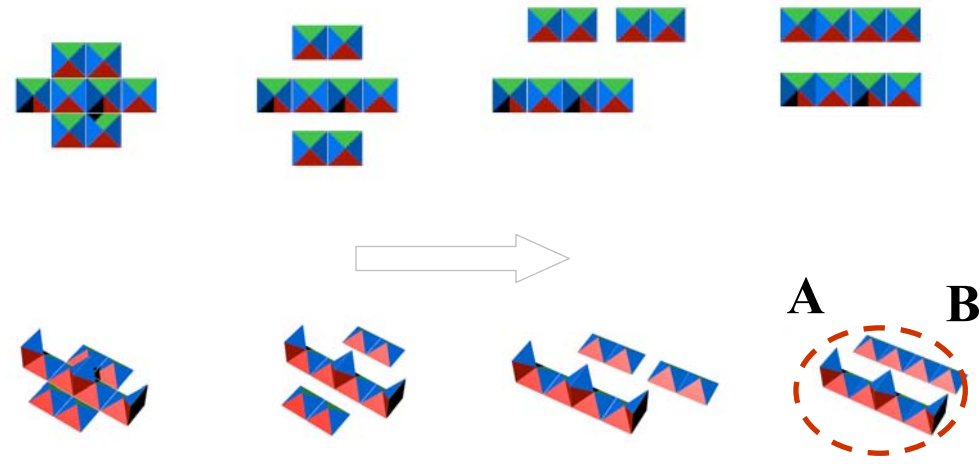
An element of effortlessness and fun is present in the way the components move against each other. the child derives lot of fun by mere movement of components and this prevents frustration frc setting in.

## partial revelation of surprise- stages of play

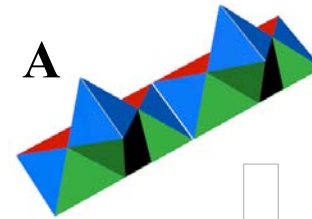
### stage 1

This kind of play engages an average 3 yr old child continuously for about 5-10 minutes. Since this is the child's first encounter with the play object, the child spends the first few time of play just trying to get acquainted with the movement of components. The nature of the first few instances of play will be random.

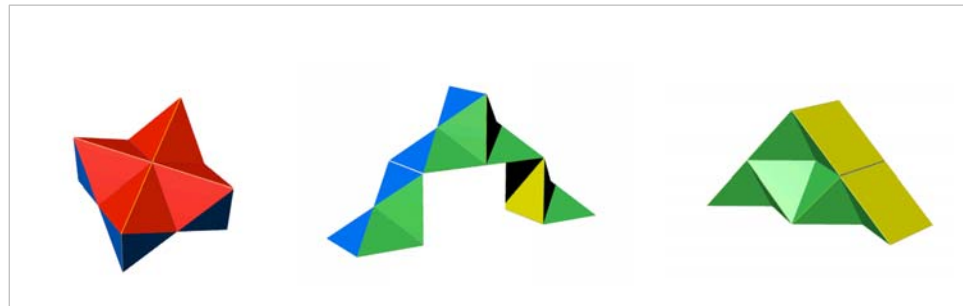
The child gradually gains control over the movement of components. Then the child is in a position to manipulate the movements of the components to achieve a particular formal organization as illustrated in the booklet.



Stage 1 :  
object splits to  
form two  
objects



Object A  
Forms possible in  
stage 1



## APPROACH B

### challenge

achieving a known formal organization is posed as the goal to the child. The challenge is to find a method to reach the goal. Each movement of the component takes the child nearer or farther from the goal. The child has to think strategically to achieve the goal. Also the child has to experience success or failure in the process to achieve the final goal.

### punctuations

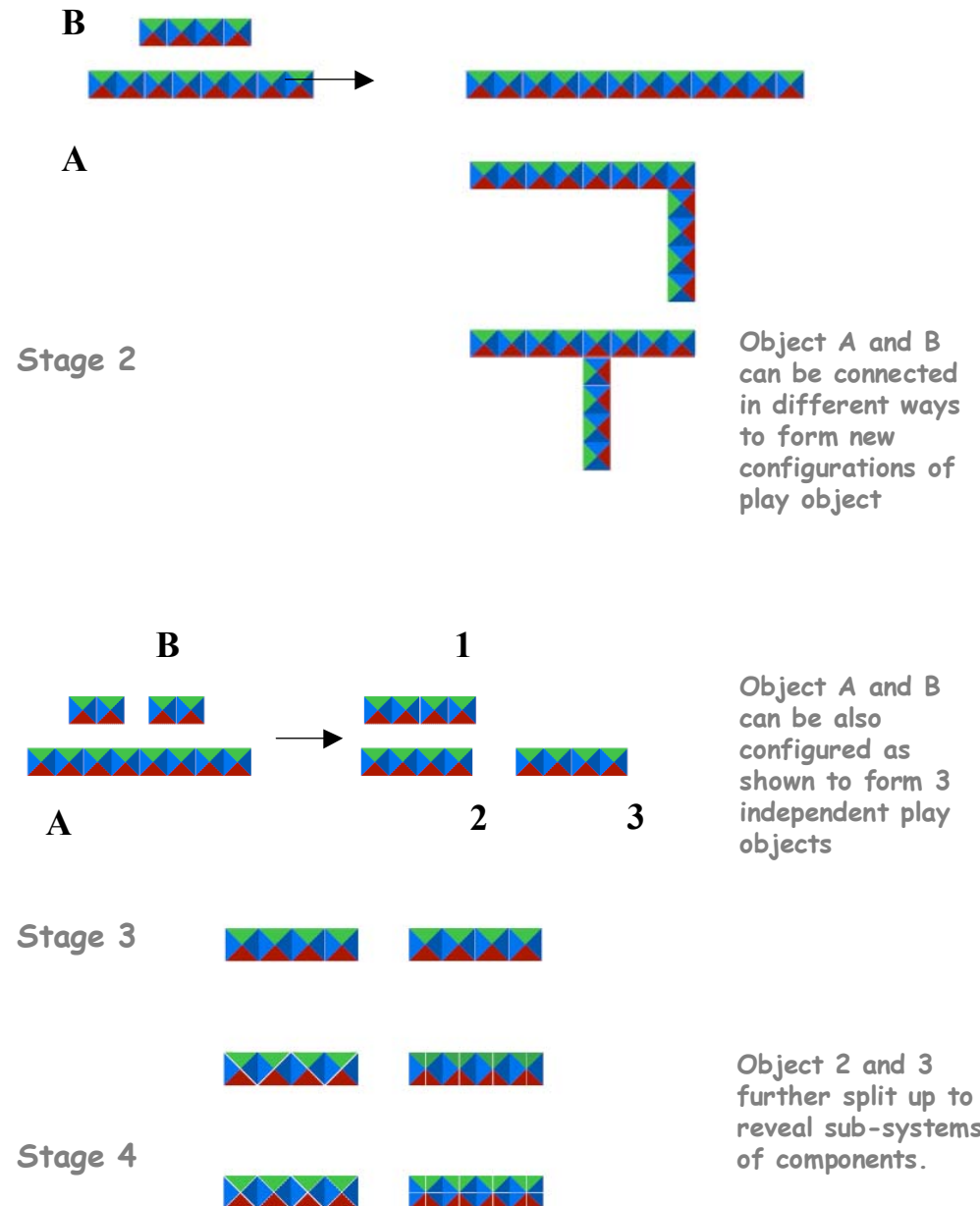
The process of assembly of components has certain stages that act as punctuations. These punctuations ascertain the direction towards the goal. In other words, they partially define the final form so that the child knows that he is on a right track.

### fun filled detour

The progress from one punctuation to the other is exciting. The 'fold-like' nature of the joint and the springy movement achieved due to the magnetic action makes the movement of components an exciting act.

### feeling of accomplishment

Arriving at a known goal in the form of a formal organization gives the child a feeling of achievement. It marks the completion of a process of play. at the same time, it instills an urge and confidence in the child to achieve various other formal organizations possible. Thus continues the process of play. Thus every time the child plays with it, the child has something new to explore and achieve.



As the child grows, the child will get used to the play object. Due to repeated playing with it, the child will tend to get bored with it as it no longer has anything challenging to offer. As the child grows the child would want something more challenging to play with.

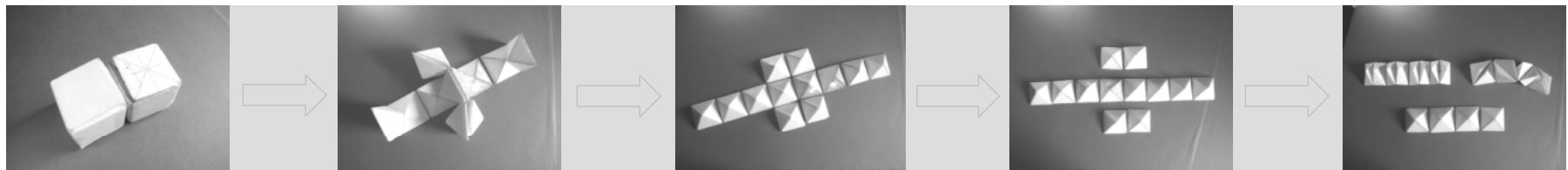
### Stage 2

In this stage components split to reveal a subsystem of more no. of components. These components can be connected in various ways create new configurations of play.

### adult assistance

Over the time the parent or instructor is expected to monitor when the child is ready to reach the next level of play. When such a time comes (3-4 months) adult assistance is required to 'activate' the second stage of play.

This extension possibility within the same object adds another element of surprise to play. Also, it opens another set of varied possibilities of increased complexity to the child. The basic nature of play remains same but it becomes more challenging and complex.



**In stage 2,**

**The number of components is more**

**The no of possibilities of formal organization are more**

**Formal organizations achievable are more complex**

**Process to achieve the same is more challenging and complex**

**Finer control of the movements of components is required**

**Further stages are revealed to the child by adult assistance as per how fast a child gets over with the previous stage ( generally each stage could be introduced with a gap of 6-8 months)**

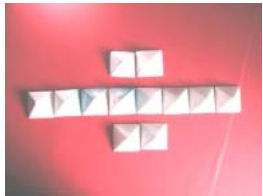
**Stage 3 and 4**

**Each of the two play objects ( 1 and 2) further splits to reveal more components.**

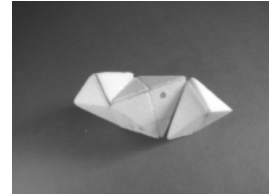
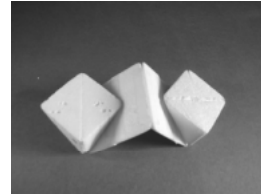
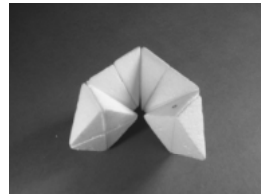
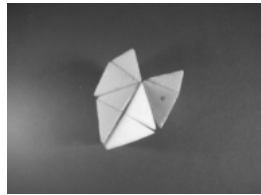
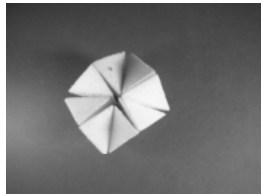
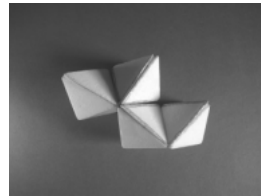
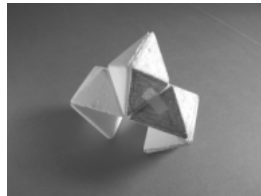
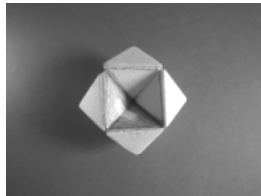
**values and skills imbibed**

**visual- motor co-ordination, analytical skills, concentration skills  
fine motor skills, large motor skills, sorting and matching**

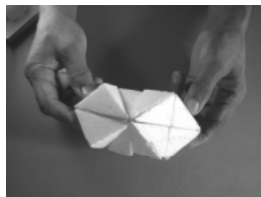
forms in each stage



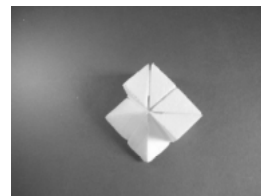
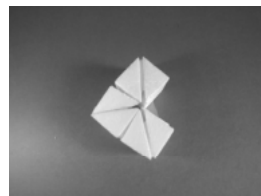
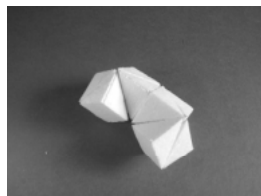
Stage 2



Stage 3



Stage 4



A coherent object that gradually opens up in stages to offer more than one mode of play. In other words a single entity splits in stages, to reveal various components. These components fold and unfold along each other to result in various assemblies .

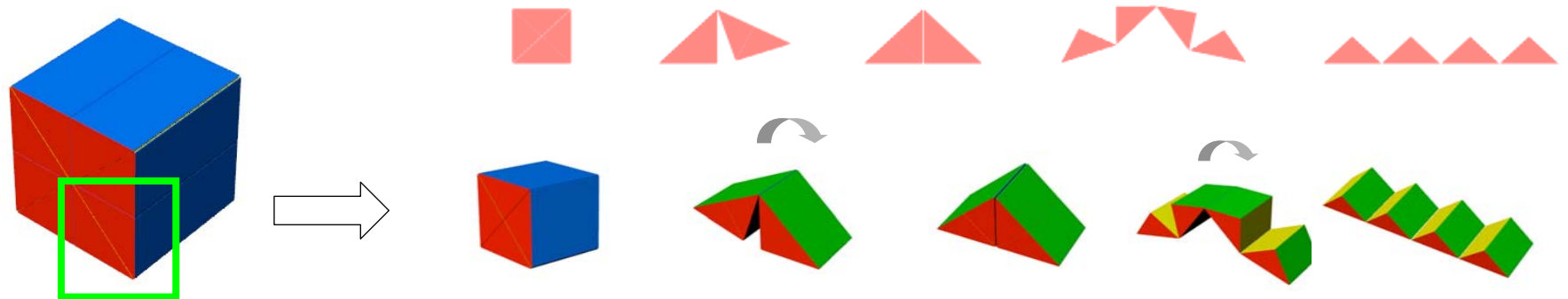
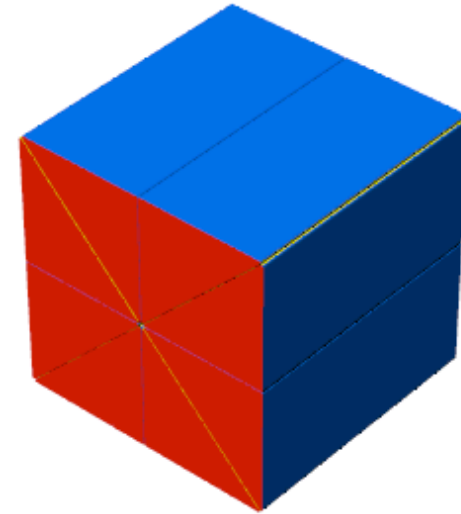
The child has to keep juggling with it to arrive at the forms illustrated in the instruction manual. The task is to arrive at a logical sequence of moves to arrive at the desired form.

The packaged whole consists of a single object (a cube)

nature of play

The play activity consists of combining components of the object to achieve coherent forms of different types.

Splitting the object at each stage reveals more. It has a component of surprise. Just when the play starts getting monotonous, the object opens up a fresh dimension of play to the child. The child has new challenges to overcome which results in a fresh surge of interest in playing with the play object.



More number of components require more control of movement and analytical thinking to reach a desired form. This makes the process of achieving a desired form more complicated and challenging with every stage . Also the forms achieved have a more complex visual order.

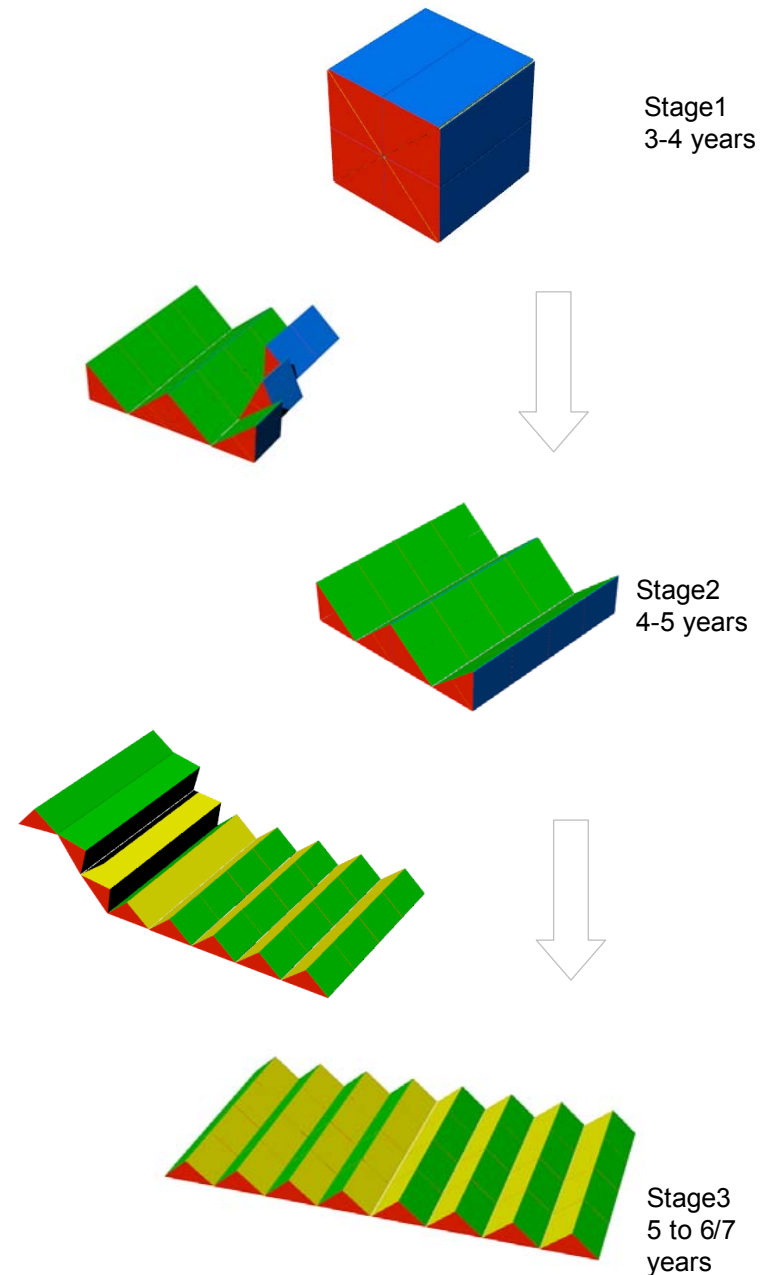
#### role of instruction

Various formal organizations possible at each stage are illustrated in an instruction booklet. The child has to see the image and find a method to achieve the desired formal organization

#### adult participation

The object does not reveal all the stages of play at a time. A 3 year old starts with the first stage. This can be played with for a span of 6-8 months ( this is only the average time span proposed. It may vary as per the development of individual child)

An adult ( parent, baby sitter or instructor) will have to observe the play process once in a while to be aware of how far the child has reached with the first stage. A time will come when the child has overcome all the challenges in stage1 and the play process starts to get monotonous. This is the time when the adult has to open up the locked sub- components ( in a way as shown in the instructic manual) to expose the child to the second stage of play. th exposes the child to a whole new set of challenging possibilities ar establishes a fresh mode of play.



## partial revelation of surprise- stages of play

### stage 1

This kind of play engages an average 3 yr old child continuously for about 5-10 minutes.

Since this is the child's first encounter with the play object, the child spends the first few minutes of play just trying to get acquainted with the movement of components. The nature of the first few instances of play will be random.

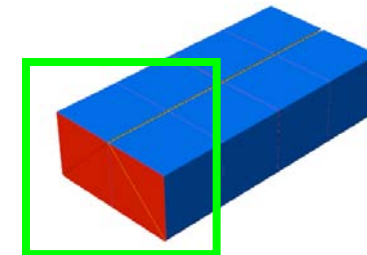
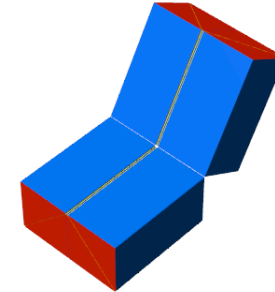
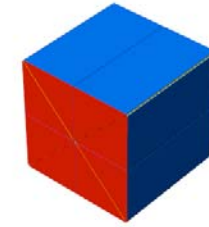
The child gradually gains control over the movement of components. Then the child is in a position to manipulate the movements of the components to achieve a particular formal organization as illustrated in the booklet.

### challenge

Achieving a known formal organization is posed as the goal to the child. The challenge is to find a method to reach the goal. Each movement of the component takes the child nearer or farther from the goal. The child has to think strategically to achieve the goal. Also the child has to experience success or failure in the process to achieve the final goal.

### punctuations

The process of assembly of components has certain stages that act as punctuations. These punctuations ascertain the direction towards the goal. In other words, they partially define the final form so that the child



fold like movement of component cubes



play process:

first impact

The starting form of the play object is a cube.  
(Though the form is cube-like, there is an element of strangeness in it that evokes the child's curiosity. The surfaces of the cube suggest the existence of various components within the cube. This urges the child to try and open up the object and discover what lies within)

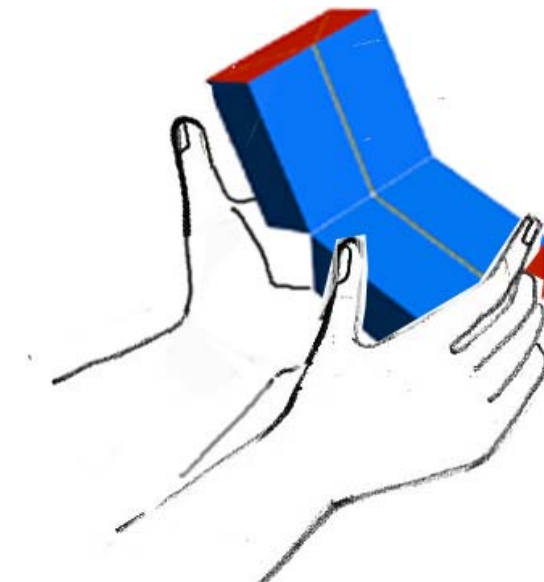
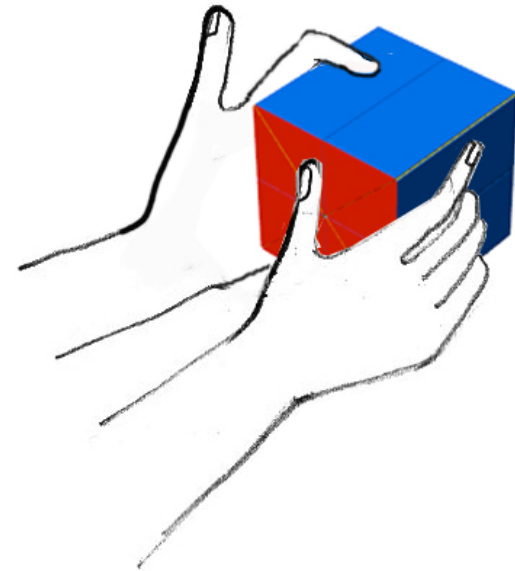
the dialogue

The child opens up the object to reveal a series of smaller cubes as shown in the sketch. The nature of the fold like joint allows the child to explore aligning of components to in various ways.

The goal is established for the child by way of illustrating the various formal organizations possible (in the instruction manual). The child's aim is to achieve each of these forms by aligning the components to each other.

The child moves components against each other. In the process the child is constantly trying to check which alignment works and which doesn't. Every move of the child takes him/her closer to the goal. This urge to discover a particular formal order in the play object establishes the process of play.

An element of effortlessness and fun is present in the way the components move against each other. the child derives lot of fun by mere movement of components and this prevents frustration from setting in.



fun filled detour

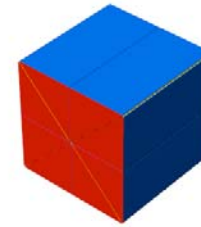
The progress from one punctuation to the other is exciting. The 'fold-like' nature of the joint and the springy movement achieved due to the magnetic action makes the movement of components an exciting act.

feeling of accomplishment

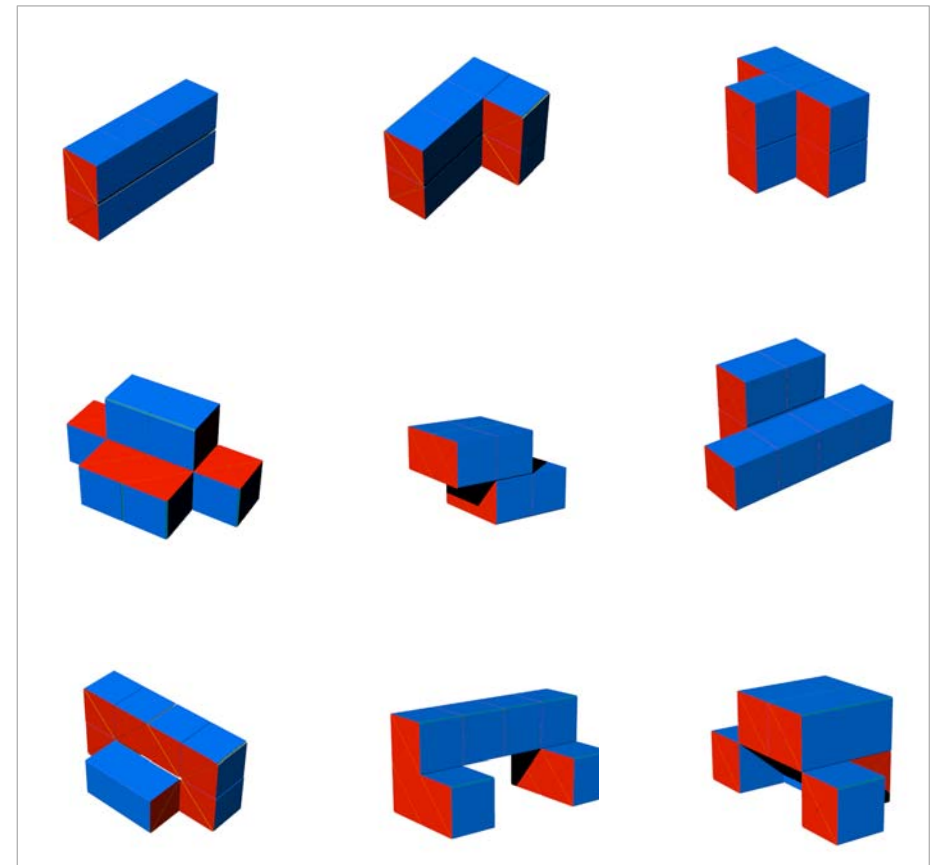
Arriving at a known goal in the form of a formal organization gives the child a feeling of achievement. It marks the completion of a process of play. at the same time, it instills an urge and confidenc in the child to achieve various other formal organizations possible.

Thus continues the process of play. Thus every time the child play with it, the child has something new to explore and achieve.

As the child grows, the child will get used to the play object. Due to repeated playing with it, the child will tend to get bored with it as it no longer has anything challenging to offer. As the child grows the child would want something more challenging to play with.



Formal organizations  
Possible in STAGE1  
play



## stage 2

In this stage components split to reveal a subsystem of more no. of components ( tetrahedrons- 8 no.s)

### adult assistance

Over the time the parent or instructor is expected to monitor when the child is ready to reach the next level of play. When such a time comes (3-4 months) adult assistance is required to 'activate' the second stage of play.

This extension possibility within the same object adds another element of surprise to play. Also, it opens another set of varied possibilities of increased complexity to the child. The basic nature of play remains same but it becomes more challenging and complex.

Here,

The number of components is more

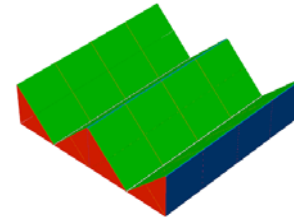
The no of possibilities of formal organization are more

Formal organizations achievable are more complex

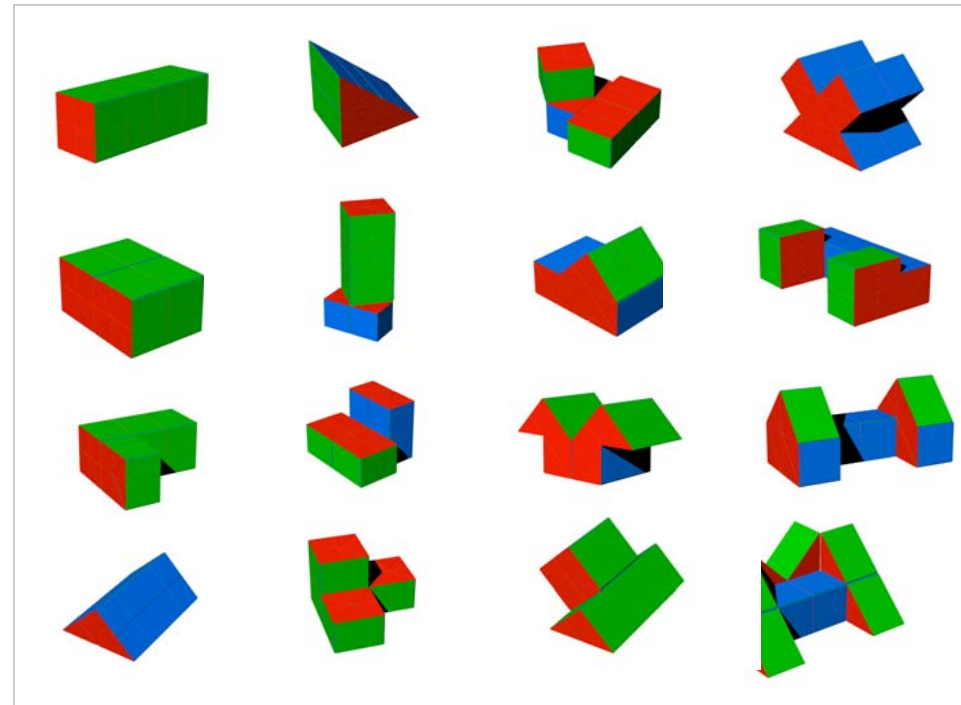
Process to achieve the same is more challenging and complex

Finer control of the movements of components is required

Further stages are revealed to the child by adult assistance as per how fast a child gets over with the previous stage ( generally each stage could be introduced with a gap of 6-8 months)



Formal organizations  
Possible in STAGE2  
play



# APPROACH C

## stage 3

Stage 3 is revealed to the child when the child is done with the second stage of play ( by parent or instructor as per described above)

Object is split into further sub components.This splitting requires adult assistance similar to stage 2.

The number of components increases

The no of possibilities of formal organization increases

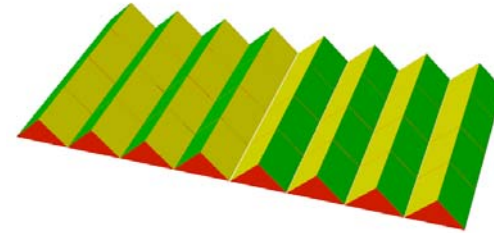
Formal organizations achievable are more complex

Process to achieve the same is more challenging and complex

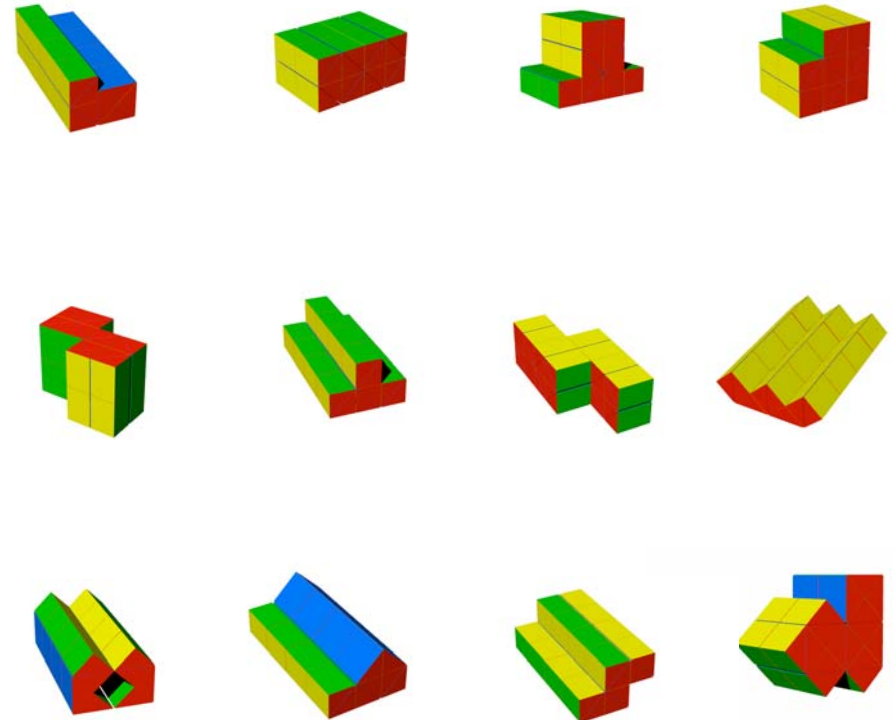
Finer control of the movements of components is required

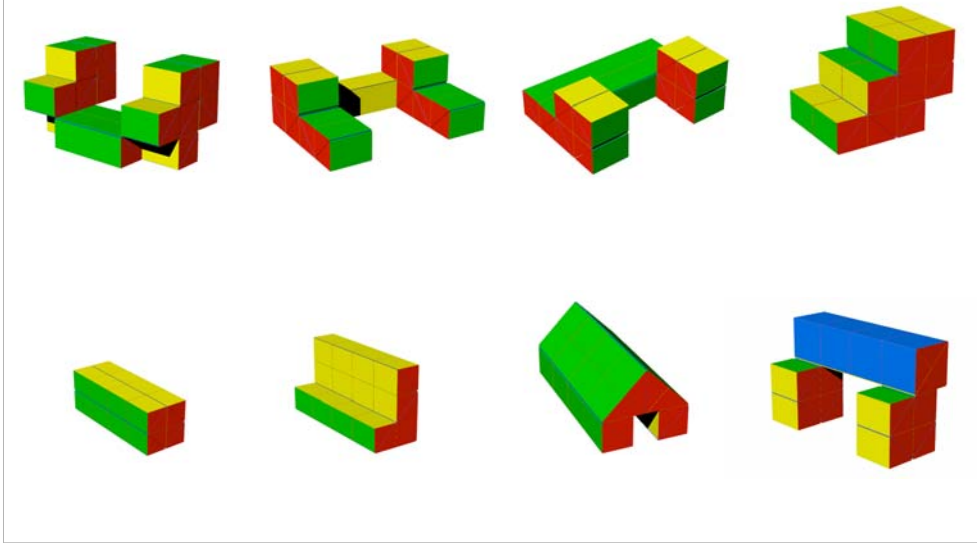
## values and skills imbibed

visual- motor co-ordination, analytical skills, concentration skills, fine motor skills, large motor skills,sorting and matching

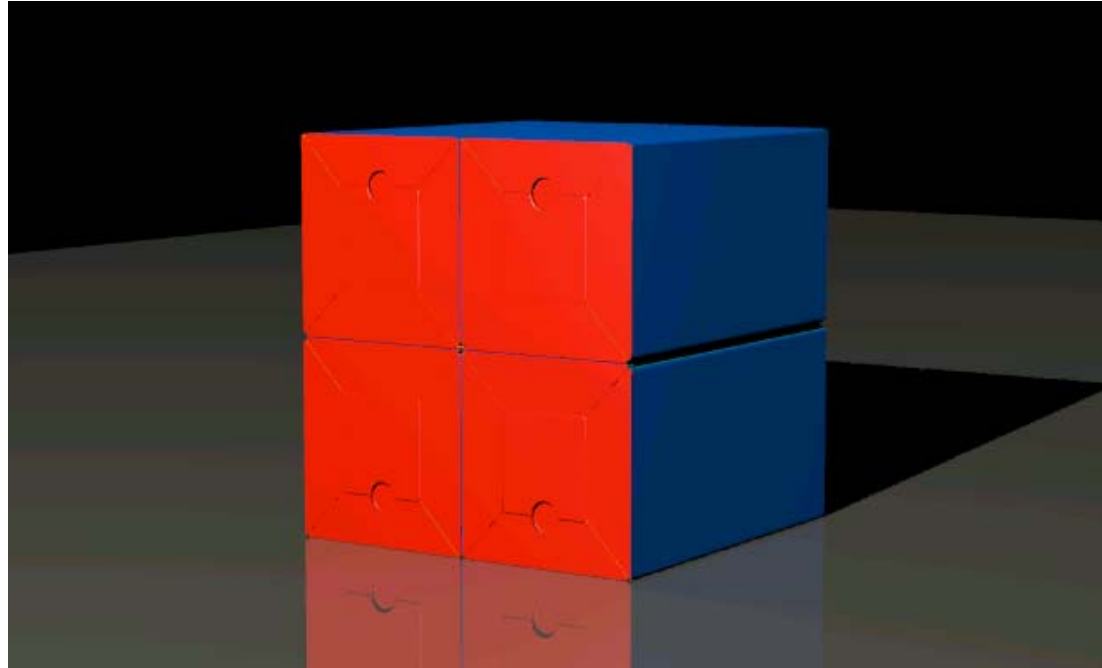


Formal organizations  
Possible in STAGE3  
play





final concept



**The final concept is a cube that reveals different sub-systems of components for different modes of play**