PREFACE

In the curricular structure introduced by this University of students for various programmes, the opportunity to pursue Diploma course in Subject introduced by this University is equally available to all learners. Instead of being guided by any presumption about ability level, it would perhaps stand to reason if receptivity of a learner is judged in the course of the learning process. That would be entirely in keeping with the objectives of open education which does not believe in artificial differentiation.

Keeping this in view, study materials of the Diploma level in different subjects are being prepared on the basis of a well laid-out syllabus. The course structure combines the best elements in the approved syllabi of Central and State Universities in respective subjects. It has been so designed as to be upgradable with the addition of new information as well as results of fresh thinking and analyses.

The accepted methodology of distance education has been followed in the preparation of these study materials. Co-operation in every form of experienced scholars is indispensable for a work of this kind. We, therefore, owe an enormous debt of gratitude to everyone whose tireless efforts went into the writing, editing and devising of a proper lay-out of the materials. Practically speaking, their role amounts to an involvement in invisible teaching. For, whoever makes use of these study materials would virtually derive the benefit of learning under their collective care without each being seen by the other.

The more a learner would seriously pursue these study materials the easier it will be for him or her to reach out to larger horizons of a subject. Care has also been taken to make the language lucid and presentation attractive so that they may be rated as quality self-learning materials. If anything remains still obscure or difficult to follow, arrangements are there to come to terms with them through the counselling sessions regularly available at the network of study centres set up by the University.

Needless to add, a great deal of these efforts are still experimental—in fact, pioneering in certain areas. Naturally, there is every possibility of some lapse or deficiency here and there. However, these do admit of rectification and further improvement in due course. On the whole, therefore, these study materials are expected to evoke wider appreciation the more they receive serious attention of all concerned.

Prof. (Dr.) Subha Sankar Sarkar

Vice-Chancellor

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PRE-PRIMARY TEACHERS' EDUCATION—MONTESSORI

[Diploma Course]

PAPER - 3 & 4

Course Writing

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NETAJI SUBHAS OPEN UNIVERSITY

PRE-PRIMARY TEACHERS' EDUCATION—MONTESSORI (DIPLOMA COURSE)

PAPER—3

Module–A

Module–B

PAPER—4

Module–A

Module–B

Paper 3

Paper 3A : Exercises of Practical Life

Contents

"House of Children"

Responsibilities of Adults towards the preparation of environment and tools in a house of children :—

At the age of $2^{1}/_{2}$ years ; a child needs a 3rd environment, apart from a family & Social environment, which he entire from his birth.

According to Dr. Maria Montessori, a human being in born twice. His first birth takes place when he entires in this world, his second birth takes place when he $2^{1}/_{2}$ years old.

Because at that time psychical components being to grow. At this time a child is called upon to some activity for his development by nature. He is called upon to do some conquests for which he needs something whch his family or society cannot supply.

He starts needing more space for his movement, some tools for his activitywhich he is called upon to do by nature and a community of the same who may help him and whome he may help.

For all these things he needs a 3rd environment which can provide him with greater space, some special tools as a community which no home a society cannot serve.

To became conscious of his achievement and to consolidate and develop them, child needs 3rd environment i.e., "House of Children."

Preparation of the environment in a proper way. We should prepare the environment in such a way that a child can carry out his activities of practical life freely. The environment should provide a spce and scope.

Our responsibilities in preparing the materials :—

We will have to prepare the material in such a manner so that it can satisfy the needs of the child.

In preparing the tools, we will have to keep in mind some points :—

(a) Our responsibilities in preparing the tools,

(b) To maintain the tools,

(c) Developing the tools with developing child,

(d) Physical proportionateness : Which determines whether the child can handle them physically (reach, lift, move, etc.) and therefore purposefully. It considers his physical capacities. Tools should be small & light.

(e) Psychical proportionateness : Which refers to the intelligence. The functional purpose of the tools should be comprehensible at first glance. Unnecessary complication, it fancy shapes & 'disguises' should be avoided. The tools should be 'straight' and forward.

(f) Local Charactor : Locally used tools should be used. The outer appreance of the tools ; time to time. The tools should be such tahta, a child can see it in his home environment and in the 'House of Children.'

(g) Attractiveness : Tools should be attractive. This outer attraction discover the inner attraction.

But the tools are not so beautiful. because the child are not use this they habitate to use it. So for the attraction is within limit of necessary & sufficient. So decoration must be attractive & intellegently.

(h) There should be independent set of material so that the child does not have to share it with other.

(i) Multiple set of material : In a 'House of children' there need multiple set of material because after collective presentation, some children needs to perform the activity individually. Also a child should not wait long time for a material to perform the activity.

If there have varity in the set in color & shapes ; it also stimulate the power of repetation of the child.

Presentation of an activity in a House of Children :

Presentation of an activity is a msut in a 'House of Children' A child cannot do an activity perfectly unless we demonstrate the activity to him. Our presentation helps the child to help an image of perfection and understand the meaning of the activity and helps the child to control his error. It helps the child to choose his activity and thus helps him to be independent. Presentation should be as breif as possible. We demonstate an exact and preciese technique of handling the material and of performing the activity. The preciseness and exactness of an activity attracts the child to do the activities.

There are three types of presentation :

1. Individual Presentation.
2. Group Presentation.
3. Collective Presentation.

Individual Presentation : Offer the presentation only one child is called individual presentation.

Group Presentation : Offer the presentation child move then one but not the majority of the community.

Collective Presentation : To offer presentation to all children, accepted by most of them on by majority of the children.

In a 'House of children', there are 30 to 35 children in a community. All are 2.5 year to 3 years of age. Which forms of presentation is to be adopted depends upon the needs of the children. In a House of Children we start with collective presentation, which forms of presentation is to be given also depends upon the nature of movements involved in the activity.

How we decide the form of the presentation adopt :—

1. Needs of Children : (a) The needs of the children is the first point on the basis

of observation. If under observation we conclude that majority of the children needs presentation, then we offer collective presentation.

(b) if the presentation is need for a group of child on few child, then we offer group presentation.

(c) If all the children of the community are doing same things & one particular child does not do this & cannot understand what to do, then we give a presentation for that particular child. This presentation is called Individual presentation.

There are so many ways that individual child needs, individual presentation. If a child do something, but it is not perfect, stay some mistakes on its work, then we give inidividual presentation again to that child to perfect working.

2. Nature of Movement involve in the activity :—

We also have to take into consideration the nature of actions, movements, involved in the activity.

In an activity, involved movements, which is large and assuch which can be followed, understand by the children sitting some distance from us, then the activity can be presented by collective presentation,

e.g. How to role a mat ? Put down a chair.

In some activity, involving movement which can be observe by move thanare and not many. Then the presentation can be offered as group presentation.

In same activity, where involved actions which are so minute, so mini 2 we cannot exceptmove than are child to understand, in such cases weoffer individual presentation.

Same activity which child are not clearly to follow. Which hand are first to perform the activity, then we give again individual presentation.

When there is are set of material, then we give individual presentation.

3. Nature of the activity to be presented :—

In a 'House of Children', there are three types of activity :—

(i) Individual Activity : Most of the developmental activities are individual acvitity. i.e. One child can perform individually in itself, anybody not co-operate with him.

(ii) Group Activity : The activity, which cannot be done individual ; the acitivity done as group or collective it is group activity. e.g. Carry a large furniture.

(iii) Collective activity : Collective activity cannot be perform if each of one of child can't be join. e.g. 'Silence activity' if are table the silence can't be perform.

4. Number of sets of material :—

On the basis of the number of sets of materials we consider wheather we give collective, an group or individual presentation.

If there are 10 to 12 sets of material, than we can give collective presentation. If there are 3 to 4 sets of materials, then we give Group presentation. If there is only one set of material, then we give individual presentation.

Now in case individual activity it can be present either individual presentation, Group presentation & Collective presentation.

i.e. I.A. I.P.
G.P.
C.P.

if there is a group activity. there are give— group presentation and collective presentation.

G.A G.P.
C.P.

If it is collective activity, them we give only collective presentation.

i.e. C.A. C.P.

(i) I.A. I.P.

G.A. G.P.

C.A. C.P.

(ii) I.P. I.A.

G.P. G.A.

C.P. C.A.

Unit 1 ❑ Developmental Activities

The child, in course of his self-formation, needs certain activities which are indispensable to him, for his development. These activities are called developmental activities. Human being is learn with human potentiality. He makes it actual which is potential. Without development activities actualisation of human potentiality is not possible.

The child performs its activities according to a timetable of nature. So we know, when the child needs the proper activities, what conditions, a child needs to perform his actual activities and how we can recognise them.

The first characteristics is to recognise development activity, a really true developmental activity attracts a child spontaneously, irrestibly, and creates in him a "spontaneous interest."

The second characteristic is child spontaneously choices to perform that activity while enjoying full freedom of choice.

Thirdly child is striving for perfection; he notice imperfection and repeat it spontaneously till he attains perfection.

The child has interested in developmental activity with the 'tools' because he sees these tools used in home. So the love for the tools fascinates him to perform the activity.

Direct Aim of Exercise of Practical Life (E.P.L)

To help the child to grow independent with the performance of

(a) Elementary movements.

(b) Taking care of one's environment.

(c) Taking care of self

(d) Taking care of social behaviour.

Indirect Aim :

To help the child to consolidate his co-ordination between intelligence, will and motor and lay a strong foundation of integrated personality.

"Mat-Rolling"

Material Description :

On some of the working mats we have two indication lines at third distance, from both edges, along the two longer sides of the mat.

This two lines should be visible on both sides of the mat. We may show this lines using paints, tape or ribbon.

● How to roll a mat?

Presentation :
(Individual Activity— collective presentation; Group presentation; Individual presentation)

When the children have settle down go to the place where the rolled mats are kept. Bring rolled mat carrying it properly without analysing your movement and place it at the place of presentation and unrolled it without analysing your movement.

Sit on your haunches in front of the shorter side of the mat which is away from the children. Interest the thumb of any hand under the mat at the third distance from that side and place the fingers of the same hand on top of the mat. Repeat the same movement with the other hand at the third distance from that side.

Slightly up the edge of the mat, turn it and bring it down. See that the first fold is not too tight or too loose.

(1) Take out the fingers of the hand used first and put them next to its thumb. Release the same thumb and insert it under the fold.

(2) Repeat the same movements with the other hand.

(3) Now roll the rolled part covered with the help of thumb. Then repeat the movement of (1) and (2), keep the moving forward on your haunches as you roll the mat. Keeping inspecting both sides are even. Continue the movements of (1), (2) and (3) till the entire mat is rolled with the open edge on the top of the rolled mat facing you.

● Point of interest

(1) The first fold should not be too tight or too loose.

(2) Keep inspecting the evenness of both ends of the rolled mat.

(3) Keep moving forward on your haunches as you rolled the mat. Never drag the mat.

Control of error :

(1) Both edges of the rolled mat should be flat and even.

(2) The rolled mat should be compact.

(3) The open edge should be on top and facing towards you.

● How to unrolled a Mat?

Presentation :

(Individual Activity-collective presentation; Group presentation; Individual presentation)

Bring a rolled mat to the place of presentation. When putting it down make sure that there is enough space behind you unrolled it also make sure that the open edge is on top facing you.

Sit on your haunches in front of the rolled mat. Insert the thumb of any hand under the open edge at one-third distance from that side and place the fingers on top. Repeat the same movement with the other hand at one-third distance from that side. Lift the open edge; put it on the floor. Release the thumb and then the fingers of the hand placed first and then those of the other hand.

Now insert the fingers of the hand used first under the farthest side of the rolled mat at one-third distance from that side and place the thumb on top. Do the same with other fingers and thumb.

Bring the rolled mat towards you with the help of the fingers. Bring the thumb of the hand use first next to the same fingers, and then insert the fingers under the roll. Repeat the movements with the other hand and go on the unrolling the mat, moving backwards on your haunches as you do so. Continue the same movement till the entire mat is unrolled.

● Point of Interest

Keep moving backwards as you unrolled the mat.

Control of error

The unrolled mat should be flat without any wrinkles.

● How to pick-up a rolled mat?

Presentation : (I.A – I.P)

Have a rolled mat at the place of presentation, kept vertically or obliquely towards the children.

Sit on your haunches in front the rolled mat facing slightly towards the children.

Inset the finger of the hand which is away from the children at one third distance and place the thumb on top. See that the open edge is under the thumb.

Repeat the same movement with other hand.

Lift the mat vertically, keeping it in a horizontal position. Lift it to a convenient height (around waist level) so that you can keep an eye on the object and also see where you are going.

Repeat the activity from different angles. So that all children can see the activity clearly.

● Point of interest :

Seeing that the open-edge is under your thumb.

Control of error :

(1) The position of the mat should be horizontal.

(2) No part of the mat is hanging down.

● How to sit as a Mat?

Presentation : (I.A. – I.P, G.P. collective presentation)

Have an unrolled mat on sitting mat at the place of presentation. Stand at any one side of the mat away from the children, lower yourself and place the hand nearer to the mat on it. Sit partly on the mat. Bring the leg nearer to the mat on it (Let the children see you do this). Putting the other leg on the mat and sit cross legged or place it by the side of first one. If possible arrange your clothes so that they are on the mat only.

● Point of Interest :

(1) Taking support with one hand.

(2) One leg at a time.

Control of error :

(1) Not to step on the mat.

(2) Your clothes with you.

● How to Get-up from the Mat?

Presentation :
(I.A. – Collective Presentation, Group Presentation; Individual Presentation)

Sit on the mat as usual. Place outside the mat, the foot of the leg which was crossed over the other one. Stretch the other leg till its foot is also outside the mat by the side of the first one. Support yourself with the opposite hand and get-up, smoothing your clothes.

● Point of Interest :

(1) Taking support with one hand.

(2) One leg at time.

Control of error :

Not to step on the mat.

Chowki and Chair

● How to put down a chowki or a chair ?

Presentation : (I.A. — Collective; Group and Individual Presentation)

Have a child's chair at the place of presentation. Stand in front of the children and see that the back rest of the chair facing you. Lift it correctly without analysing the movement. Ask the children to listen, bring the chowki towards the floor. First put one of the legs away from the children, on the floor, at a slightly exaggerated angle, then the other leg away from the children had the same side. Then the remaining legs are place down together. Now ask the children whether he heard any noise.

Repeat the presentation. This time asking the child to watch how we try and put down a chair or chowki without making any noise. Each time finish the activity, ask the children whether they heard any noise.

● Point of Interest :

(1) Seeing that back-rest of the chair is facing you.

(2) Placing the two legs down one at a time.

Control of error :

Absence of noise.

● How to lift a chowki on chair ?

Presentation : (I.A. – Individual; Group; Collective Presentation)

Have a chowki at the place of presentation. Insert the fingers of one hand under the surface of the chowki or table, at the middle of that side and place its thumb on top. Do the same of the other hand. Lift the table or chowki vertically, keeping the surface horizontally.

● Control of error :

Keeping the sit horizontally.

● How to carry a chowki o chair ?

Presentation : (I.A – Collective; Group; Individual Presentation)

Bring the chowki or child's chair at the place of presentation. Now decide where you are going to take it. Lift the chowki or the chair as usual. Support the front edge against your body if necessary. Carry it in a horizontal position.

Control of error :

(1) Keep he surface horizontally.

(2) Not to knocked against anybody or any object.

● How to sit on a chair?

Presentation : (I.A – Collective; Group; Individual Presentation)

Have a child's chair at the place of presentation. Place it obliquely and see the back rest is facing the children. Stand in front of the chair. Close to it but without touching it. Hold the corners of the seat with both hands, lower yourself directly to the sit of the chair and sit down. Show the children that with one hand you hold the chair and with other hand you smoothen your clothes. Your back straight, your feet flat on the floor in front of you, your hand resting on your lap, your cloth with you.

Repeat the activity from different angles for all children to see it clearly.

● Point of Interest :

Taking support with your hands on a chair.

Control of error :

Absence of Noise.

● How to get-up from a chair ?

Presentation :

Take support on both sides of the seat with your hands and lift yourself bending slightly forward. Smoothen your clothes and stand upright.

Control of error :

Absence of Noise.

● Name of the activity—POURING GRAINS.

Material Description :

A Tray, the base of which is cover with oil-cloth, on which we find three to five small glasses or mugs and a small jug. The glasses are arranged diagonally from the left base corner to the right top corner. The Jug is at the right base corner. For the first presentation it is better to have a transparent set. The whole set should be of the same materials. The glasses have an indication mark at 3/4th from the base. This is outside the glass if it is transparent; and in a non-transparent set, it is only inside. The Jug also has the same indication mark just below the base of the spout.

The Jug when filled upto the mark with grains, should contain slightly move grain then needed to fill all the glasses upto the mark. In a "House of Children", there should be 3 to 4 sets of material for this activity. (e.g. Lotas; 'Katories' can also be used).

Presentation : (I.A – Individual a small group presentation)

Ask the child to go and get an oil-cloth and unrolled it at the place of presentation.

Then show the children where the material is kept and bring it to the place of presentation. Place the tray to your right. Start taking glasses from the tray, from the left base corner. As you take the glass, draw the child's attention to the indication mark.

Start placing the glasses from the right top-corner of the oil-cloth and continued till the glasses are in the same order as they were on the tray. If the child wants to arrange the glasses, place the tray between both of you and suggest that he arranges them just as they are on the tray, taking the glasses one by one. Take the jug, draw the child's attention to the indication mark and place it at the right base corner. Before you lift the jug, to start pouring, draw the child's attention to the indications on the glasses and tell him, "I am going to pour, this grains into these glasses upto the mark. When the grain reaches the mark, you tell me and I will stop."

Pick-up the jug vertically, till it is slightly higher than the height of the glass and move it horizontally to the right top glass. When the tip of the spout of the jug is just over the middle of the glass, draw the child's attention to it and then start to pour. When the glass is half filled, move the jug in circular movement while pouring. Stop when the child fells you, that the gains has reached the mark. If he does not do so; stop and remind him. Straighten the jug over the glass and move it to the 2nd glass.

Before filling this glass remember ask to tell the child, to tell me when to stop. Repeat the same movement, till all the glasses are filled and place the jug at right base corner. To repeat the activity, we empty the glasses by pouring the grains, back into the jug. Start with the right top glass, when the jug is half-filled, pour the grain with circular movement.

Continue till all the glasses, are empty. Then inspect the oil-cloth ad glasses to see that there are no grains any-where.

When transferring the materials back into the tray, first place the jug at the right base corner, place it at the right top corner.

Continue till of all the glasses return.

● Point of Interest :

(1) Pouring upto indication mark.

(2) The circular movement, to ensure the level of grains being even.

Control of error :

Not a single grain on the oil-cloth.

● Pouring of Liquid

Material Description :

For the activity the material is the same as that for pouring of grain but there are minor changes.

On the tray along with 3 to 5 glasses set in the same oblique position, the jug at the right base corner, we also have a small (10×10 cm) cotton cloth with an embroidery jar or glasses.

This is kept fold it at the left top corner. The jug is filled with water just more than needed to fill the glasses. There should be several sets of these material in as much of a variety as possible (as in pouring grain).

Presentation (I.A – I.P) :

Presented on a chowki. Bring an oil-cloth and unroll it at the place of presentation. The presentation follows the sequence and pattern of pouring grain with the following changes.

When removing the items from the tray, take the cotton cloth first, unfold it and place it at left top corner of the oil-cloth.

When the child tells you that the liquid reaches the indication mark, strengthen the jug over the glass, and from base to the spout wiping the jug, keep the cotton cloth back at its place. When you have finished pouring into all the glasses, put down the jug and pour the water back from the glasses into the jug. But in this case, wait for the last drop to fall from each glass before putting the glass down. Wipe each glass after pouring. After finishing lift the glasses and the jug to see if any water is spilt and if there is any, wipe it with the cloth.

● Point of Interest :

Pouring until the liquid reaches the indication mark and waiting for the last drop of water to fall out of the glasses.

Control of error :

No drops to be found on the oil-cloth.

Unit 2 ❑ Social Behaviour

Greetings are offer first in the manner which is usual according to the custom of the society to which the child belongs. Later on we can show the children, the different ways of greeting in different parts of India. Still later, we show the children, how people greet each other in different part of the world. While showing how to greet, there should be somebody, who can help us to show the children, how to response to a greeting.

● How to say "Namaste" ?

Bring the right hand to the middle of your chest, then bring the other hand next to it. Show the children how we join all the fingers of one hand to those of the other. Starting with the thumb; keep all the pairs of fingers together and bend the head and upper body slightly forward and say "NAMASTE".

If the person is one from whom, we have great respect, first touch the hand to our forehead, then bring them to the chest and bending slightly, say, "NAMASTE".

Point of interest :

Joining of the fingers.

● How to talk in Society ?

Presentation : (I.A – I.P Collection and Group presentation)

When you want to talk to someone go to the person and wait until the person's attention is drawn to you. When talking to someone always look into their eyes (eye contact is an important part of communication). You talk in a pleasant voice, so that you cannot be heard by any one else in the room. You speak clearly so that the person to whom you are talking can understand what you are saying.

Control of error :

When you talk with the person you do not disturb nor attract the attention of others around you.

● How to Sneeze?

Presentation : (I.A. – C.P., I.P., G.P.)

If you cannot control a sneeze, take a handkerchief, open it, cover your nose and mouth, turn away from those around you and sneeze. If you cannot turn away from those around you, then bent your head, try and suppress all noises as much as possible.

Control of error :

As little noise as possible.

● How to YAWN?

Presentation : (I.A. – C.P., G.P., I.P.)

If you cannot control Yawn, cover your nose and mouth, with your hand as handkerchief, turn away those around you and Yawn without making any noise.

Control of error :

Absence of Noise.

● How to Cough?

Presentation :

Cover the mouth with a handkerchief in your hand and, turning away from anyone in the environment, cough, making as little noise as possible.

Control of error :

Try to make as little noise as possible.

Offering Activity

Introduction

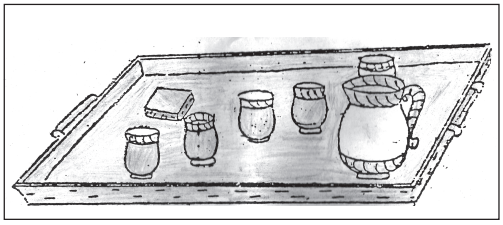
These activities of how to offer things are part of social behaviour activities. They help the children to response to the social requirement of the world in which he lives. When presenting such activities to the children, we need someone else to do the presentation with us. We offer some things to someone. So there must be someone who receive what you offer. These help the children to see both the offering and receiving some thing. These social behaviour activities are mostly presented via group presentation because the movement cannot be seen by the collective community. It should be explain to the children and they should see it in you, in your constant indirect presentation, that you are conscious of the persons to whom you offer something. It is for you to see that the persons have no difficulty in receiving what you offer. Have a pleasant expression on your face, look at the person to whom you offer, and speak in a soft voice if necessary. When you offer something to someone you do not let go, before the receiver has a firm hold on the object. Yet you do not hold it; any longer than is necessary. When you give something to someone offer it so that the receiver takes the object as it is meant to be hold. The giver takes any risk involved an inconvenience which may arise.

● How to offer a cup of Tea?

Presentation : (I.A. – G.P. or I.P.)

Have a cup and saucer with a tea-spoon on the saucer. The handle of the cup and the

spoon should be placed in such a manner that a right handed person will have it to right as the reverse for the left handed person. The spoon is placed on the side of the cup, which is away from the receiver.



Control of error :

(1) The saucer and the spoon should be dry.

(2) No tea is spilled on the spoon or on the saucer.

● How to offer a Glass of Water

Presentation : (I.A. – I.P.)

The glass should be filled three-quarter full with water. Generally we offer it on a tray or a saucer. If offer hand to hand, then we may place of right hand under the glass as a tray or we may hold the glass at the middle with the right hand.

Control of error :

Not to spilled water.

● How to offer a Pointed Object?

Presentation : (I.A. – I.P., G.P.)

When offering a pointed object, see that neither you nor the person to whom you offer it is in danger by the object. Keep the point to the left. Hold it, so that the person can use it without making any re-adjustment.

● How to offer a Pen?

Presentation : (I.A. – I.P.)

The pen is held in the right hand. Place the cap of the pen at its back. The nib is towards the left and your hand is towards the back of the pen over the cap. The pen is pointed slightly towards you. So that the person can take it and use it immediately.

● How to offer a Pencil?

Presentation :

This is offering in the same way as the pen but it is hold at the middle.

● "Offering a pair of Scissors"

Presentation :

Hold the Scissors at the joint with its handle pointed towards the person and the point towards the left.

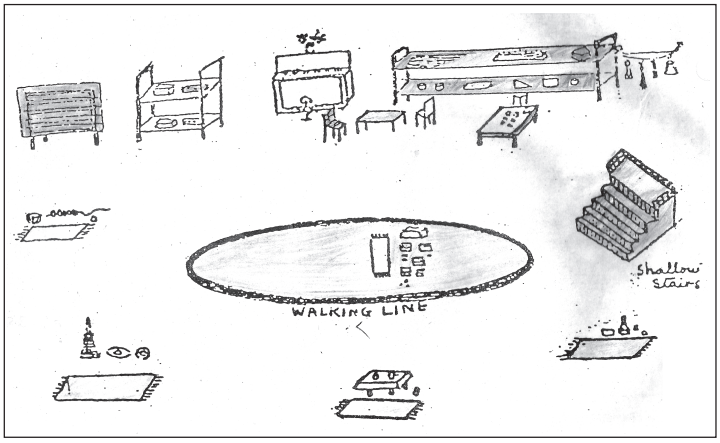
● How to offer a sharp object (Knife)

Presentation :

The Knife is hold at the joint of the handle and the blade with its point to the left and the sharp edge downwards. Offer it in such a way that the person can take it and use it immediately. The sharp edge should never be touched.

How to walk in line?

This is a universal fascination. Dr. Maria Mantessori notice this universal phenomenon. She had learnt from children. This universal phenomenon set her thinking i.e. then must be some positive purpose behind this irresistible urge phenomenon i.e. while walking, all children make difficulties in walking, they create difficulties themselves while walking.



What's the purpose behind challenging so on the basis of her repeated observation and phenomenon. Dr. M. Mantessori came to certain conclusion, the validity of this conclusion i.e. power of balance, it needs to conquest and for this conquest child needs challenges in maintaining their equilibrium and they need to consolidate the balance.

The development need expected by all the children i.e. while walking. Nature not only alert development task, it also give power to do the task and urge to carry out the task. They are time table and child follow according the time table to fulfill the task. He also receive another form of help from nature i.e. nature creates a irresistible hunger. Nature is hungry for those activities which the child needs for this development. The developmental activities according to his tasks is allotted by nature. What capacity is indispensable for his development ? The activities of exercise of practical life. For further consolidate over balancing equilibrium, he has to have mastery over his walking.

What are our duties with regard to this?

We have to have lines on the floor for the child to walk on and this must on the living room and this lines must be elliptical and it can as large as possible and this line should be a meter or 1½m away from the walls. This line should be 2 mm and it should be attractive colour with paint colour.

We should collect other materials i.e. collection of flags of different country. Flag should be 20 cm × 15 cm and they have wooden rods of 45 cm.

Beside this flags we have 3 or 4 strings 30 cm long, on the end of which a couple of beads and 3 or 4 strings on which glass belts are tied.

We also have 3 or 4 tiny liquor glasses. 3 or 4 small trays 30 × 20 cm, and also have basket.

● Presentation :

For the presentation, invite the children and say, "You stand on the line, will you?" Adult also stand on this line and show the child, "Look you are going to walk on this line and demonstrate look when we walking we put our feet exactly over the line. Watch me how I am putting. Now adult suggest all children all behind other and show how to move and walk.

Then suggest the child to stand on arm distant from the other child and then you give clear instruction.

(a) Walk one behind the other.

(b) While walking don't change your place (maintain the row).

(c) Remain at arm's length.

(d) Constantly be at arm's length.

(e) If we leave the line do so near the place where you occupied the line before walking.

(f) Join from your place where there is enough place when they want to join the group.

(g) If walking on the line is accompanied by music, then the joining and disjoining is done when the music is not going on.

Now I am going to start, we should remember to put our feet exactly over the line and for a few days you find children walking over the line on looking the lines and wait for few days most of the child walking on the line without looking. Now the adult will say, 'I will show you another way i.e. one foot in front of the other i.e. all the time back foot touches the heel of the front foot. There is a smooth music, help them concentration and make them challenging, give them flag and notice the flag should not staging down. When the child is carrying the flags, then you tie the beads with string on the flags and then the bells and they should not make any sound. For another day, then offer liquor glasses empty, then with water and tell him to walk without split any drops of water.

Then other day tumblers without water, next day with water and then glasses on the tray. Then geometrical solids on the tray without making any noise. Then we also suggest the child to put ring on the head and put the basket on it and walk, basket without any thing and basket with rolling things and then carrying over larger basket with basket rings and then gradually basket without rings.

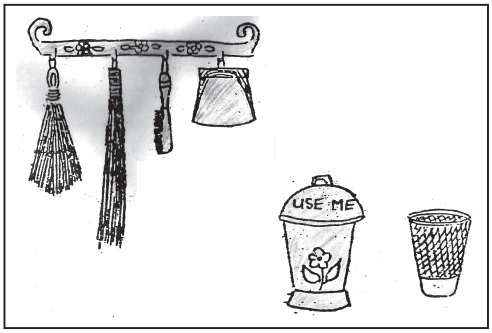
Unit 3 ❑ Taking Care of Environment

● How to Sweep?

A broom of Local Characteristic. The size of the broom should be in proportion to the child's physical proportion. The broom should be strongly bound. The part by which it is to be held should be colour or we may bind, colour string around it. This colour should be correspond to the colour of the handles of the dust pan and brush, with which it form a set.

● Display :

Hang the broom on a hook, from the handle. The end of the broom should be few centimeters above from floor level. Hang it to the right of the dust-pan and brush (to your left when you stand facing the material).



● Display :

Presentation : (I.A – I.P and small group presentation)

"Stage Preparation"

Prepare the place with some dust without the knowledge of the children. See that the area is not too large or too small. If there are no natural demarcation on the floor (e.g., flag stones on other designs), we may draw the area.

Presentation proper

Indicating the proper area, tell the child that you are going to sweep it. Let the child see you bring the broom. Holding it by the handle with the other end hanging down. Keeping it away from your body. Stand at the end of the area away from the children. Put the broom Oblic on the floor near the right hand side. Bring the dust from right to left about half of the area. Before lifting the broom, bit it gently. Sweep the area towards the left. Bring the broom back to the right hand side and place it on the floor, so that it covers of part of the already swept area. Work forward on the swept area. Continue the same movement till the whole area is swept. Now draw the children's attention to the line of the dust at the left hand side. Sweep the line towards the end nearest to the children. Inspect the swept area. Ask one of the children to inspect. Go and keep the broom back. Ask one of the children to get the dust-pan and brush and remove the dust or you do so.

Point of interest :

(1) The second stroke should cover the part of the area covered by the first stroke.

(2) The line of collected dust.

Control of error :

Not to speak of dust should remain over the swept area.

Foot Note :

If the area is large, we can collect the dust in the centre by the same movement.

● How to use a Dust pan and Brush ?

Material Description :

The dust-pan is made of metal sheet. The front edge should be slightly inclined an even. There should be a cover over half of the depth of the pan. The handle should be on the top of the cover. The front edge of the pan should be in the same colour on the handle and this colour should be contrast with that of the other part of the pan. There should be 3 to 4 dust-pan, corresponding to the number of brooms.

Brushes :

As many as the dust-pan. Size of the brush :

The length should be slightly less than the front edge of the dust-pan; so that it can be kept in the pan when it carried. The handle of the brush, should be the same colour as the handle of the Pan.

Display :

The pan and brush should be display hanging from a hook together, at a level, which indicates where they will be used.

Presentation : (I.A. – I.P or Small Group presentation)

Stage Presentation :

Before the children come (without their knowledge) put some dust in a heap. While presenting the activity, have a dust-bin in the environment within view of the child for use during the presentation. It is better to have one to open by pressing a lever with the foot.

Presentation :

When the children have settle down; go and get the dust-pan and brush. Carrying the dust-pan on left hand, and the brush in the pan and hold with the right-hand. Hold both horizontally and slightly inclined to the left and come to the place of the presentation.

Sit on your hunches; in front of the heap of the dust. So that it is between you and the children.

Take out the brush from the pan. Put the pan on the floor near the heap of the dust. So that it is in the middle of the edge of the pan; between the pan and the child.

Brush the dust into the pan till no dust is seen. Lift the pan and draw the child's attention to the line of dust. Place the dust-pan in such a manner that the dust-line is perpendicular to the edge of the pan and is visible to the children. You remain at your place.

Brush the dust-line into the pan. Lift the pan and draw the children's attention to the dust-line. Place the pan as before and brush the dust into the pan. Repeat the same movement till not a speck of dust remain. Inspect the place, ask one of the children to inspect. Then placing the brush in the pan over the dust. Stand-up, go to the dust-bin, remove the brush and shake off the dust into the bin. While doing so, turn your face away from the bin. If necessary, clean the pan with the brush and then brush with the edge of the pan. Return the pan and brush to their place.

Point of interest :

(1) Keeping the dust-pan so that the dust-line is at the middle and perpendicular to the edge of the pan.

(2) Changing the position of the pan without changing of own position.

Control of error :

No speak of dust is left.

Unit 4 ❑ Taking Care of Oneself

● Care of Ear

Eyes, ears, nose, tongue and skin are the five sensory organs of our body. They give us sense perceptions. The eyes help us to see; the ears help us to hear sounds; the nose helps to smell odours; the tongue gives us the sense of taste and the skin gives us the sense of temperature.

As in the case of all other sensory organs, the ears must also be taken care of. The structure of the ears is peculiar. They are made of soft bones and light muscles called ear lobes. Inside the ear channel, there is a piece of thin tightly stretched skin, which is moved by sound waves, making one able to hear. This organ is called eardrum. If the eardrum is damaged, we become deaf or hard of hearing. So we must take care of our ears.

(Eardrum may be protected by correct use of your finger)

We must not drive sticks into our ears. If we do, the eardrum will be damaged. Even we should not pour oil into our ears. Nor should we use any instrument to drag the scales out of ears. The body itself will expel such scales in natural course.

Sound above sixty-five decibels affects our ears. A heavy slap or the sound of a great thunder or that from blasted bombs or crackers of high 1, potency may turn us deaf. If we feel uneasy, we may tickle our ears only with clean fingers.

While having dips in the ponds' and rivers we had better keep our ears closed with our fingers. Or water will flow into the ear channel and ultimately create sores. If we ever feel that pus is coming out of our ears, we must consult doctors and use medicines. We should never go by the advice of laymen.

Let us keep our ears away from the worms, ants, insects and dirt. Never allow any such things to enter ear holes.

Source : Basanta Kr. Roy

● Use of Combs

A comb is a very useful article of nearly constant use. All persons save the monks and nuns use combs to keep the hair free from being unkempt.

Tousled hair may indicate a disturbed heart, but even that is not preferred to-day when human emotions are trained to remain at a low key. A comb not only keeps the hair in place

but removes dust, adherents, dandruff and even lice. If we suffer from dandruff and pediculosis or lice infestation, we must rush to a doctor because a comb in such cases will be of little use.

(Comb should only be used for hair)

Various types of combs are available in the market. While three or four decades ago, only combs made of cow or buffalo horns were available, now we can have good quality combs made of polyethylene fibre. They are quite cheap, hardy and better.

The bristle points of a good comb must not be sharp. Often we enjoy scratching the infected scalp with the sharp combs, but the scratching intensifies the infection, leading to massive hair fall.

Gentle combing is a good massage for the scalp. It enhances circulation of blood and strengthens the follicles. It is good to comb the hair before a mirror. A mirror that is fixed on the wall or fixed on the dressing table is preferable; but we may also use a small mirror that we can hold with our hands. If we use such mirrors, we must use it very carefully, because it is most likely to fall off in carelessness. We ought to comb our hair once in the morning, once after bath and last once before going to bed. The comb must be cleaned with detergent soap from time to time. It is hygienic to have a personal comb as this is generally safe.

● Use of Umbrella

When we move out of home, we may confront either the sun or shower. While the sun is enjoyable during the winter, we feel being nearly scorched in the summer months. When rainy season comes, rains drench us. Hence, we should always carry an umbrella during the summer months and during the rainy season.

While a cap or a hat may help us during the summer months, during the rainy season we must use an umbrella or a mackintosh (raincoat) to protect us. Even, during the summer we should use an umbrella, not a cap or hat for two reasons: first, if we wear a cap or a hat, our scalp will sweat and secondly, this is not in vogue in our country. Now-a-days, foldable umbrellas are in vogue, and we may carry them as they are very easy to keep.

People will get irritated if a person with a large umbrella oozing out drops of water try to get into a bus or in a train. An umbrella is of little use during a nor'wester or when there is a heavy shower accompanied with a strong wind.

Some are found to carry an umbrella on their shoulders. This is bad and very very risky as some others who may be corning just behind them, particular-lay in a crowd, procession or festiveal may suddenly be blinded with the pointed end. of the umbrella rod

that was there on the shoulder of front man.Thus it may draw answer of sharp and fatal retaliation. We must be therefore very cautious about it and always keep sharp end of the umbrella rod down.

(Don't carry the umbrella on your shoulder)

While using an umbrella, we must be cautious, for losing an umbrella in a bus or in a train or in a shop is a common incident. While trying to keep other things safe, we often leave the umbrella out in a place where we go on business. That is why, before leaving a place, we must check that we have not left our umbrella.

If the umbrella gets wet, back home we must open it up and allow it to dry. Otherwise, the cloth of the umbrella will not last as long as it should.

If we find an umbrella lying somewhere unclaimed, we must not try to take it and get it home. Not only it is an act of stealing someone's property, but in these days when terrorism is at a high pitch, some powerful explosive may be left inside it. We should call in people or if we see such an umbrella in a train, we should inform the railway police of it or make the bus conductor aware of it.

It is bad to use an umbrella as a weapon or a plaything. If we do so, the umbrella will be broken and we will have to buy a new one. If umbrella develops tears, we should take it to those who repair torn umbrellas.

● Sitting Posture

We are often required to sit not only for rest but also for work. A chair is the best seat; if it is lightly cushioned it is comfortable. We should, even if we are extremely tired, take a seat slowly. To drop abruptly on a seat, a chair or a bench, is very bad because our spine and testicles and the private parts of the body may receive injury.

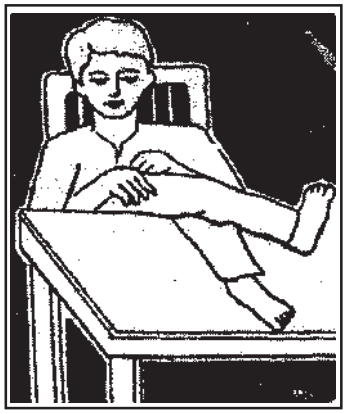
Before we sit on a chair, we must check that it is in good condition. If the seat is dusty, it will spoil the dress and if any of the legs of a chair is broken, one will fall down and receive serious injuries. If we find that the seat is dirty, or oil, water, pins, nails or phlegm are found there, we must have it cleaned first, and if we find the legs broken, we must not sit on it at all. That will embarrass us.

Sitting with our spine straight is the correct posture .This develops a very good blood circulation. However, when we work at the desk, it is not always possible to sit straight. Hence, we should stretch back our spine and hands from time to time or walk about at least every one hour.

Unless it is a rocking chair, we must not rock while sitting on a chair. Some people

have the bad habit of squatting on a chair or even renting their legs on the tables or desks and cocking them. We wont do that as that is utterly impolite; They had better be asked to sit on a mattress on the ground.

While travelling in a train, we must not sit on the seats cross-legged, even if there is enough room. This is very indecent. Before we take seats, we must check if there is dirt. If we see the seat smeared with filth - vomitus, sputum or catarrh, we must move elsewhere.



(This is not correct posture)

If we find elderly or sick people or ladies standing before us, we should offer the seats to them. This is a courtesy that is highly commended. It is very discourteous to elbow out people in order to make room. Even though our grand parents love us dearly, we must not drop down on their laps all on a sudden. It may cause them pain or accident.

Whether we work in an office or are engaged in work in our private study or drawing room, we must welcome a visitor by rising up and requesting him to take seat. One should take one's seat after the visitor is seated.

It is an act of etiquette to bid goodbye to a friend or a guest by standing up and walke a few steps along with him and see him off. We must not forgot to say welcome to a guest, and say "Goodbye, Please come again." When we visit a person in his office or in his house, we must not occupy a seal unless we are asked to.

● Reading

We must have some education. If we do not have it, we shall not be able to acquire knowledge and remain ignorant about many things in the world. Education leads a man forward; hence everyone must have education to the possible extent.

Children belonging to poor and destitute families cannot have higher education, but they can easily complete the primary level. It is catered free now with food also in some areas.

Self-study for an hour or two, after learning the three R's, makes a man know well, and whatever job he does he can have this benefit by the exercise of his will. At the beginning, everybody needs guidance, but after a stage, one can study for oneself and this will bring no less rich a result.

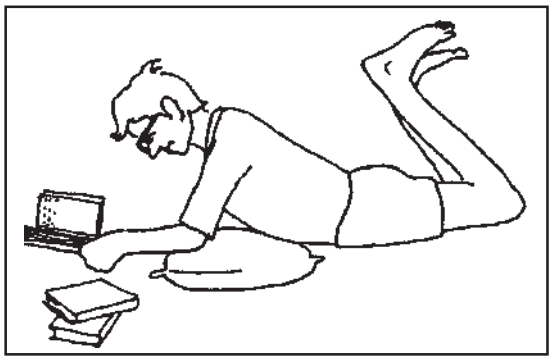
One can read whenever one wills, but it is better to select an hour of study. This depends on the time of leisure one finds. If one is a full-time student, one should spend at least three hours in the morning and three hours in the evening.

The morning hours are the best period for learning something by heart or learning something by rote. The evening hours are suitable for contemplative study. The hours in the

midday can be spent in translation, solving mathematical problems, handwriting practice and drawing maps.

The question is that one should prepare one's own routine and devote the time to studies with full attention. On the eve of examinations, hours of study should be expanded, but that must never be at the cost of sleep. Again, when one is sick, one should take rest as much as possible.

When we read in a group in the classroom, we must not gossip or cut jokes with other students. This will not only do harm to us but will also disturb the instructor. Whenever we study or wherever we take lessons, we must be serious and must not sidetrack. For private study, we must find out a secluded place. We must sit erect whether we sit on a chair or bench or on the floor. We should hold the book close to our eyes with our hands, and must we never bend our body. If we read a subject with deep attention, we shall derive immense pleasure. If we feel distracted, we should stop a little and then resume reading.



(This practice must be avoided)

Ordinarily, children should read aloud. This helps them learn the lessons by rote and secondly, the parents or guardians or teachers will be able to know if one is reading correctly.

While reading, we should understand the contents of the book, otherwise reading is just wastage of time. If we fail to understand the meaning in a single reading, we must read the substance again. We must not give up unless the contents are comprehended. Not always, we can understand the meaning of each and every word. In that case, guesswork is necessary. While reading a big novel, we can skip lines. If we fail to comprehend something, we must not hesitate to take the help of a learned man or of our teachers. The use of a dictionary is very helpful. At any rate, the meaning of the subject and its object and the spirit of the lesson must be acquired, obtained and mastered.

Life is the best book of study. Except in certain cases, we can match our lessons with our experiences.This habit enables us to obtain real knowledge. The life of Sher Shah teaches us how a man born to ordinary parents could become the emperor of a country by virtue of enterprise, courage and wisdom while Jahangir has set a different example. He nearly ruined the empire he inherited through luxury, indolence and inefficiency. Let us lead our life with the enterprise and courage of Sershah and shun the lifestyle of Jahangir. This, in particular, is the spirit and meaning of the lesson in History.

[Source : Talks Friendly by Basanta Kr. Roy]

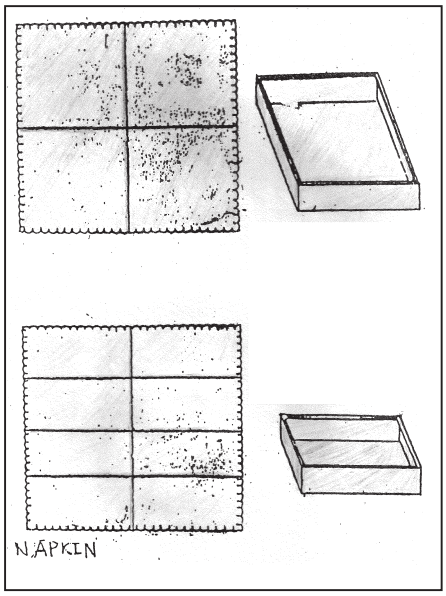
● Folding Napkins

Material Description :

These napkins are made of durable good quality cotton. They should be in plain perfectly light colour, and perfectly square in shape and size should be 28 cm × 28 cm after stitching.

The cloth should be washed before cutting. The edges are hemmed in contrasting colours, so that the stitches stand out and look the same on both sides.

Over the Napkins have a guiding lines for folding. The stitches should be same on both sides. This guiding lines could be made of straight or running stitch. The thread used for the edges and the guiding lines should be the same.



There are four types of napkins.

(1) Napkins divided into quarters by medials.

(2) Napkins divided into eighths by medials.

(3) Napkins divided into quarters by diagonals.

(4) Napkins divided into eighths by medials and diagonals.

In a 'House of Children' there should be three or four of each type of napkins with variety in colour of cloth and threads.

Display :

Each type of napkin has own container. The shape and size of the container should corresponds with the shape and size of the napkin. The container should be of 2m larger in all sides from the folded napkins and its height on all sides should be 2½ cm.

The shape of containers should be as follows :

1st Container — Square.

2nd Container — Rectangle.

3rd Container — Right angle isosceles triangle.

4th Container — Same as the 3rd container in shape but smaller in size.

Foot Note :

Activities with these napkins are presented on chowki. We present only two types of napkins i.e. one divided into quarters by medials and other are divided into quarters by diagonals.

● How to pick-up and carry a napkin?

Presentation : (I.A. – I.P. or small group presentation)

Have a napkin at the place of presentation. Just lift one of the corners of the napkin and then place the left palm under the napkin. Place the right fingers over the napkin, lift vertically and carry it.

Control of error :

No part of the napkin should be hanging.

● How to Fold a Napkin divided into quarters by medials?

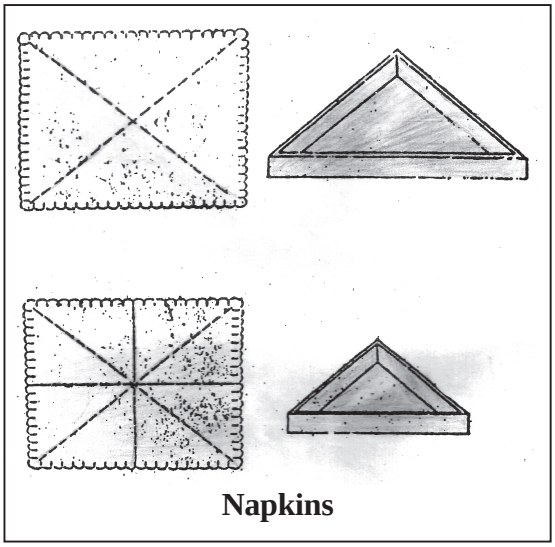
Presentation : (I.A. – I.P. or small group presentation)

Have a folded napkin divided into quarters by medials at the place of presentation. Unfold and smoothen it as usual. Then tell the child (indicating the guiding lines with your right index) "Now we are going to fold this Napkin along these lines; Watch."

Hold the right top corner with your right thumb and index and the right base corner with your left thumb and index, lift the edge and turn it, towards the left. Ask the child, "Tell me, when this edge is about to touch this edge". Move the edge gradually towards the left, keeping near and parallel to the surface of the napkin.

Stop when the child tells you that the edge has reached the other edge. (If he does not tell, you stop and remained him).

Show the child how you place the corner over the opposite corners, saying, "Look, we keep this corner exactly over this one."



Napkins

Then show the child, how we smoothen the napkins. Holding down the open edges with our left thumb and index and smoothing the napkins part by part with the edge of the right palm, moving from the open edge towards the fold. Now hold the right top corner with right index and thumb and the left top corner with the left index and thumb. Turn the edge towards the opposite edge and ask the child to tell you when it reaches the other edge. Hold the napkin and smoothen it as before. Draw the child's attention to the fact that the napkins look just like it, when we brought it and also that the open edges one over the other and guiding lines are visible along the folds.

Point of Interest :

(1) Watching for the edge to reach the opposite edge.

(2) Placing the corner over the opposite corner.

Control of error :

(1) The folded napkin should be a perfect square.

(2) The edges should coincide perfectly.

(3) The guiding lines should be visible over the fold.

● How to unfold a napkin divided into quarters by medials?

Presentation : (I.A. – I.P. or small group presentation)

Ask the child to bring a folded napkins to the place of presentation. Hold the two top right base corners with your right index and thumb and other corner of the same edge with your left thumb and index. Turn the edge and take it to the opposite side, keeping it near and parallel to the surface. Hold the right base corner with left thumb and index and right top corner with right index and thumb and take that edge towards the opposite as before. Now smoothen the unfolded napkin as usual.

Control of error :

The unfold napkin should be without any wrinkles.

● How to fold Napkin divided into quarters by diagonals?

Presentation : (I.A. – I.P. and small group presentation)

Have a folded napkin divided into quarters by diagonals at the place of presentation. Unfold and smoothen it as usual. Tell the child, indicating the guiding lines, "We fold this napkins along these lines." Hold the right top corner with right index and thumb and turn it towards the diagonally opposite corner. Ask the child to tell you when the corner, you are folding, reaches the opposite corner.

Move the corner towards the opposite corner following the guiding lines and keeping it near and parallel to the surface. Stop, when the child tells you, that you reach the opposite corner. Smoothing the napkin as before. In the same way, bring the left top corner towards its diagonally opposite corner folding it with right index and thumb. Smoothen this fold as before. Draw the child's attention to the fact that it look just like it did when it brought it, the edges are over the other and the guiding lines visible over the fold.

Point of Interest :

(1) Watching the corner to reach the opposite corner.

(2) Placing the corner exactly over the opposite corner.

Control of error :

(1) The folding napkin should be right angled isosceles triangle.

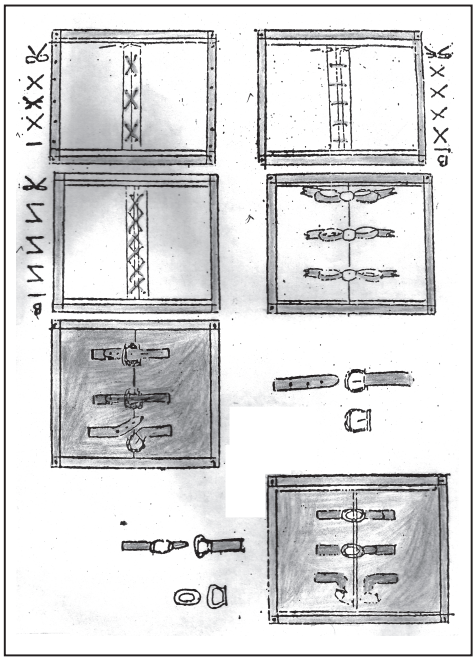
(2) The edges should be coincide perfectly.

(3) The guiding lines should be visible, over the folder.

Dressing Frames

General Material Description :

Rectangular wooden frames with two cylindrical rods; 1 cm in diameter attached parallel to the two inner sides of the frame. These rods are attached by screws to the top and base of the frame. Two flaps are attached to the rod. If these flaps are made of cloth they are folded double. The cloth should be durable easily washable and in attractive plane colours, preferably cotton cloths. If the flaps are of cloth, then in middle of the flap are stiff. Thin objects are inserted to keep the flap itself stiff. We have an indication mark on the frame either on top or at the base to help the child to know in which position to keep the frame while using it.



Display :

The frames are to be displayed within reach of the child, all of them one after other. They are hung from rectangular hooks, two hooks for each frame. The order in which the frame is displayed should be from left to right. We have one of each type of frame in the environment.

● How to close press Buttons

Material description :

The flap of the frame are made of cloth. The edges overlap, right flap overlapping the left flap. Along the edge of the left (over the flap). A series of cavity halves are attached (when we stitched the thread should not visible on the other side) along the open edge of the right flap (under the flap) is attached the corresponding series of studs. They are pressed so that they are 1 cm away from the edge. There should be 5/6 press buttons on the frame, equidistant from each other.

Presentation : (I.A. –I.P.)

This activity is done on the chowki. Invite the child and take him to where the material display. I show him how we remove the frame from the hooks. Hold the frame with both hands and lift it. Bring it towards you from the hooks. Bring the frame on the chowki, open the button and the flaps without analysis of your movement.

Hold the left base corner of the left flap, with your left hand. And the left top corner with your right hand. Lift the flap and bring it to the middle. Hold the right base corner of the right flap with the left hand and the right top corner with right hand. And bring that flap to the middle over the left. Insert the right thumb under the right flap near the top stud and place the right index over the stud (we always work from top to bottom) and turn the flap towards the right. Hold down the top most cavity with the left index and thumb. Bring the thumb just over the cavity. Draw the child's attention to it and ask the child, to listen. Press the stud into the cavity with your right index. Release your fingers one at a time. First right fingers, then the left. With the same movement close all the buttons. Then go back to the top button and inserting your right thumb just next to the close button place the right index on top and inspect all the button, to see that they are properly closed.

Point of Interest :

(1) Before pressing make sure that stud is exactly over the cavity.

(2) The click sound of the bottom.

Control of error :

Inspecting to see that all the bottoms are closed.

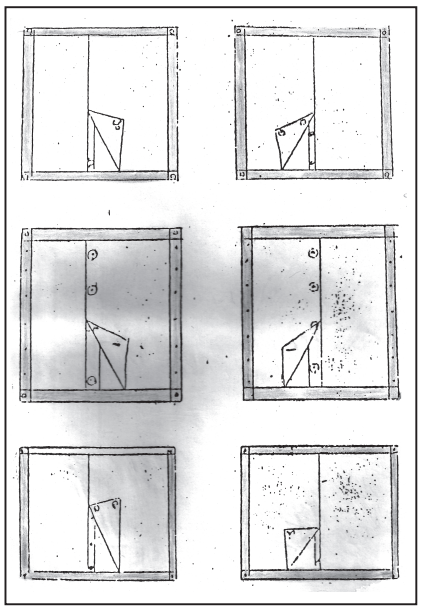
● How to open press button?

Presentation : (I.A. – I.P.)

Invite the child and ask him to bring the frame. Insert your right thumb below the right flap near the top button and place the right index over it. Insert the right thumb nail between stud and the cavity. Draw the child's attention to this. Place the left thumb and index over the left flap to keep the button in position. Then ask the child to listen for the click sound; and with the help of the right thumb nail; hold the stud out of the cavity halves towards the right, tell the child, "Look, I open the button with my nail." Then release the fingers of your hands one at a time. Continue the same movement till the all buttons are open.

Then with the right thumb and index inspect and make sure that all the buttons are open. With the left index and thumb hold the base corner of the open edge of the right flap and with right thumb and index, hold the base corner. Open the flap completely to the right, with the left thumb and index. Hold the base corner of the left flap with left index and thumb

and with right index and thumb hold the top corner and open the flap completely to the left.



Point of interest :

(1) Inserting the right thumb nail between the two halves of the close button.

(2) Opening the button with the right thumb nail.

(3) The click sound is heard when the stud is pulled out of the cavity.

Control of error :

Before opening the flaps inspect to see that all the buttons are open.

● How to close coat button?

Material Description :

Flaps overlapping; left flap over the right flap. Over the right hand flap; button are stitched. The button should stand on a steam. The length of the steam should be such that it is possible to turn the button to a vertical position, without pulling it. (i.e. it should be slightly more than the radius of the bottom).

On the left hand flap the button hole are made. The hole should be a little larger than the diameter of the button. The holes are slits made horizontally. There are 5 or 6 buttons on the frame. This frame is presented after the press button frame.

Presentation : (I.A. – I.P.)

Go with the child and bring the frame to the place of presentation. Open the button and then the flaps without analysing the movements. Bring the right flap to the middle as usual and bring the left flap over the right.

Insert the left thumb below the left flap near the top button hole and hold with the left sides. Turn the left flap little to the left to expose the button. Hold the button with right index and thumb and make it stand vertically. Bring the left flap over the vertical button, so that it will be come out through the button hole and now release the left hand. Draw the child's attention towards the button coming out through out the hole. Hold the button with the left index and the thumb at the top part that comes out through the hole. Now release the right hand. Hold the left flap near the button hole with the right index and thumb and pull the flap down over the button, till the button comes out of the hole. Push button-hole over the steam of the button. The button should never be pull or pushed nor made to change direction.

Put the button into horizontal position with left index and thumb if necessary, do the same movement until all the buttons are closed.

Inspect whether all the buttons are visible on the top of the holes.

Point of Interest :

The button coming out of the hole.

Control the error :

All the button should be appear on the top of the respected holes.

● How to open Coat button.

Presentation : (I.A. – I.P.)

With the right index and thumb hold the left flap near the top button hole and pull it a little. With the left index and thumb hold the button and make it stand vertically in the button hole. Draw the child's attention towards it. Pull the button hole vertically upward until the left is pushed off the button and the button is released completely. Draw the child's attention to the fact that there is no pulling of button.

Performing the same movement open all the button. Inspect whether any button is visible on the flap. Open the flap as before analysing your movement as you do so. By turning the bottom flap down. Try to avoid noise.

Point of Interest :

(1) The button standing vertically in the bottom-hole.

(2) The flap pushing the left hand of the button.

Control of error :

Not a single button is visible over the folded flap.

● "Lace Frame"

Material Description :

Flaps are facing each other; they should be close to each other. They are made of leather or cloth with leather facing. Both the flaps have a series of holes about 8 to 10 holes. The holes have metal rims. The lace should preferable be cylindrical; not flat. Half of the lace should be in one colour and the other half in a second colour. (Two lace are join invisible). The length of the lace should be such that after passing through all the holes, the remaining part should be equal to the length of half the frame.

The ends of the laces should be metal tips. This should correspond if possible to the colour of the laces.

Some general rules :

(1) The laces should be handled with the hand corresponding to the direction from which the lace is to be inserted.

(2) The flaps are hold with corresponding hand i.e., left flap with left hand and right flap with right hand.

(3) Cross the laces with one hand only.

(4) There should be no obstruction when the tips are inserted or taken out of the holes.

(5) Hold the flap vertically and insert or take out the tips horizontally.

(6) Whenever you insert or take out the lace, do so part by part, not all at once.

(7) When crossing the laces, the lace put over the other one, should by constantly be put over the other one, i.e. if you cross left over right first, continue the same for all and vice-versa.

(8) While untie the laces; always take out the lace which is on top of the cross first.

(9) While tieing the laces always insert the lace which is under the cross first.

(10) While tieing or untieing the lace, DON'T TURN THE FRAME.

How to tie laces 'V' pattern or "Fish-bone" pattern.

Presentation : (I.A. – I.P.)

Go with the child and bring the frame. Untie the laces; and keep it at the right side and open the flaps without analysing your movement. Close the flap as usual. Keep the laces folded into two vertically in the middle of the frame; with both ends a little bit apart. Hold the right flap vertical bit the right hand, with the left hand hold one of the tips, and insert it from inside out through the top hole. Draw the child's attention towards it; how the tip is out completely at the right side; release your left hand, lower the flap at little bit and hold the tip again with your left hand. Pull the lace out towards the right part by part upto the center, where it is join. Release both hands once at a time. With the same movement inserting other end of the lace into the top left hole with the right hand holding the tip of the lace. Make the lace equal by holding the two ends with the right hand and pulling them equal part by part with the left hand. Put the ends on their corresponding sides at the lower corner. Now cross the laces with the right hand. When you cross the first lace keep it below and parallel to the other lace, then bring the other lace over the first one. Always cross the same way. Insert the lace which is underneath of the cross from inside out and then other lace.

While doing so hold the flap and laces with corresponding hands with the right thumb and index, hold both the laces, near the cross. Put the left thumb and index just over the two corresponding holes and tieing by pulling the two laces hold with the right hand, pulling

downwards and not too hard. Go on lacing in this manner till the laces have gone through all the holes; when they come out from the last pair of the holes, they tie a bow or invite the child to do so. Insert the bow inside the flap.

Point of Interest :

(1) Not to hear any noise while inserting the tips.

(2) The tips should coming out of the holes smoothly.

Control of error :

(1) Regularity of the pattern i.e, alternate colour overlapping.

(2) The right lace overlaps the left through out or vice-versa.

(3) The 'V' will be facing upwards. On the front of the frame with the same regularity of the pattern.

(4) On the other side of the frame, we see first a horizontal line in two colours and then 'V' facing downwards.

● How to untie a lace?

Presentation : (I.A. – I.P.)

Untie the bow as usual. Keep the laces on corresponding flaps. Hold the flaps and laces with corresponding hands. The hand that pulls out the lace should correspond to the direction in which the pulling is done. Always take-out first that lace which is on top of the cross.

Slow down the pulling when the tip is about to reach the hole and take the tip out of the hole.

After the lace is out of all the holes, keep it at the right side of the frame and open the flaps.

Point of Interest :

The tip coming out smoothly without noise.

Control of error :

The entire lace is out of the frame.

● How to tie a lace cross (×) pattern?

Presentation : (I.A. – I.P.)

As in the 'V' pattern bring out both the ends of the lace from inside out through both the top holes.

Make them equal as usual and cross them. Insert the tip of the lace which is under the cross from outside in.

Do the same with the lace which is on top of the cross.

Now cross the lace which are under the flaps. Bring the lace from inside out. First bring that one which is under the cross and then the one above the cross.

Tighten as before. Continue the same till the lace goes through all the holes.

The inserting is done alternately from outside in and from inside out. Tie a bow at the end (even if the laces underneath; tie the bow on the top). Then put the bow on top and ends underneath.

Point of Interest :

Same as 'V' pattern.

Control of error :

(1) The regularity of the pattern, i.e. always the same colour laces is on top of all the process. The same is seen on the other side of the frame.

(2) On the other side of the frame, we also seen the horizontal line in two colours from the first pair of holes.

● "How to tie a laces linear pattern or horizontal pattern"?

Presentation : (I.A. – I.P.)

First insert both the tips from outside in through the top pair of holes. Adjust the lace so that on top, we see only one colour lace.

Now cross the laces which are under the flaps. Bring out the second colour lace from inside out and again insert the same lace from outside in through the horizontally opposite hole. Keep both the laces, on their corresponding flaps. Again cross both the laces. Now bring out the lace of first colour from inside out and insert that lace into horizontally opposite hole from outside in.

Continue the same for all for the last pair of holes. Bring out the laces through both the holes from inside out. Tighting the lace by pulling each lace gently. Then we tie a bow and put it underneath.

Point of Interest :

Same as 'V' pattern.

Control of error :

(1) On the right side of the frame; we see horizontal lines in alternate colour.

(2) On the other side of the frame we see a regular pattern (a sort of hemming bone pattern), with the same colour lace on top of each cross.

● Ribbon Frame

Material Description :

Two flaps facing each other but slightly apart. On each of the two flaps 5/6 ribbons are attached in two colours, one colour on each side. The ribbon being in two colour helps the child to see the movements clearly.

The ribbon should have a right and wrong side (e.g. satin ribbon).

Each ribbon is about 2 cm wide and 28 cm long. They are stitched to the flaps.

The loose end is invisible or pinked. The shiny sides should be upwards.

These ribbon must be ironed daily.

● "How to tie the base-knot"?

Presentation : (I.A. – I.P.)

Open the flaps and straighten the ribbons. Bring both flaps to the middle, one at a time. Straighten the ribbons over the corresponding flaps. The dull sides are facing upwards. Hold the left ribbon near the end with the right thumb and index and bring it over the left flap.

The left ribbon is on top of the right ribbon; the ribbons are with shiny sides upwards.

Insert the right index from the top of the ribbon of the right flap and put the right thumb on top; about ¾ cms away from where the ribbon cross.

In the same manner hold the ribbon on the left flap; with left index and thumb. Now bring the ribbon held on the right hand across over the left ribbon.

While doing so, smoothen it with right index. Push it through with right thumb across and under the ribbon hold on the left hand. Draw the child's attention, saying, "See, the right thumb coming out wrapped in the ribbon." Bring the right middle finger and place it next so the right thumb and place the right index on the other side of the right thumb. Release the right thumb and join it with the right middle fingers and index.

Slide the ribbon out bit by bit with right middle finger index and thumb.

Put the ribbon over the right flap and straighten it. With the same movements tie all the base-knot.

Point of Interest :

The right thumb coming out wrapped in the ribbon.

Control of error :

All the ribbons are of the shiny sides facing upwards.

● "How to tie the Bow"?

Presentation : (I.A. – I.P.)

Insert the right middle fingers under the right ribbon from the top near the frame and hold it with the right thumb. Lift the ribbon held with the right hand to a vertical position. See that the dull side is facing you. Place the left thumb against the middle of the vertical ribbon; on the dull sides and fold the ribbon over your left thumb making loop. Hold the loop at its base between right index; middle finger and thumb.

Then release the left thumb. With left index and thumb, hold the ribbon on the left flap; inserting the left index from the top about ¾ cms away from the knot. The remaining ribbon is held with the remaining left fingers. Bring the ribbon held with the left hand anticlockwise around the loop; insert the left thumb below the base of the loop; sliding it over the right middle fingers; seeing that it comes out towards the right. Draw the child's attention to the left thumb coming out wrapped in the ribbon. The left thumb is now resting on the right middle fingers. Release the right thumb and place it on the left thumb which is resting still wrapped in the ribbon. Release the left thumb. Hold the loop towards the right with the right thumb and middle fingers. With the right index and thumb hold the lower loop and with left index and thumb hold the upper loop and fighting the loops; make adjustment if necessary with both hands. The ends of the ribbons should be equal to the ends of the loops. Repeat the same movements for all the remaining ribbons.

Point of interest :

The left thumb coming out wrapped in the ribbon.

Control of error :

(1) The top loop and the loose end should be of the same colour as the left ribbon.
(2) The top-loop and loose ends are seeing on the shining sides.
(3) The other colour ribbon is seeing as vertical lines in the middle on its shiny sides.
(4) The lower loop is seeing on the dull sides.
(5) The lower loose ends are seeing on the shiny sides.
(6) The loose-end and loop should be equal in length.

● "How to untie a bows"

Presentation : (I.A. – I.P.)

Hold the right loose end with right index and thumb with the left index; hold down the left loose end. Pull the right end slowly towards the right; till the loops jumps out of the knot. Draw the child's attention to this. Open the bow and straighten the ribbon held with the right hand over the frame. With the same movements, pull the ribbon held with the left hand towards the left. With the same movements open all the bows.

Point of Interest :

The loop jumping out of the knot.

Control of error :

Ribbons are with shiny sides upwards.

● How to open the base knot?

Presentation : (I.A. – I.P.)

With the finger's nail facing downwards, insert the left index below the base knot. Move it gently to loose in the knot. With the right thumb and index pull the ribbon which is on top out bit by bit. Place he ribbons over he corresponding flaps. In the same manner open all the knots. Inspect to see that; all the knots are open and the ribbons are over the corresponding flap with dull sides upwards.

Open the flaps as usual.

Control of error :

All the ribbons are seeing on the dull sides over the corresponding flaps.

Paper 3B : Development of Sensorial Activities

Introduction of Sensorial Activities

The Sensorial activity is also a developmental activity like "Exercise of Practical life".

When we observe a person to perform this activity; the most outstanding activity, seems to be Sensorial; so it is call sensorial activity.

Voluntary movement; will; senses; emotion etc are all become active when the child performance the activities, al the senses are with him. It is also means of total development and also fulfil the needs of child for his development in a particular time of season.

The child needs to perform the sensorial activity during the same period when he needs 'Exercise of Practical life'. So both the activities are parallel.

In a 'House of Children' we start 'Exercise of Practical life' before sensorial activity because :

(i) 'Exercise of Practical life' actually prepare the child to be able to perform for sensorial activity.

(ii) Sensorial materials are not familiar to the child. These are available only in the "House of Children"; where as the tools of 'Exercise of Practical life' is very much familiar with the child. So 'Exercise of Practical life' helps the child to settle down in the environment and then we offer sensorial materials.

(iii) The presentation of Sensorial activities are almost individual. Before settle down the child are not in a position to take individual presentation. So we offer sensorial activity to the child, who are settle down and ready to get individual presentation.

(iv) The child is not aware of the needs of sensorial activity Sensorial activity don't have any outer attraction; as that the tools of E.P.L. has — The child may even reject them. That is why their interest, will and intelligence are stimulated through E.P.L before we start with Sensorial work.

(v) When a child does "Exercise of Practical life", he discovers the right way to do the work as he does it, and thereby works to perfect it. In Sensorial activity, the materials itself shows up the error, therefore the child gets an opportunity for corrections his mistakes.

Why is there only one set of material?

The reason is that there are so many activities in the environment, that there is no need for more than are set of material. E.P.L. helps the child to have a minimum control over his movement to do the Sensorial activity.

Our Senses :

Only human being needs education in our own senses. Which those senses are and what role they play in Human life?

There are so many senses;

(i) **Visual Sense :** This Sense organ located an eye. Size, colour, dimension shapes of things i.e. all physical property of matter observe by eye i.e. visual sense.

(ii) **Acoustic Sense :** This Sense located with ear to hear and stimulate 'sound' and their loudness.

(iii) **Gustatory Sense :** It is sense of test located with tongue. It helps the child to distinguish between sweet, bitter, salt & sour.

(iv) **Olfactory Sense :** This is sense of smell located in our nose.

(v) **Tactile Sense :** This is sense of touch. It can pursue rough & smooth of a surface in gradation.

(vi) **Baric Sense :** It is sense of weight.

(vii) **Kinesthetic Sense or Muscular Sense :** It is also located in our muscles. It registers movement carried out by various parts of our body.

(viii) **Stereo Gnostic Sense :** This Sense helps to recognise the dimension of a solid without looking but by touching.

(ix) **Thermic Sense or Sense of temperature :** We have two sets of sense organs — One set register the temperature which is below our body temperature, and another set register the temperature which is above our body temperature.

The Role of the Senses :

Every human works in his own environment. In this environment, it is his task to create a world of his own, which are call supper nature. Intelligence is the main instrument, a man uses for his work. Intelligence is needed to perform any conscious work. Men builds an experience gathered from the past to apply his intelligence according to the environment and nature of the work. Intelligence is a spiritual force, not a material one. It is not directly applied to the environment. There is data and information in the environment around us. The Senses gather that information. But we cannot utilise the information unless our intelligence uses it to arrive at a decision and apply it in the environment through the senses of the body.

At the age of 2½ years, a child needs to become a conscious master of the wealth, and until be becomes conscious of this wealth he cannot grow as a human being. Dr. Maria Montessori says this is second birth of human beings. At birth the physical men enters the world, but at 2½ years a physical man enters this world. At 2½ years a child needs our help to become conscious of his impression. Every visual impression will have to be analysed into its components and re-integrated consciously. He will have to become conscious of all the physical properties of matter which exists in this world.

We will have to help him to understand physical properties of matter by materialised abstraction, so that he can form an idea. When he becomes conscious of all the physical properties of matter he can classify of all the impressions he has gained and help him to develope a well ordered mind. He is also in a position to re-enter and re-explore the world consciously, intelligently, methodically and systematically with his abstract ideas.

All the developmental activities at this stage can be possible with proper tools.

The material which forms an abstract idea and helps to a child to know all the physical properties of matter are called sensorial material.

The Characteristics of Sensorial Material :

1. Material should be very attractive.
2. Sensorial material should be scientifically prepared with all precision and they are universal.
3. Sensorial Material should by physically proportionate to a child’s capacity.

4. As a rule, there should be only one set of Sensorial Material.
5. Sensorial material have to be displayed.
6. Maintaining the material is one of our duties and the material should be clean and intact.

Presentation using Sensorial Material are always given individually, Why?

1. All the children do not need the presentation at the same time.
2. Each movement is such a presentation is so precise, it is not possible to show it to more than one child at a time.
3. To help the child to understand the purpose of our activity, our physical movement are not enough, but our mental movements will have to be expressed also. On giving a presentation our face and hands should express our movements, but we should not speak.

Basic Activity Presented and Performed by Sensorial Material :

1. Pairing Activity :

We have sensorial material in pairs, where each property is found in duplicate.

(a) **Complementary Pairs :** Members that possess all the physical property which the other member also possesses, it makes complete set.

(b) **Identical Pair :** They are identical in every respect.

(c) **Partial Pair :** A part of one of object is similar to a part of another object. Pairing activity helps a child to form a consciousness of each of the physical properties and differences between them.

2. Gradation :

Gradation activities with sensorial material helps a child to realise that each physical property differs in degrees and intensities.

Grading follows pairing because pairing as an activity is easier than grading.

Direct Aim :

To help the child to become conscious of all matter, the physical aspect of matter, by means of his senses.

Indirect Aim :

1. Related to refinement of certain types of motor — co-ordination.
2. Preparing the child for the next phase of intellect-based activity.

Activity 1 ❑ Visual and Muscular Sense

"Cylinder Blocks"

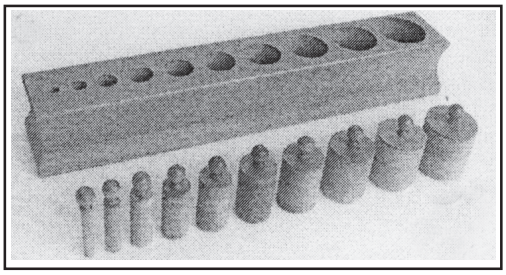
Material description :

There are four cylinder blocks which are highly polished and varnished of natural colour of wood. Each of them have 10 sockets. Over the middle of each cylinder there is a knob which is 1 cm high and it is as thick as like ordinary writing instrument. The body and the base of all cylinders and the inside of the sockets are polised no varnished.

Four series of cylinder blocks have their dimension mathematically graded and therefore four series of cylinder blocks materialise all the four ways in which objects can differ in dimension.

Cylinder Block of "A"

Diameter — 2.5 cm
Height — 1 cm to 5.5 cm.
They materialse one dimensional difference.
Name — "SHORT" & "TALL".



Cylinder Block of "B"

Diameter — 1 cm to 5.5 cm
Height — 5.5 cm
They materialse two dimensional difference.
Name — "THIN" & "THICK".

Cylinder Block of "C"

Diameter — 1 cm to 5.5 cm
Height — 1 cm to 5.5 cm
They materialse three dimensional difference.
Name — "SMALL" & "BIG".

Cylinder Block of "C_1"

Diameter — 1 cm to 5.5 cm
Height — 5.5 cm to 1 cm
They also materialse three dimensional difference.
Name — "THICK" & "SHORT" & "THIN & TALL"

Display :

The cylinder blocks are displayed on an open shelf. They are kept together and in a geometrical succession from left to right.

Presentation :

[We give presentation with 'B' block first. If for some reasons block 'B' is not available, then we present either C or C_1 block. We should avoid presentation with block 'A' at first.]

Take the child to the place where the material is kept and show the child how we carry it. The two sides of the block hold firmly in between the palms of two hands, the three fingers on one side of the block and thumb at the opposite side and the little finger at the bottom.

The block is placed at the place of presentation in such a manner that the thickest cylinder is an your right.

Ask the child to watch what you are doing.

Ask the child, "We have to take out all the cylinders from the block." Show the child how you hold the knob of the cylinder with your middle finger, index and thumb. Now slowly raise the cylinder vertically and bring it out of the socket, keep it behind the block. Take out all the cylinders in succession but keep them scattered. We first pick up thickest and lastly thinnest cylinder from the socket. Then ask the child "now watch how I put back the cylinder into the socket."

Adult pick-up any one cylinder and first observe the diameter of the cylinder and then diameter of the socket. Secondly, bring the cylinder to that socket which Adult think corresponds to the cylinder. Lastly the final verification should be done before putting he cylinder into the selected socket by one intentional movement. Do not release the cylinder before it reaches the bottom. Repeat the same activity with others cylinders. When putting the cylinder into the socket, do not make any noise.

Control of error : Lies in the material

Direct Aim :

To help the child become conscious of the three linear dimension (i.e. length, breath & height), their variations and combinations by means of visual sense.

Indirect Aim :

To help the child acquire prehensile co-ordination involved in holding a writing instrument with necessary and sufficient fingers and thus to help him prepare himself indirectly in writing or other graphic arts.

Age of presentation : 2½ years of old.

Possibilities :

One block at a time — A or B or C or C_1 = 4 possibilities.
Two blocks at a time — A+B, A+C, A+C_1, B+C, B+C_1, C+C_1 = 6 possibilities.
Three blocks at a time — A+B+C, A+B+C_1, A+C+C_1, B+C+C_1 = 4 possibilities.
Four blocks at a time — A+B+C+C_1 = 1 possibility.
i.e. 15 possibilities.

Exercises

Reverse Pairing :

1. Activity at random using an indicator :

Ask the child to bring the block at the place of presentation and take out all the cylinders and keep it scattered way behind the blocks. Then Adult takes an indicator and put it in one of the employ socket and tell the child, "Let us try to find out the cylinder which fits exactly in the socket."

Continue the activity as long as the child needs to do so.

In a presentation we find out Socket for the cylinder, but here we finding cylinder for their corresponding socket. So this is reverse pairing.

2. Activity in Succession :

The same activity can be done by indicating the sockets in succession with the index finger. Finding cylinders for the sockets in succession leads him to the grading activity — but without being aware of the fact.

Grading Activity

Grading activity can be done in two ways :

(a) **With the block nearby.**

(b) **Without the block.**

(a) Invite the child and ask him to bring the cylinder block and take out all the cylinders and scatter them on the working mat.

After scattering then keep the block close by and ask the child to find out the thickest cylinder, then next thickest cylinder and so on; arranging all the cylinders in succession (according to their gradation) on the mat, then keep the empty block in front of the cylinder and put back the cylinders into their sockets, for control of error.

(b) Some activity like (a) but here hide the empty block from the child ask him to arrange the cylinders from thickest to thinnest.

After arranging them, bring the block and check it for control of error.

Memory Activity :

M_1 : Invite the child and ask him to bring the block and keep the cylinders together at a distance, so that child cannot see them. Keep the block at the place of presentation. Indicate a particular socket with an indicator and ask the child to bring the corresponding cylinder. Though he cannot see the cylinder visually he can, by using his memory, bring the corresponding for the particular socket.

This activity can be extended by asking the child to bring the cylinders one by one according to their successive gradation, corresponding to the sockets in the block.

M_2: Invite the child and ask him to bring the block and keep it between both of you. Then ask him to take out the cylinders and keep them in ten different places in the environment.

Keep the block at the place of presentation. Now indicate a particular socket and ask the child to bring the corresponding cylinder.

This activity can also be done in successive gradation as in M-1.

Check your Progress :

Q.1. ***How many Blocks in Cylinder Blocks? Which one we offer first in a 'House of Children'.***

Ans. There are four Blocks in Cylinder blocks.
In a 'House of Children' we offer first 'B' block.

Q.2. ***How many possibilities are there in cylinder blocks?***

Ans. There are 15 possibilities in cylinder blocks.

Q.3. ***In a 'House of Children' why we avoid 'A' block for presentation?***

Ans. In 'A' block — the diameter of the cylinder are same, only differ in height. If a child make any mistake at the presentation time, he cannot rectify it by yourself, he need's other's help. So, in a 'House of Children' we never present 'A' block first.

Pink Tower

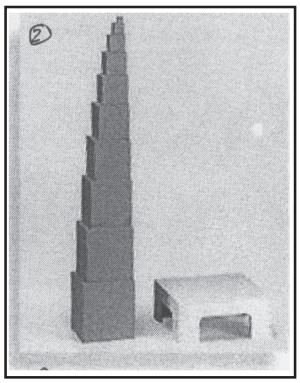
Material description :

It consists of 10 wooden cubes pink in colour. The cubes are graded uniformly with the smallest being a 1 cm cube and the largest is 10 cm cube, where each cubes have six square faces.

It is display on a stool of 20 cm height and the surface should be 14×14 cm.

A thin long strip of wood, 10 cm long is fixed parallel to the one side of the surface and 2 cm away from the sides of the surface.

Presentation :



Take the child to the place where the pink tower is displayed and show him how to carry the cubes to the working mat.

Hold the cube such a manner that the thickness comes in between the thumb and the fingers of the right hand. The thumb will be placed that square phase which is nearer to you and other fingers opposite of that square phase where the thumb place.

By holding in this manner we will know the differences of the cube's thickness not only with our eyes but also with our muscular senses and it also helps us to refine his prehensile movements.

Muscular preparation is done before holding a thing. This movement which he prepared for hand before holding a thing which is called "Prehensile Movement". Bring the cubes are at a time and keep it scattered on the mat in front of the child, so that all the cubes are visible and within his reach. Clear some space for "Building up" the cubes.

Find the largest cube and place it in the middle. Then try and find the next largest one amongst the remaining cubes and having found it, draw the child's attention to the way you try to place the cube on top of the first are in one intentional movement. Repeat the same movement till the whole tower is complete. When the child continues to repeat this activity, see that he does it with one intentional movement. After the tower has been built, inspect the tower from the base to the top. Let the child see that you are inspecting the regularity of placement of each cube.

Control of error : Lies in the child's visual sense

Direct Aim :

To help the child become conscious of the three linear dimensions; their variations and combinations, by means of his visual sense.

Indirect Aim :

(1) To help the child refine his prehensile movement.

(2) To help the child acquire greater control over his intentional movements.

Age : 2½ years to 3 years of age.

Exercises

Ex. 1. : Invite the child and ask him to bring the cubes and make a tower. Then asks the child to close his eyes, and take out any cube and place it beside the tower. Now ask the child to find out from where the cube has been removed, by saying, "From where have I taken this cube?"

Ex. 2. : Ask the child to close his eyes and take out any cube and hide it. Then tell the child to open his eyes and ask him, "From where is the cube missing?" The child find out the proper place for the missing cube and then he can put back the cube at its proper place.

M_2 : M_2 can be done with all graded materials.

In Pink-tower, M_2 exercise is possible like cylinder block. Ask the child to keep the cubes in 10 different places in the environment and their ask him to build up the tower.

Foot Note :

Name-Lesson is possible with this material :

(1) Ordinary Name-Lesson — "Small and Big".

(2) Name of Degree in Comparison — "Small and Smaller" or Big & Bigger.

(3) Name of Superlative Degree — "Small, Smaller, Smallest" or "Big; Bigger; Biggest"

Check your Progress :

Q.1. How many cubes in 'Pink Tower'?

Ans. There are ten cubes in 'Pink Tower'.

Q.2. What type of activity we do with Pink Tower?

Ans. Grading activity.

Q.3. Why M_1 is not possible here but M_2 is possible?

Ans. For M_1, memory is not work here because all the cubes are kept in the same place.

But M_2 is possible in pink tower because it is graded material and ten cubes are kept in ten different places. So for making a tower memory will be work, to bringing the cubes.

Brown Stairs

Material description : Brown stairs consists of 10 square prismatic blocks of word, Brown in colours. All these prisms share are of their dimension is common which is 20 cm. Other dimension go from starting 1cm in the thinest & 10 cm the thickest. Other dimension go an increasing by 1 cm.

Special stool is required to display the brown stairs.

This is 30 cm high. Length & breath i.e. 24cm × 59 cm. Area of the surface of the stool is 24×59 sq. cm. Over the surface of the stool, 2 very narrow wooden strips 20cm

long each making right angles one to the other and at the distance of 2 cm away from the 2 edges of the stool. The colour of the stool should be any colour which goes well with the brown-colour.

Characteristic of the material : (1) They are grading material. (2) They are according to mathematical succession. The volume of the stairs are 1×1×20 Ca. Cm. 2×2×29 Cm Cm etc. 10×10×20 Ca-Cm i.e. 1^2, 2^2, 2^2.... 10^2.

They differ only in two dimension i.e. height & breath ; because one dimension common. It is just like cylinder block d. Here the difference of 2 dimensions is more stand out or more easily noticable.

Presentation : (IA—IP) : The activity will be done on working mat because theire is planty of space for scattered the stairs and arranges them.

Adult ask the child, "Are you like to show Brown stair ? Come."

If the child agree, adult bring child to that place where the Brown-Stairs display.

The stairs are hold one at a time and use one hand. It hold at middle. When we separate from the other, we first move the lowest stair forward with two hands, hold at the two sides of the stair and then hold the stair at middle. Hold the stair between thumb and four fingers. By thus child grow its muscular sense, by the thickness of the stair. Child can understand the thickness by the distance of the thumb & fingers. His muscular sense also give a chance to appriciate the thickness of the different prism.

They should taken the Prism one at a time and scattered them on the working mat.

Here put the prisms not only scattered but also scattered in different— direction.

So that they are within the reach of the child's eye and hand. No one side the other.

Then we clear same space for construction from right top to left base of the working-mat. Here I clear the space along the diagonal on the working mat of the adult's and child for clear of construction.

Then I start to compair the square faces of the Prisms. After finding the thickest prism and put it diagonally. Find out the rest one and put it as near as possible to the first one and use both hands at two sides to inspect the square faces are at the same line i.e. the sides are coincide. So that the child can understand the difference of dimensions, because here the lengths of the stairs are common. Now compair the thickest of square faces of the prisms which is put on the next are.

Here constructed the stair from thickest to thinest.

When we present the activity to the child, we build the stair obliquely.

Point of Interest : (1) While building the stairs, to make sure the breaths of the prisms are coincide perfectly.

(2) No space there in between the prisms, while building the stairs.

Conrol of error : Lies inthe child's visual sense ; Consists on the examining of the regularity of the prisms.

Direct Aim : To help the child become consicous of the three linear dimensions, their variations and combinations by means of visual sense.

Indirect Aim : To help the child further refine his prehensild movements.

Age : When child 21/2 years to 3 years. After the child have planty of experience of working with Pink-Tower.

Exercise : Same as Pink-towers.

Activity 2 ❑ Visual Sense

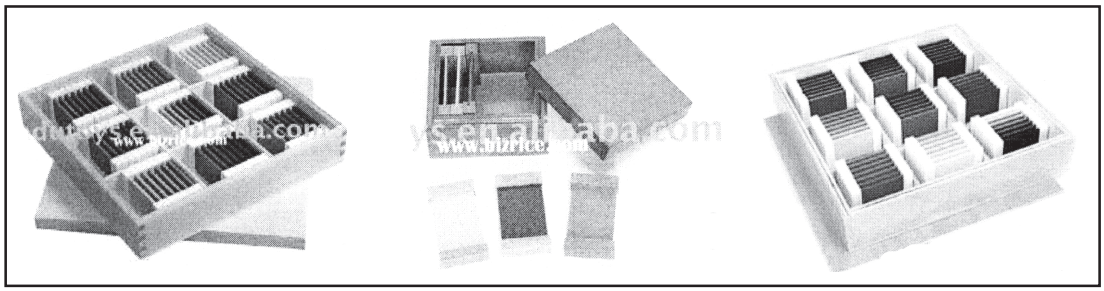
"Colour Tablets"

Material Description :

They are rectangular wooden tablets coloured all over both the edges and surfaces. Two shorter sides are fixed with good wooden strips with natural wood colour. These two strips help us to handle the tablets without touching the colour and these strips serve as protectors of colours.

There are three boxes of colour tablets.

1st Box : In the 1st box, we have tablets in RED, YELLOW and BLUE colour tablets, each in pair. They are primary colour.



2nd Box : In this box there are three primary colours i.e. Red, Yellow and Blue, and three secondary colours i.e. Green Organge and Violet, three tertiary colours i.e. Brown, Gray and Pink and also white and Black. So there are eleven colour tablets each in pairs.

3rd Box : There are nine compartments and have nine colours graded according to their intensities.

1st row — Grades of primary colours.

2nd row — Grades of secondary colours.

3rd row — Grades of tertiary colours.

There are seven tables of each colour.

Presentation (I.A. – I.P.) :

With 1st Box

Invite the child and bring the box at the place of presentation and keep the box a the right side of adult. Ask the child to watch. Take out one colour tablet and hold the colour tablet within two frames, so that colour portion remain untouched. Draw the child's attention to it. Show him another tablet of second colour. Then third one also would be the same colour of the second one. Then show him the tablet of third colour. Then keep the box in front

of the child and take out last two tablets one at a time. If the child wants to take over encourage him. (Presentation should be in this manner — A, B, B, C, A, C or C, A)

After giving all the tablets ask the child to watch. Compare the tablets (their colour) and keep same colour tablets one beside the other making a pair keep different colour tablets one below the other.

Also show the child how to put back tablets in the box without any noise and without touching the colour.

Control of error : Lies in the child's visual sense

Direct Aim :

To help the child grow in consciousness with regard to colours and also help him to realise that the number of colours are limited where unlimited number of shdes and intensities by means of his visual sense.

Indirect Aim :

To help the child prepare himself for intelligent and asthetic appreciation and application of colours and also for symbolic purpose.

Presentation of 2nd Box

The presentation of this box is an extension of 1st box. Here the colours are more in number. We first give some suggestions to the child if it is needed. Scatter the tablets on the chowki on mat.

1. Make a vertical line with one set of tablets and scatter the other set and then make a pair.
2. Scatter all tablets and make pair.

   2nd box we use for name-lesson and then bring whole box.

Presentation with 3rd Box

After the child knows the name of the colours from the 2nd box then we present 3rd box. Ask the child choose any one colour and the take out all the 7 shades of that colours on a tray.

Take the 4th one of the colour tablet and show it to the child and ask him, "What colour is this?" Then take the first one and ask the child though it is same colour but it is lighter than the previous one. Then take the 7th one and ask the child this is also the same colour but darker than the 4th one.

Ask him, we put the colour from left to right according to their darkness, i.e. dark to light.

Exercises of colour tablets

M_1 and M_2 activity is possible here like cylinder blocks.

Exercise with 3rd box :

(a) After arranging the 7 graded tablets and ask the child "close your eyes". Then adult pick up one of the tablet and putting the tablet in front of the child and ask him "open our eyes and from where the tablet coming from?"

Then child picks up the tablet and compares the tablet with the tablets and find out the exact place and puts the tablet there.

(b) Ask the child, "close our eyes", then pick up any one tablet and hide it. Then ask the child, "open your eyes and find out from where the tablet is missing?"

The child looks at the gradation of colour tablets and points out the place.

Check your Progress :

Q.1. How many box in colour tablet box?

Ans. There are three boxes in the colour tablet.

Q.2. How many colour in the 1st box? What they are?

Ans. In the 1st, there are three colours and they are Red, Yellow and Blue.

Q.3. In the 1st box, why there are Red, Yellow and Blue colour?

Ans. Because they are three basic colours.

Q.4. Why in the 2nd box have 11 colours?

Ans. By the help of 2nd box, child will learn 11 names of colour by name-lesson and these 11 colours are Primary, Secondary and Tartiary colours.

Q.5. Why we offer 3rd box?

Ans. It helps the child about the different shades of colours in gradation.

Activity 3 ❑ Tactile Sense

Finger Tips Bathing Activity

Material Description :

For the bathing finger tips, there have a largest tray, the floor of it is covered with oil-cloth and at the middle of tray there is a nice finger bowl with a indication mark at 3rd height. At the right side of this bowl, there is a Jug, blue in colour, with an indication mark. Just below the spout of the Jug and it will filled with cold water. There is another Jug pink in colour containing hot water and covered with lid and keep it behind the cold water. At the left base of the tray, we have a Turkish towel and at the left top corner have a piece of cotton. It is use if any water drop fell, then wipe.

Presentation :

This activity we done only when we needs to trace any material, e.g. TOUCH BOARD.

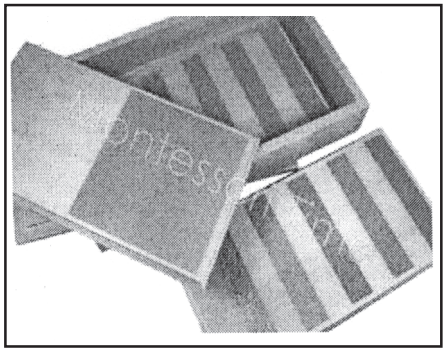
This activity will be done on a chowki. Invite the child and bring the materials bathing finger tips and keep it on a chowki. Ask him to unfold the napkin and keep it on left top corner of the tray. Now tell the child "you can see the indication mark in this thin bowl. Now pore cold water in it up to this indication mark".

Then ask him to pour some hot water into the same bowl and tell him to feel whether the water has become a little warm.

When he feels the water has become warm enough, then tell him to bathe the finger tips of his right hand in this water. After bathing his finger tips, ask him to rub until his fingers being to tingle. Now ask him to throw the water of the bowl and put back the tray at its place.

Touch Boards

Material Description :



It is a fixed part of the tactile material.

There are four touch boards. All the four boards have same dimension and same height, same weight. The four sides are slighting, so it is easy to hold.

1st Box : The first touch board — The surface of the board presents two types of textures. The left area of the surface present rough surface and other half smooth surface.

The second board : In the same box below this board we have a second touch board. In the second board, here we have five rough surfaces and five smooth surfaces alternatively. The left most is the rough surface and the right most is the smooth surface.

2nd Box : The third touch board is in this box and here one have five surfaces of graded roughness. The left most area is very rough. Thus the roughness ranges from rough to least rough.

In the same box below of this board, we have the fourth touch board which we have five surfaces of graded smoothness. It ranges from smooth to least smooth.

Presentation with 1st Touch board

Before this presentation, child must do finger tips bathing activity. Then ask the child to bring the touch board and show him how to hold the board, by placing the fingers of both hands below the board and the thumbs at the middle of the inclined edges without touching the surface. Keep it on the chowki and place the rough surface on your left. Hold the left base corner angle of the board. With the thumb and index finger making a 'L' type of shape so that it cannot move. Now show him how to trace the surface. When trace the surface, the hand is flat, fingers are together and thumb kept apart. The right elbow should be unsupported for it will make the movements easier. When tracing the rough surface pronounce the word, "ROUGH". After tracing the rough surface then trace smooth surface and pronounce the word "SMOOTH".

Let the child do the activity and tell him to trace the surface very lightly. Then suggest the child to close his eyes and trace and feel Rough and Smooth.

Presentation of 2nd Touch Board

Here we use only two finger tips for tracing the surfaces. First child do this activity with eye's open. Child touches two finger tips on the top of the rough surface and trace below and then touch top of the smooth surface and trace below. Child does it rapidly at the end of the board. Then offer the child to do it with eyes close.

After the use of 2nd touch board, child can use either 3rd or 4th touch board.

Presentation with 3rd Touch Board

Here we have one type of surface (i.e. rough) but in 5 degrees. We place the board on the chowki from roughness to more roughness. Child can understand the gradually differences of roughness successively. Here the distance of the 5 degrees are not same as 2nd board; but child can control his muscular movement here. Child can manage the greater space. At first child do the activity with open eyes and later ask the child to do the activity with close eyes.

If the child make mistake motor distance and tactile sense control. If the child make tactile mistake, muscular sense control. If the movement are not regular then tactile sense help him to control. So, one control for other's mistake.

Control of error

No need for First Board. Second board lies in child's tactile movement. In the 3rd and 4th board tactile in perfection control by muscular and motor control by tactile sense.

Direct Aim :

To help the child to become conscious of roughness and smoothness and their various degrees by means of his tactile sense.

Indirect Aim :

To help the child to prepare himself indirectly for writing, drawing etc. by—

(1) acquiring lightness of touch.

(2) and also by acquiring the capacity to move his writing fingers in a control manner both in vertical direction as well as horizontal direction (left to right).

Age : Round about 3 years on as early as possible.

Check your Progress :

Q.1. Why we needs finger-tips bathing activity before presentation of any tactile material?

Ans. (a) After bathing finger tips, it will be more sensitive and finger tips will be clean.

(b) Develop his concentration power.

(c) Stimulate the child for the next activity.

Q.2. What is the Direct and Indirect aim of the Tactile materials?

Ans. See Direct and Indirect Aim.

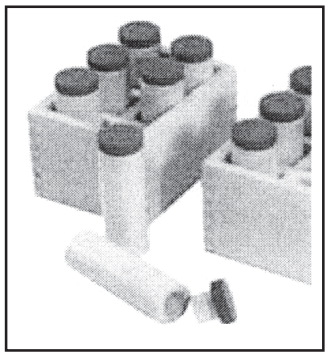
Activity 4 ❑ Acoustic Sense

Noise Boxes

Material Description :

There are two containers. In each of he containers there are six cylindrical wooden boxes. Their bodies are in the natural colour of wood, highly polised.

The tops and base of the boxes of one container are in blue and the boxes of other container are in red. The six boxes when shakened produce noises which are graded according to their pitch. Boxes of one container make pairs with boxes of other containers. We hold the boxes within our one hand to their breadth and when shake our wrist should loose.



Presentation :

The activity should be presented on working mat or chowki. Bring the boxes and keep them on the right hand side of the adult.

Take out the longest box and keep it in front of you and child. Draw the child's attention by saying, "Look how I hold it; when you hold it in the middle of the long part with your fingers on one side, and the thumb on the other side. But remember never hold it on top and bottom of the box.

Then shake the box with vertical movement and use only wrist and tell the child, "Look how I shake it?" Shake the box near your ear and hear the sound with intentness. Show the second box (softest sound). Ask him to hear the sound by himself. Again show the 3rd box (softest) and then show him 4th box (hardest) from the same container.

(Follow the method — A, B, B, A and in case of 3 pairs, A, B, B, C, A, C and C, A)

Again ask the child to watch. Keep the Blue and Red boxes in two places. Take one box from your right side. Shake one box & hear the sound and keep it. Take one box from your left, shake and hear the sound. If the sound of two boxes are same, keep them together. Again shake others and if the sounds are same, keep them together. Ask the child to hear the sounds shaking the boxes all by himself and also ask him to hear with other ear.

Continue the activity till the child takes over. Finally check up for the control of error.

Grading Activity with Noise Boxes

Presentation :

Ask the child to bring any one container. Ask him to take out all the boxes and keep them all mix-up.

Ask him to watch. Listen to one box and keep it. Listen to another box. Listen to the first box again. If it is louder, keep it at the left side of the first box. If it is softer then the first box keep it at right. Take another box and listen it. Listen to the first. Again listen to the third box. If the first one is louder than the third one, make a place between first and second. Listen the second. If the third one is softer then keep the second one in the vacant place and keep the third one in second place. Then listen another one and again listen previous boxes. Keep the box in its proper place. Do the same with other boxes and ask the child to hear the sound of the boxes one by one.

Ask the child to perform the activity again. After completing the activity ask him to listen the noise of each box separately for his control of error.

Control of error

As far as pairing activity is concerned it lies in the child's acoustic sense helped by his visual sense.

As far as grading activity is concerned it lies entirely an acoustic sense.

Direct Aim :

To help the child to become conscious of noises and the degrees of softness and loudness of noises.

Indirect Aim :

To help the child prepare himself indirectly for writing in two ways, by refining his wrist movements and by making him conscious of the sound of his spoken language, which is an indispensable preparation for writing.

To help the child overcome the unreasonable fears of noise and sounds, by making then interested in sound and noise and by investigating their meaning, direction source and distance.

Exercise

Name-Lesson is possible by this noise boxes.
Names are — "LOUD" AND "SOFT".

Check your Progress :

Q.1. Why we move our wrist vertically in Noise-box?
Ans. Indirectly it helps the child for writing by refining his wrist movement.

Q.2. Why we give loud by first?
Ans. Child is more acoustics with larger sound.

Activity 5 ❑ Muscular Sense

"Long-Stair"

Material Description :

There also consists of Ten prismatic wooden rods, red in colour. The height of each rod is 2.5 cms. They all materialise in one dimension and the length of the rods go on increasing gradually by 10 cm. Starting from 10 cm to the smallest to 100 cm the largest.

It materialise the natural number of mathematical succession i.e. 1, 2, 3 …… 10.

Display :

A special stool wants to display the material. The height of the stool is 30 cm. The area of the surface of the stool is 104 cm × 29 cm. Two low thin stripes of wood, each 25 cm, making a right angle are should be fixed at the left side of the stool 2 cm away from third edge.

Presentation :

Invite the child and show the child these rods brought to the working mat.

Shortest one we take first. So that the square faces of the rod is between the two hands and at least 3 fingers on the square faces and thumb and little finger supporting it. Bring the rods one at a time kept in different directions and all mixed-up.

Now we clean the left top of the mat. We first search the tallest one and put it on the left top corner. Then the 2nd one which put in front of 1st one and make sure that the left square face is the same line (i.e. use our left hand palm for arrange same line of the edge). In this manner we continue till the stairs are build.

Control of error : Lies in the child visual sense

Direct Aim :

To help the child become conscious of the three linear dimensions, their variations, and combinations by means of visual sense.

Indirect aim :

(1) To help the child acquire co-ordination over the large movements of his own body.

(2) To help the child prepare for arithmetic by forming his sensorial base in appreciating natural succession of numbers.

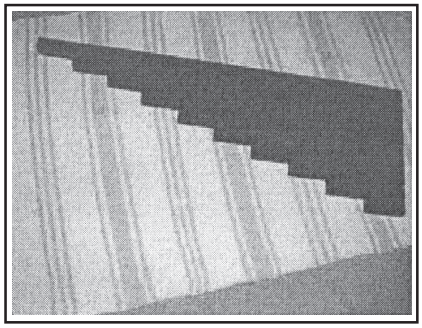
(3) Helps the child have a sensorial experience (visual and muscular) of the meter and its regular sub-division.

Age : 2½ to 3 years of age.
Exercise : In long-stairs — two exercise are possible like pink-tower.

Special Exercise with Long-Stairs

Ex. 1. : Bring the rods and arrange them in succession on the mat. Then put the big rod at the top of the mat and then put the 2nd largest rod near the previous one. Then child see a gap and search the rod which will fill-up the gap.

In this way child will do the activity.



Ex. 2. : Keep the longest on top of the mat and keep any one rod below the longest rod and make a gap. Child will search the proper rod which will fill up the gap.

In case of 5 no. rod, there is no other rod like 5. So this rod take double for fill-up the gap.

Ex. 3. :

(a) Invite the child and bring all the rods and keep it succession on the mat.

Isolate any one rod and then put any one next to it and fill up the gap. [Every time gap has been fill; put all the rods back to the circulation and continue].

(b) Same as (a) but here keep the rods in scattered.

With Long Stairs 'Name-lessons' are possible here.

Names are —

(1) Short and Long

(2) Short-Shorter, Long-Longer.

(3) Short-Sorter-Shortest

Long-Longer-Longest.

Check your Progress

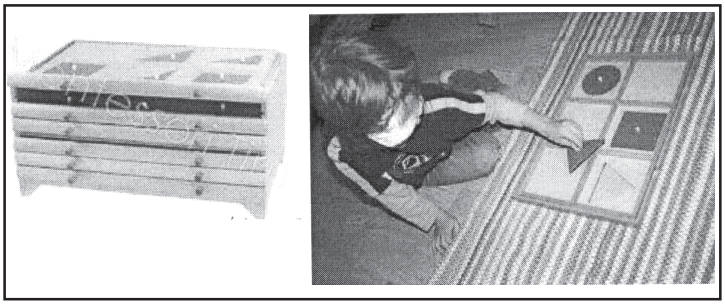
Q.1.

Ans.

Geometrical Cabinet with Geometrical Tray

Material Description :

In a geometrical cabinet, there are six drawers with two knobs in each drawers. In the drawers there are geometrical inset. These insets are light blue in colour and cut out of square plaques of wood. The plaques in which these figures are fixed. The measurement of the plaques are 14 cm × 14 cm and yellow in colour. In middle of each of these figures have a knob, identical like knob of cylinder bocks. Floor of the drawer is also of the same blue colour as those of the figure.



Content of these drawers :

1st drawer : In the top most drawer we have a series of triangles (according to the sides and angles) :

(1) Equilateral triangle; (2) Isosceles triangle; (3) Scalene triangle; (4) Right angled triangle; (5) Acute angled triangle; (6) Obtuse angled triangle.

2nd drawer : In the 2nd drawer here we have a series of rectangular quadrilateral. One of the pairs of these retangles is 10 cm and other goes decreasing from 10 cm to 5 cm.

3rd drawer : There are series of polygons. All the polygons are inscribed on 10 cm circle. The base of the polygons are parallel to the base of the frame. The polygons are pentagon, hexagon, heptagon, octagon, nonagon and decagon.

4th drawer : Here we have series of six circles, whose diameter ranges from 5 cm to 10 cm.

5th drawer : Here we have four figures. These four figures are fixed in these manner; one side with Trapezium and Trapezoid and other side with Rhombus and Parallelogram and the space between the figures filled with either plaques or wood.

6th drawer : Here we have four regular curvilinear figures.

One side with “Ellipse” & “Oval” and other side with “Curvilinear triangle” & “Rosette”. The space between the figures filled with either plaques or wood.

In addition with the cabinet, we also have a tray, which we call “Presentation Tray”.

Tray : This is a wooden tray whose dimension corresponds to flat of the drawers. In this tray we have three basic figures in the form of insets. The sides of the square; and triangles and the diameter of circles are all 10 cm. On the top of the board, there is a triangle

between two entire plaque of wood. Below the row, is an entire plaque of wood between the square and circle.

There is a wooden framework attached to the back of tray by hinges. When closed by means of hooks and eye arrangement it keeps the frame immobile. This is the tray we are going to use for Presentation.

Presentation :

Presentation can be given on a mat or chowkie.

Invite the child and ask, "would you like to see same activity with geometrical cabinet"?

Then bring the presentation tray at the place of presentation.

Now say the child, "Pick up the figures from the board. The figures are hold like cylinder block and keep it on the mat as a scattered. Child does this. Now adult pick-up any figure (here circle) with left hand and say the child, "Watch, what I am doing".

Then adult look the figure and put the index and middle finger's tip of the right hand below the figure, and then tracing the figure as light as possible and say the child, "Watch". He stops the tracing where he start and tracing the figure at clockwise direction.

Then adult invite the child to do the same. Child take the figure and trace the figure like adult. After tracing, child kept the figure on the mat. Then adult pick-up the figure and say the child, "Watch, in the board, which gap is fit for this figure." Child search the board and indicate the gap which is fit for that figure.

Adult says, "Are you sure, it is for that? Please trace it feel that it is same as before figure." Then adult show the child, how to trace the gap of the frame. Adult put same finger's tip as the top of the figure of the frame and tracing anti-clockwise direction and stop where he start. Child do the same. Then child put back the figure on the gap of the frame. Then take another figure and do the same.

Here we use not only our visual sense but also our muscular sense. The muscular sense helps the child to understand the movement of the pattern.

Foot Note :

(1) The child must be free to presented in the presentation tray; then child can free to do the activity with any one of the drawer.

(2) He also free to use more than one drawer at a time.

Control of error

As far as tracing is concerned it lies in tactile sense.

As far as the activity is concerned it lies in the material.

Direct Aim :

To help the child become conscious of the fundamental geometrical shapes by means of his visual sense and also muscular sense and then conscious of shapes in general.

Indirect Aim :

(1) To help the child to prepare himself for systemic study of plane geometry.

(2) To help the child to prepare himself indirectly for writing and reading by further prehensile co-ordination of three writing fingers involved in holding a writing instrument.

(3) His writing fingers acquire lightness of touch through practicing.

(4) To help the child to acquire the motor capacity to trace and therefore be able to reproduce the well defined shapes of letters.

(5) Also helps the child to develop muscular memory for shapes and visual memory for reading.

Round about 3 years of age.

Check your Progress

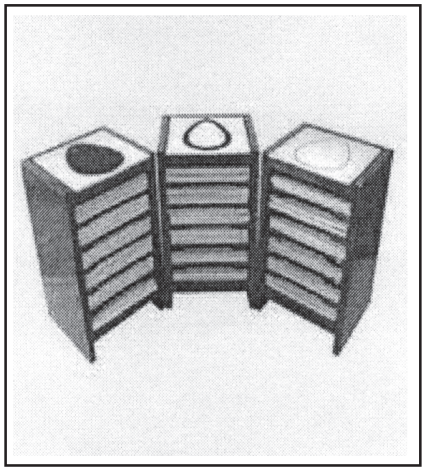
Q.1. Why do we present the presentation tray not the other tray in the geometric-cabinet?

Ans. In Presentation tray there are three basic figures.

Geometrical Cards

Material Description :

There are three sets of cards. These cards are square in shape and 14cm × 14cm measurement. These cards reproduce all the figures fund in geometrical insets and also all the figures found in the Geometrical Cabinet. The colour of the cards same as the colour for the Geometrical Insets i.e. Blue.



1st set : The 1st set of cards show the entire area of those figures with blue colour.

2nd set : The 2nd set of cards reproduce those figures as bounded by 1 cm wide outline.

3rd set : In the 3rd set of cards we found the imprints of same figures but as bounded by outline which is 1 mm narrow wide outline.

In each of the sets there are 6 groups of cards corresponds to found the Geometrical Insets.

So the 6 groups of cards are found in different compartment in the boxes which we have Geometric cards. The figures of geometry are drawing in the side of the geometrical cabinet, by seeing this drawing child can understand that which figures are in which compartment.

There are 3 boxes; which contain 6 cabinets.

Presentation : (I.A. – I.P.)

Invite the child to choose any one group of cards from the 1st set and invite the child to put them nicely on the working mat such that there are no space between the cards. Now ask the child, "To see this figure, bring the Geometrical Inset's drawer where the figures are." Then child take out all the figures from the drawer and he put back the empty drawer. Then adult says, "watch, what I am doing?"

Then adult takes any figure and compare with the card's figure. When he reaches the conclusion regarding the identity of the figure and then keep the figure on the card with one intentional movement. Thus it is the pairing activity of the cards and the figure. Then take other figure and do the same.

Here if child makes any mistake then he understand the own mistake and correct it by himself.

In the same manner child does the activity with 2nd and 3rd set of cards.

Control of error : Lies in the child's visual sense and help in the material.

Direct Aim :

To help the child associate the three dimensional representation of geometrical figures (Geometrical Inset) with the two dimensional representation (Geometrical Cards) for all practical purpose and thus move towards farming concepts of figures as areas bounded by lines.

Indirect Aim :

(1) To help the child to prepare himself for systemic study of geometry.

(2) To help the child prepare himself indirectly for reading by further developing for visual memory for shapes.

Age : Round about 3 years of age, after plenty of experience of geometrical insets.

Check your Progress :

Q.1. What is direct and indirect aim of Geometrical cards.

Ans. See Direct and Indirect aim.

Constructive Triangle

Material description : There are four boxes of constructive triangle.

First Box : It is a rectangular in shape. In this box are find— one pair of equilaterial triangle, each of these have a narrow black line along are of its side and the colour of the triangle are yellow. **Two pairs of right angled isoceles triangles ; one pair green** having a black line on the hypolenus & **one pair yellow** having black line one of its shorter side.

Three pairs of right angled. Scaleu triangles ; **one pair** yellow in colour having black line along the shortest side. **One pair** gray having black line along the hypotenus.

One pair green having black live along the longer Cathetur, **One obture angled scalene triangle red in colour** & having black line along its longest side.

One right angled scalene triangle (shorter than the farmer) **red** is colour having black line along the longer side which is equal to the longest side of the obture angled scalene triangle. There triangles are found arranged in an orderly manner but they should not kept in that manner they assumed after performing the activly correctly.

In the same box on the lid there are **all blue triangles without any black lines** along their sides.

There are **one pair** of each triangles. **One pair equilateral triangles ;** One pair right angled isosceles triangles ; and one pair right angled sclene triangles. There are also **one obture angled** scalene triangle and **one right** angled **Scalene** triangle **similar to the red triangles.**

Over the floor of the lid (reverse side) the different figures are printed which can be constructed with the triangles.

Along the shorter (outside) side of the box, a green dot and on the reverse side of the triangles there are the same green dot keep for the indication mark.

Second Box : It is an equilaterial triangle in shape. In this box there have **one large gray equilatural triangle** without any black line. **Two identical** green right angled scalene triangle each having a black line along is longer cathetur.

Three yellow obtuse angled isosceles triangles each having black lines along the two equal sides.

We have **four small red equilateral triangles.** Here black lines of three of them for one side and one of them black lines in all sides for perimeter. (These four form equilateral triangle divided into quators by medials).

The shape of the 2nd Box is triangle. So it is triangular box.

If the fraction of a figure triangle ; which have been cut in minimum number figures ; we get again triangles.

There is a yellow **dot** in the wall of the 2nd box and yellow dot in the reverse side of the triangles of this box.

Third Box : There are 10 obtuse angled isosceles triangles; a third of large triangle in the 2nd box.

Two of them are red in colour with black lines along their largest side (which form rhombus).

Two of them are gray in colour with black lines along are of their equal sides. (We can form a parallebgram with joining the black lines and can also form reflex angle quadrilateral).

There are rest are yellow colour obtuse angled isosceles triangle. Three of them have black lines along their all the sides and rest three have black lines along their longest side.

Here we also have one large equilateral triangle— yellow in colour ; identical of the gray triangle in the 2nd box.

(This big equilateral triangle is half of a hexagon.)

On the reverse of each of the triangles in this box have a red dot & the same dot have also an the wall of the 3rd box.

The Fourth Box : Here we have fourth box. We callit quarter of fourth's. Here we have small eleven equilateral triangles.

(a) Two of them are red in colour. Each triangles have black live one of the sides. These triangles form Rhombus.

(b) Three of them are green in colour. Black lines are two sides of are triangle and two of them black lines have are side.

(c) Six triangles are there gray in colour. Each of them have black lines twoof its sides and they make a hexagen. This made by six quaters.

In the same box, we have six red obtuse angled isosceles triangle ; even there are quaters though they similar but they are not equivalent.

So here nice scope for the child to discover the all point of view ; the phenomenon.

See ; this black line here and another also. Then join the black line with opposite direction & say, "Look" then child said that "It is a square."

1st easier phenomenon to discover the *Identical* in respect of all senses.

2nd easy phenomenon to discover the similarly.

3rd easy phenomenon to discover the equivallent.

Here also we have are entire yellow equilateral triangle in 4th box. No black line on it.

Blue dot have at the reverse of the all triangles & also on the wall of the box.

The dots help the child to know to which box it belongs and with the figure of different box be can make various discoveries.

Presentation with the 1st Box

(I.A.—I.P.) : The child who have a plenty of experience with geometrical Insets and started knowing the names of the figures then we present there constructive triangles. The child also know the names of quadrilaterals & hexagon. The child must be aware of the triangles and conscious of the triangle and discover that the triangle is the various constructor then he comes in conclusion by this triangle.

The activity should be performed on the working mat one at a time & keep them all mixed-up.

Tell him to hold the traingles along the sides and corners with his two hands. Ask him to take any one triangle (except Red). Then ask him to find out the triangle which is exactly the same. Then we explain to him, the same colour, shape & size. Ask him, let's make sure whether they are same by putting them together. Then ask the child to find out other triangles which are exactly same.

Then two red triangles are left which are not same in all point of view.

Tell him, "There are left only two triangles which are not same in shape & size but same in colour. So we put them to-gether."

Then choose the two triangles which can make a square. Square is a familier shape to the child. So we choose these two triangles first. It is easier to recognise for a child. Draw his attention to the black lines of the triangles and ask him to put them in such amanner that the black lines will be together, not in the out-side of the figure.

Them tell him, "Look, it is a square."

Then take other pairs ask him to make other figures in same manner. Always draw his attentions to the black-lines of the triangles.Then lastly draw his attention to the red pairs. Put them together which makes a trapizium.

Every time the child taking & putting back the materials, he come accross the bue triangles. If he asks about them & if he want to see presentation, then we give him presentation with blue-triangles.

Presentation of Blue Triangle

(I.A.—I.P.) : Ask the child to bring the material & ask him to take out and mix-up all the Blue triangles. Ask the child, "Do you remember the figures first we made ? If you forget pleaselook at the lid of the box, where the pictures have which we made first by the triangles of 1st Box. Look there are many other figures which we don't make at the first time. Please make the figures using the triangles & make the new figures breaking the former figures."

If the child cannot understand then show the figures painting with the different colours of the triangles of the 1st box ; at the reverse side of the lid. The child watch the painted figures & then he can make the figures without guiding by black lines.

If the child say that the painted figures are small & the triangles are so big ; then ask him first to make the figures using the multicoloured triangles. Then he understand the

activity. Then ask him to constract the figures using the blue triangles & ask him to make other figure breaking the former figure.

We do not present any other box to the child but we suggest to them to sue the boxes and to see that every black line is used to put the triangles together. The child can manage the second, third aid fourth boxes by himself and we can suggest to the child that no black line should be seen outside the figures constructed. When the child is ready to use all the boxes, then he can discover all the possibilities.

Control of error : No black line should to seen from the border of the figure constructed.

Direct Aim : To help the child to discover the function of the triangle as the construction & the divider.

Indirect Aim : To help the child prepare himself indirectly for the systematic study of plane geomatry. (e.g. working with the constructive triangles help him to come across the geometrical phenomenon, identity, equivalance & similarity).

And also help him to consider figures from the point of areas and the concept of fraction.

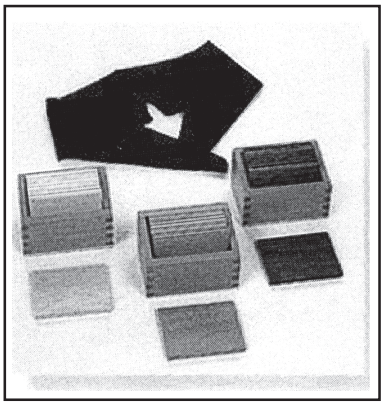
Age of Presentation : Round about $3^{1}/_{2}$ years after the child have plenty of experience with geometrical insets.

"Baric Tablets"

Material Description :

We present baric tablets for Basic sense which are locate in our muscle register.

We have 3 boxes for baric tablets. These three boxes are made of wood, in natural colour, rectangular in its shape. They are all highly polished and brightly varnish.



There are 10 tablets on each of the boxes. Each of the tablets in 1st Box; 12 gm weight and the 2nd box 18 gm weight and in the 3rd Box; 24 gm weight. The colour of the 1st box tables are brown and the 3rd box are dark brown.

Presentation : (IA. – I.P.)

Adult and child goes to the place where the baric tablets are display. They bring two boxes i.e., 1st and 3rd.

The boxes are kept at the right of the adult.

Adult take one light baric tablet and say the child, "Will you feel the weight of the tablet?" If child agree then adult show him how it is put on the fingers which are spreads and how move the hand up and down slowly.

Then child spread his fingers and adult put the tablets on the finger and move the hand up and down slowly.

After moving it sometime, adult ask the child, “Let we take another tablet also on the other hand.”

Now adult show the child how two hands move at a time; just like balance i.e., one hand up and another down.

The adult take one baric tablet and put it on the other hand of the child. Child move two hands and feel the weight.

Child says, “One is light and other is heavy”. Adult ask the child, “Put down one tablet,” Suppose child put down light one; then adult give another heavy tablet on that vacant hand and say, “Move, as the same.”

Child do this and say, “Two are same weight.”

Adult say, “Sure; you are more sure; do this by exchange the tablets of two hands.”

Child do this and say, “I am sure; they are same weight.” Adult ask, “Keep them one upon other on the mat.”

Then adult give two light tablets of same & child do same activity and makes pair.

Here child use only four tablets. After that child can use all the tablets of 2 boxes.

Child also do this activity with eyes close.

Control of error : Lies on the visual sense

Direct Aim :

To help the child to become conscious of heaviness and lightness of weight by use of Baric Sense.

Indirect Aim :

Nothing particular.

Age : Around about 3½ years of age.

Foot Note :

With this material we give name-lesson as below :

Ordinary— light-heavy.
Comparative— light-lighter
or
heavy-heavier.
Superlative — light-lighter-lightest
or
heavy-heavier-heaviest.

Acknowledgements

I am particularly grateful to the under-mentioned books.

(1) The Absorbent mind — Maria Martessori

(2) The discovery of the child — Maria Martessori

(3) Helping one helping all (1) — A.M. Joosten and S.R. Swamy

Paper 4

Paper 4 A : Language Development

Contents

DRAWING INSETS

Material description : The drawing insets are presented to give them an opportunity to apply their language. Which they have already acquired.Here the child can unity and consolidate all his motor preparations. Here the child actually usues the writing instrument. There area number of geometrical figures. There are frames in which the figures fit it. The dimension of the figures correspond to the figures of the geometrical insets. The figures are circle, ellipsoid, ovaloid, rosettee, triangle, square, rectangle, pentagon, curvilinear and Trapizium.

There is a tray which is divide into six to eight compartments each measuring 15cm × 15cm. There are papers in various colours measuring 14cm × 14cm. Each paper should be perfect square. There should six pads made of thick card board, size is 20×20 cm. There should be some coloured pencils inthe stand.

Display : You can make a special piece of furniture to accommodate all these materials.

Presentation : The activity must be done as a chocokie. Invite the child by saying, "I shall show you something with colour pencils." Ask the child to choose a pad, a piece of coloured paper and three pencils. Do not ask the child to choose the figure.You choose a figure. Put the figure with the frame on top of this paper and keep it on a chowkie. Then tell the child, "Now let's go and get some pincils from the stand. Choose only three pencils of different colours."

Ask the child to take one individual pencil stand. The pencil stand with the pencil should be at the right top corner of the chowkie.

Now adjust the paper carefully so that it is composite with the frame. No paper should be visible outside the frame, that is the criteria. Put the paper and the frame on the pad.

Now take out the figure and show the child how to trace the frame. Start from the topmost point placing the pencil vertically. The pencil should be straight and facing downwards. Trace the frame in anticlock direction. Stop tracing when you have reached the point from where you have started. Ask the child to lift the frame and see what he can see on the paper. Ask him to put the figure exactly an the boundaries which you have traced. Ask the child which colour pencil he wants to use. Then trace the figure with that pencil and then lift the figure. Draw the child's attention to the lines. The lines are even and equidistant. Tell the child, "We have now to use the pencil which we have not used. Show him how to fill the figure by starting from top on the inner figure. Using vertical lines. Starting from the top left and moving towards their right. The inner figure should be filled in with unbroken vertical lines from the top to the bottom. If the child wants to draw strokes he is free to do so.

If you find that the child cannot doti perfectly, then appreciate his efforts and give him positive suggestions.

Critic for perfection :

(1) Two lines must be parallel and equidistant.

(2) The lines with which you fill, must not cross the inner outline of the figure.

(3) The lines must be vertical and therefore parallel.

(4) The child's drawing line must be without any break.

(5) The lines must be so close to are another that the colour of the paper does not show.

(6) The lines should be such that entire inner figure is of an uniform shade.

Direct Aim : To give the child an opportunity to apply his developed concept of shape and of colour consciousness. Also to help him prepare himself for writing.

Indirect Aim : Prepare the child from drawing and painting.

Age of presentation : $3^1/_2$ years to 4 years after the child has developed concept of colour and has had plenty of experience in sensorial activities.

Suggestions : (1) When the child has acquired some degree of perfection, permit him to take more then three colour pencils at a time.

(2) Once the child has acquired some degree of denterity over the vertical stroke, he can use any other stroke to do the shading.

(3) You can also provide papers to stimulate the children to draw any pattern which they wish.

Unit 1 ❑ Preliminary Activity of Sound Awareness

The teaching of Language to the child usually starts with the alphabets. But they are done in such a manner, that they can not help the child in speech. So the child can not achieve anything in the field of Language.

But one of the aim of Mantessori method is to help the child to develop what he achieved in past. So first we consider what assistance he needs to develop his achievement in the field.

Human beings most important conquest is to speak when he is a child of 2 years. So every child would love a possession in this field of Language.

Language is a spoken speech which is made with various sounds and reaches our intelligence in two ways. Through the ear we listen and speak with our mouth. The basis of learning spoken Language is firmly implanted in the child at a very early age, when his intelligence is building up and this process is entirely dependent on the environment. Thus the child has gifted by nature to acquire Language. It is through the child's capacity to learn and retain that we owe our speech today. Spoken Language is not an analysis of sounds but a total impression of many sounds. To achieve Language in both forms, written and spoken, the child is dependent on adults from whom he receives the sounds and later he produces these sounds in concrete form. After the age of two and a half years, while the child is still in embryonic period, he can build up his spoken Language (by hearing sounds). Spoken Language is not enough, so we have to materialise it through written Language. We have concrete letters which symbolise the different sounds in the environment — the collection of letters are called Alphabets.

The cave men of ancient times express himself by means of picture. Man try to express and convey his idea not only to the people who are in his environment, he also wants to convey his idea across the space and age. He wants to convey his ideas to the comming generation. Man felt the need to express, to fix the ideas of spoken language by means of signs.

The child is a human being, so he also will start to feel the need to express himself. He also needs to prepare himself for writing with the help of graphic arts.

(1) In a 'House of Children' child should enjoy the freedom to speak to consolidate his spoken language. So when the child comes to us, speak to us, then we receive him, that he gets spontaneous interest to speaking. This is actually stimulate him for speaking.

(2) We stimulate him by experiences. Experience will be so greater that child feels to urge to give expression of experiences in order to speak.

So every time we should to speak with him with some new thing, always telling new thing.

(3) We also help him by name-lesson, by which he can expressed himself by more satisfactory. So it helps him for vocabulary expression.

(4) For develop of his spoken language, child also needs good spoken language. It helps the child for spoken language in perfection. Child gets it from us.

So adult should be use words in careful minds. Sounds and throwing words will be polite and gentle. Never use any wrong words.

(5) We also do some narration of stories for children. We carefully choose the words and the manner so that the children want to repeat the story. So we use some language when we repeat the story.

(6) We also recite rhymes. It also helps him in he field of language.

From this he can habituated of sounding the difficult pronunciations. Child choose the difficulty of anything and he exercise for perfect this. So we choose beautiful rhymes.

(7) We should speak full sentence which is complex and composed of various group of words. He needs to analyse the sentences in various groups in relation to other groups and in relation to the verb. This activity is called analysing of sentences logically.

Our spoken language is composed of articulation of two sounds — Vowel and Consonants.

First the child uses two letter words as a means of exploring sounds of words in the environment. He also learns to break-up the words in separate sounds and he put them down in concrete form — that is writing. This method is called analysis of sounds.

Sounds are produced in our vocal chord and have to pass our lips which control the sound we utter. The child has to learn all the co-ordinated movements which are required to produce a single sound. The vowels are the most important, some consonants also have a single sound, but they are not very pure on clear as the vowels are.

We offer sand paper letters to the child as a symbol of sounds. He feels the master association with the help of his four organs. His eyes take the visual impression for reproducing it. Vocal chord pronounce the sounds and his ears hear the sounds to record it in mind and consciousness.

The child needs to become conscious of the structure of our spoken language specially of the sentences. In order to become conscious, he needs to analyse the sentence. It may be analysed in various ways into words, group of words around a verb. We call it grammatical analysis which deals with parts of speech. We help the child to enrich his language (vocabulary) on an even ascending level.

First the phonetic help is given with alphabets which are phonetically composed.

We offer vowel first — because;

(1) They are pure sound. So it is easy to the child to pronounce them clearly.

(2) There cannot be any single word without at least one vowel.

(3) The number of the basic vowel sound is less than the number of the basic consonant sounds. So the child can become conscious with them much quicker. He also can distinguish among the sounds clearly. So the child can recognise them easily and spontaneously because they are few in number.

Check your Progress :

Q.1. What is Alphabets?

Ans. We have concrete letters which symbolise the different sounds in the environment — the collection of letters are called Alphabets.

Q.2. In a 'House of Children', why child needs freedom to speak?

Ans. It helps the child to consolidate his spoken language. He gets spontaneous interest to speaking. This is actually stimulate him for speaking.

Q.3. What are the two sounds that composed our spoken language?

Ans. The sounds are Vowel & Consonants.

Q.4. Why we offer Vowel first in a 'House of Children'?

Ans. (i) Vowels are pure sound.

(ii) Not a single word without at least one vowel.

(iii) Vowels are least in number i.e. five where as consonant are 26 in numbers.

Unit 2 ❑ Sand Paper Letters

Material Description :

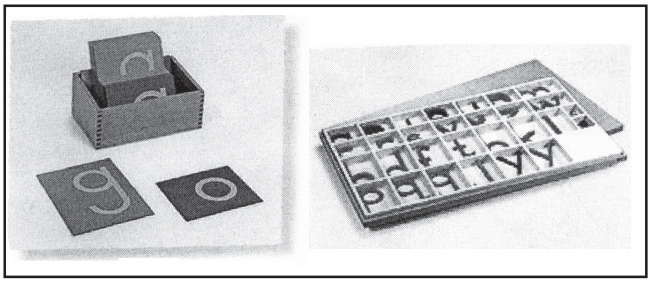
The letters are cut-out from sand paper and pasted on a plaques. In English we have 26 letters. The vowels are on the blue background and the consonants are on pink backgrounds. The letters are on the right side of the plaque. The dimension of the plaques depends on the dimension of the letters.

When we teaching the letters of the alphabet, we start with vowels and going on to the consonants, which are pronounced according to their sound. Among the vowels a, e, i, o, u, we start with 'a' sound which is familiar and interesting to the child.

Presentation of the activity : (I.A. – I.P.)

1st Part of the Presentation :

Invite the child and ask him to clear his finger tips by 'finger tips bathing activity'. Then say the child, "Come, today I show you a new activity with sand-paper letter : This activity will be done on chowkie. Please, go and bring a chowkie."



Then bring a letter (a) and keep it on chowkie and hold it with your entire left palm and trace it with the right hand only with your right index and middle fingers.

When tracing the letters, and at the end of the tracing the pronounce the sound clearly so that it helps the child to hear the sound of the letter.

2nd Part of the Presentation :

After tracing the letter ask the child, "I will tell you some words; Can you recognise the sound of the letter which are you trace?"

Tell him some familiar words like, RAT; CAT; FAN etc.

● Control of error :

As far as tracing and sound is concerned it is in the child's tactile sense.

Direct Aim :

To help the child become conscious of his spoken language.

Indirect Aim :

To help the child prepare himself directly for writing and reading.

Age of Presentation :

Between 3 and 3½ years.

● Presentation of Consonants

Presentation :

In consonant, 17 sounds child needs to become conscious of his spoken language.

We never presents all of them at the same time and follows some rule to present them.

At the second stage — with some of the hard explosive sounds and at the third stage — with some of the soft explosive sounds.

The presentation will be the same as with the vowels.

We don't present c, j, q, x. Because 'c' is not always represent the same sound (ক্) symbol and again we have another symbol (স্).

We don't present 'j', 'Q', 'X', which we have also two sounds. X (ক্+স্); Q (ক্+উ) etc.

The sounds are :

'b'	as	in	Tub (ব্)	Short	Explosive Sound
'd'	as	in	BED (ড্)	,,	,,
'g'	as	in	LEG (গ্)	,,	,,
'f'	as	in	PUFF (ফ্)	,,	,,
'h'	as	in	MOHAN (হ্)	,,	,,
'l'	as	in	STILL (ইল্)	,,	,,
'm'	as	in	RAM (ম্)	Prolong	Sound
'n'	as	in	HEN (ন্)	,,	,,
'v'	as	in	VAN (ভ্)	,,	,,
'y'	as	in	YELLOW (Prolonged ই)	,,	,,
'z'	as	in	LAZY (জ্ঘ)	,,	,,
's'	as	in	GLASS (স্)	Prolonged	Sound
'r'	as	in	RAT (র)	,,	,,
'k'	as	in	NAPKIN (ক)	Hard	Explosive
'p'	as	in	POPCORN (প্)	,,	,,
't'	as	in	CAT (ট্)	,,	,,

● Control of error :

Social Control of error :

Direct Aim :

To help the child became conscious about his Spoken Language.

Indirect Aim :

It helps the child to prepare himself for writing :

(a) by acquiring sound consciousness.

(b) by getting to know symbol for the sounds.

(c) by moment pattern involved in reproducing the shapes of the letters.

(d) by his muscular memory.

Age : when child knows all the vowel sounds.

● Group Activity of Oral Phonetic Analysis (1st type)

Presentation :

When a group of children are familiar with two vowels, then we offer this interesting activity. We will have to keep two vowels (say a and i) on a stand at a distance.

Adult ask the child, "I am going to say some words and you have to tell me which sound you have heard. I shall ask one of you and the rest of you must remain silent."

Then adult then pronounces a word like Cat, Hat, Rat etc. and asks the child, "which sound do you hear, 'a' or 'i'?

The child will say or show the letter. Interesting and familiar words should be given with the sound 'a' and 'i', but never given the word which are beginning with "a" or "i".

● Control of error :

Mostly in other children.

Direct aim :

(i) It helps the child to become conscious about his spoken language.

(ii) Stock of words are increasing.

(iii) Learning the difference between 'a' and 'i' sound.

Indirect aim :

It helps the child to prepare for writing by means of sound consciousness.
Age : $3^1/_2$ years of age.

● 2nd type of group activity for oral phonetic analysis.

Presentation :

With 10-12 children. Ask the children that I am going to say some words, all of you should listen carefully and find out the last sound of the word.

The child who is asked should give the answer, all others give answers by themselves.

Start with some prolongable sound; then with any sound e.g., PRAM; BOOK; BANANA etc.

● 3rd type of group activity for oral phonetic analysis.

Presentation :

Invite 10-12 children and ask them to hear the very first sound of the words.

The words should be familiar and interesting noun but never give the words starting with 'ch' sound.

● 4th type of group activity for oral phonetic analysis :

Presentation :

Invite 10-12 children. Ask one child to hear the first sound of the word and another child to hear the last sound of the word e.g., Pentagon; Popcorn etc.

After some time, we may ask the same child to hear the first and last sound of the same word, e.g., Hexagon.

After that go on asking the child to recognise several sounds in one of the same word.

Control of error :

Social control of error.

Check your Progress :

Q.1. How many parts of the presentation of sand-paper letter?

Ans. There are two parts of the presentation. 1st part we help the child to teach the sound of the letter.

2nd part we says same words where child can recognise that sound in the word.

Q.2. What are the direct and indirect of the sand-paper letter?

Ans. See Direct and Indirect Aim.

● Movable Alphabet Box. (*Material Description) :

In English there are two boxes and each box contains 5 rows of compartment. On top row there are 5 vowels (a,e,i,o,u). The letters of the alphabet identical in form and dimensions with those of sand paper letter, though here they are cut out of coloured cardboard. The letters are loose, which can be handelled. The vowels are blue in colour and the consonants are in pink colour. The different letters are in different compartment. We have five copies of each letter. Each boxes we find out vowels and prolongable, hand, soft explosive consonants.

Introduction :

Thanks to 2nd, 3rd and 4th type of group activities, which helps the child particularly to recognise the sounds which he has not shown with letter and recognise 1st, last and several sounds in one and the same words. Then we help him to recognise every sounds of a word in succession.

Invitation :

Ask the child, "you have already recognise the 1st and last sound of the words. Are you like to see all the sounds in the words?

There are something which can help you to recognise all the sounds in the words.

● Presentation :

Ask the child to bring the boxes on the working mat, when child knows at least four vowels and five to six consonants. Keep the box in front and pronounce the words like "Fan", "Stamp" etc. Then ask the child, "what sound do you hear first when you say "Fan". When child says 'F', then take out the letter 'F' from the box and put it in front of the child. Again repeat the word 'Fan' and ask the child "what sound do you hear after 'F' and go on giving words till the child takes over.

● Control of error :

It is in the adult's ability.

Direct Aim :

It helps the child to become conscious about his spoken language by making so many words with the help of Movable Alphabets.

Indirect Aim :

It helps the child to prepare himself for writing by listening to all the sounds in a word.

Age : Round about 4 years of age.

Check your Progress :

Q.1. How many boxes in Movable Alphabet box?

Ans. There are two boxes.

Q.2. What is the colour of vowels and what is the colour of consonant?

Ans. Vowels are blue in colour and consonant are pink in colour.

Q.3. When we offer Movable Alphabet boxes?

Ans. When child knows at least four vowels and five to six consonants and round about 4 years of age.

● Reading and Writing Cards

Picture Series

When our child knows all the basic consonants then we offer picture series to the child.

Show the envelop, where we kept at least 10 pictures; because we want to finish each envelope in one sitting. Each of this picture suggest a familiar word which can be reproduce

conventionally. If possible, let this picture classified in subject wise i.e. one set of picture about fruits; one set about animals etc. It helps the child to stimulate to know the another names of fruits and animals etc.

● Seven (7) Activities with ‘a’ and ‘e’

1st help :

Ask the child to trace the sand paper letter ‘a’; then give ‘e’ and said to trace it. So this is ‘a’ and this is ‘e’. The adult will say as usual — give me ‘a’; where is ‘e’ trace ‘e’, show ‘a’ to them etc. So many interesting commands. Then Adult say, “So this is ……?” Child says — ‘a’ and “This is ……” — child say ‘e’.

2nd help :

Now another special form of help to distinguish similar sounds i.e. Group activity of oral phonetic analysis (1st type).

Ask the children — showing ‘a’ and ‘e’, “Remember, what is these? Child says, “yes, ‘a’ and ‘e’”.

Then adult will say “Now I am going to say words — you should listen carefully. Whether you hear the sound ‘a’ or ‘e’. I ask one of you. She will answer and others will tell by himself.

e.g. ‘MAN’; ‘BED’

If the child cannot say the word don’t insert him. Let him say the sound. This is one of the most helpful activity. Children listen the words and recognise the sound which is ‘a’ or ‘e’.

3rd help :

“Sorting of Picture”

Invitation :

“Today I am going to show you something interesting with the picture cards.” This activity done on working mat. Now we can use also picture series.

In one envelope number IIA ‘e’ is written in blue and we have also a picture where we find the ‘e’, and we have also some another envelope of IIA‘a’ and we have 10 to 12 pictures with names of basic vowels for each sound.

On the reverse of the picture we see the letter written in blue.

Presentation :

Adult — “What picture you see here?”

Child — ‘BED’.

Adult — “Now, when you say ‘BED’, you hear the sound ‘e’; don’t you? There are so many pictures in this envelope and their names you hear the sound with “e”.

Look — HEN; RED; PEN etc.

Again show him the envelope of ‘a’ and ask, “What’s this picture show?

Child — “BAT”.

Adult — “We can hear the sound “a” when we say ‘BAT’. There are so many pictures in this envelope and we hear the “a” sound in all the names of the pictures”. Now we mixed-up all the pictures of the two envelopes.

Kept the empty envelopes of ‘a’ and ‘e’ two sides of the mat. Take any one picture; listen the name of the picture. Put the picture of ‘a’ sound under the ‘a’ envelope and put the picture of ‘e’ sound under the ‘e’-envelope.

This is the “Shorting of Pictures”. After doing this, then ask the child to turn all the pictures and see whether he put the right picture under the right envelope.

So here we have to describe two picture series.

4th help :

Invitation : “To-day I am going to show you new activity with picture cards. This activity will be done on working mat. Ask the child to bring the Movable Alphabet boxes.

Presentation :

Ask the child to take one envelope and listen the name of the pictures of the envelope, then he works with Movable Alphabet. Suppose, the child has taken the envelope of ‘a’ and the picture is ‘MAT’. Then the child will have to analyse the name by saying ‘M’, ‘a’ & ‘t’ and will have too put the letters from the movable alphabet box and keep the letters by the side of the picture.

5th help :

Here, child take one envelope at a time and put the sound ‘a’ or ‘e’ only over the picture.

Presentation :

Child bring any one picture series (here ‘a’) and arrange of all the pictures in one vertical line on the working mat. Then bring the box of Movable alphabet box.

Adult — To show first picture and ask the child, “What is this?”

Child — “MAT”

Adult — “What sound you hear ‘a’ or ‘e’?

Child — ‘a’

Adult — Put ‘a’ at the side of the picture.

Child do this.

Adult — ‘Listen all the names of the picture and put the sound only, which you hear, ‘a’ or ‘e’?

Child finish the work and then he bring another envelope and done the work in same manner.

Here child work one envelope at a time and put only one sound ‘a’ or ‘e’, at the side of the picture.

6th help :

Here we suggest that the child bring both the pictures series at a time and mixed-up all the picture of two envelope.

Arrange all the pictures one below other and listen whole words using with the Movable alphabet e.g. Picture ‘VAN’.

Child put all the sounds of the picture.

7th help :

Same as 5th help. Take two envelopes and mixed-up all the pictures of two envelopes. Pick-up one picture; listen the name of the picture and put only the sound which he hear i.e. either ‘a’ or ‘e’. He puts the sound at the side of the picture.

There are the seven forms of help which we offer to the child individually.

● “Phonogrammes”

There are three types of Phonogrammes :

(1) ‘J’ : Single symbol represents a mixture of sound e.g. JAM, JUG, ‘JET’ and JUDGE; FRIDGE; BADGE

(2) ‘SH’ : ‘TH’, ‘NG’ — Two letters for a single sound.

e.g. Ship; Shop; King; Ring etc.

(3) ‘Ch’ : Two letter shows the combination of different sound ; e.g. Chop; Chun; Chin etc.

● Presentation of “Sh”

Invitation :

Today I am going to show you a new interesting activity with the picture cards. This activity will be done on a working mat.

Material description : ‘Sh’.

Over the envelope, at right top corner written the serial no. with ROMAN two and Capital B.

At the top of the envelope we see the sound ‘Sh’ are written. At the middle of the envelope a picture of ‘Fish’.

Presentation :

Bring the envelope and hold the envelope in this manner that the thumb is covering the sound of the envelope. This is the process of holding the envelope.

Adult showing the picture over the envelope and ask the child, "What picture is this?"

Child — "Fish".

Adult — Do you hear 'Sh' when you say fish?

Child — No.

Adult — "I haven't told you how to show 'Sh'.

Taking away the thumb from over the 'Sh' of the envelope and say the child.

"These two letters 's' and 'h', together we use to show 'Sh' sound."

"In this envelope; there are so many picture where you can hear this sound 'Sh' e.g. shop; shelf; brush; polish etc.

Arrange all the pictures one vertical line.

"Every time you say the names of the picture and hear the sound 'Sh'. First listen the sound and then putting the letters using the movable alphabet boxes.

The other side of the picture, we find the phonograms 'Sh' and 'Number' of the series of the envelope.

Same way we present 'Ch', 'Ng', J etc.

● Writing

Our traditional belief is that before six years the child is not teachable for reading and writing. We teach them reading and writing simultaneously. So they have to remember the picture of the letter to draw them.

In a 'House of Children', writing is not directly taught, yet writing comes pretty early. Writing comes when child is about 4½ years of age and it comes in its true sense; true function — as a means of graphic self-expression. It comes explosively as any developmental achievement comes for inner development. So it appears spontaneously.

Writing as a means of graphic self expression is a complex activity consists of many components. We can distinguish two main components in it.

(a) Motor technical component and

(b) Intellectual component.

What are the various Motor-technical preparations?

It means one must have acquired technical mystery of the hand over the writing instrument.

What it consists of ?

It consists of prehensile Co-ordination involving in the writing instrument with necessary and sufficient firmness.

● Indirect Helps :

Various sensorial materials helps the child to acquire this co-ordination —

(1) This technical mastery consists of prehensile co-ordination involving holding writing instrument with necessary and sufficient firmness.

Starting with cylinder blocks and later with geometrical Insets helps the child for holding writing instrument with necessary and sufficient firmness.

(2) A light hand means moving the writing instrument over the writing surface lightly.

Any tactile material help him to acquire this capacity, to develop this capacity. This lightness of touch further develop when he tracing the figure of geometrical insets.

(3) At the same time form the shake on hand i.e. agility of hand. Noise boxes; tracing the figures and frames of geometrical insets; all helps the child to acquire the agility of wrist movements.

(4) It also means the capacity of the hands holding with writing instrument which is capable of moving in control manner, in horizontal direction and also to move within bound in vertical direction.

2nd touch board helps the child to movement of writing instrument along a horizontal and vertical direction within bound.

(5) This light hand also means a capacity of hand to move along well-determine shapes.

In particular geometrical insets — it also involved a well-determine muscular memory for shapes (i.e. capacity to remember movement pattern involved in reproducing well-determine shapes.)

All these preparation child finds when he performs sensorial activities. He finds indirect help from these material for writing on for Motor-technical mastery.

Direct help :

He acquire Motor-technical Mastery over the writing instrument directly from drawing insets. The potential capacity becomes actualise.

● What are the indirect and direct Intellectual preparations?

Indirect :

The child gets thee forms of helps from the First day of his 'House of Children', e.g.

(1) Freedom of Speaking helps him for graphic self-expression.

(2) Rich experiences which help him to feel the urge of expression.

(3) Stimulation for speaking.

(4) Pronunciation for sounds from various parts of mouth.

(5) Name-lesson — All serves him as an indirect intellectual preparation for writing.

Direct Aim :

In order to be able to with alphabetic script one has to be aware of the facts that our spoken language is composed of articulation of sounds. He also needs to know the symbols for the sounds.

With the help of tracing the sand-paper letters, the child gets to know the symbols of sounds in enduring manner.

It also helps him to know how to guide his writing instrument to produce well-determine shapes.

● Other Intellectual Preparations :

The child must also have to recognise all sounds of a word in succession and reproduce the sounds with their symbols in the same succession.

With the help of movable alphabet he gets the full help to reproduce the sounds in succession.

So all these indirect and direct intellectual preparation are drawn together in fusion with the help of human need; when human being not only satisfied with vocal self-expression — he also needs graphic self-expression — the urge within him to do that work. Dr. Maria Montessori discovered that human being at 4½ years of age experience that urge to self-expression. He needs to express himself beyond the time and space. He also wants to think about something and to develop his thoughts and to keep records to that thoughts.

Then he needs a gentle explosion i.e. example of others writing in the environment — particularly the writing of other children.

● Adult's duties to his child's urge :

Adult's have many duties before the child beings to write :

The duties are :

(1) To prepare; maintain and develop the environment.

(2) To ensure that child finds freedom which he needs so.

(3) To ensure all the indirect and direct Motor technical and Intellectual preparations with he needs.

(4) We wait expectantly to receive that explosion as it needs to be received.

As a rule we have had all preparation of writing but if a child of 4½ years of age does not start writing, we should not be anxious. There is an individual variation of time. So we make allowance for this individual variation.

● Direct Aim of Writing :

To help the child become get familiar with certain non-alphabetic sound symbols which still have certain phonetic significance and thus to keep the child's indirect alive in graphic sound analysis.

Indirect Aim of Writing :

To help the child prepare himself writing conventionally and also prepare himself for reading.

Check your Progress :

Q.1. When we offer picture series?

Ans. When our child knows all the basic consonants then we offer picture series to the child.

Q.2. How many activities are there with 'a' and 'e' sounds?

Ans. There are seven activities with 'a' and 'e' sound.

Q.3. Say the names of activity with helps the child for holding writing instrument with necessary and sufficient firmness?

Ans. Cylinder blocks and Geometrical Insets.

Q.4. Which activity helps the child for moving the writing instrument over the writing surface lightly?

Ans. Any tactile material help him to acquire this capacity. The lightness of touch further develop which he tracing the figure of geometrical insets.

Acknowledgements :

I am particularly grateful to the under mentioned books :

(1) The discovery of the child — Maria Montessori

(2) The Absorbent mind — Maria Montessori

(3) Helping one helping All (II) — A. M. Joosten.

Paper 4 B : Arithmetic

Contents

1.1 Introduction

Concept of Arithmetic

Human beings always needs to develop their culture. Language and mathematics are two media which helps the human beings to develop their culture. So our child also needs language and mathematics for their development.

Every field of human culture e.g. Dance, Arts, Science, Painting, Music etc. needs mathematics because they are based on mathematics.

Mathematics is an abstract science and is called the science of sciences. It deals with observation, appreciation, evaluation and consideration of parts of things with precession. It also helps to compare them precisely; to establish relation between things and entities e.g. when we observe things in their shape and dimension, it is called geometry.

We also consider things from a quantitative point of view and that is why we introduce arithmetic. So it is also a branch of mathematics, which compares things precisely from the quantitative point of view and establish relationships between things from quantitative point of view.

Though things are concrete, the instruments we use to evaluate quantitatively are abstract. It is less sensorial and more intelligence.

We can appreciate things, more or less, but we are not happy with it. We wants to establish relationships between things from quantitative point of view with precision.

The basis of arithmetic is a standard unit of measurement. Anything can be unit, e.g. a table; a chair; a boy; a mango etc. It is abstract and it is more difficult to approach to the child. So in a 'House of Children' we first offer geometry and then arithmetic.

Child already hear the names 1, 2, 3 etc. from environment and he knows that they are something which are related to counting.

Dr. Maria Montessori called it — "Awaking of mathematical mind." From this stage onwards the child no longer happy. He needs more precedes.

He needs to compare quantitative things in precision.

It is the stage when we offer him counting i.e. measuring i.e. how many times of unit are needed to measure a thing.

Counting can be built on two different foundations depending on the nature of the entities.

5 meter sari is variable of meter i.e. unbroken multiple of meter. 5 pieces of chalks are loose, individual identical units i.e. arithmetic of groups.

● Types of Counting :

There are two types of counting i.e.

(1) An unbroken multiple of units of entities in terms of which we want to evaluate things precisely — which are call "Arithmetic of variable".

(2) The entities can be composed of loose, individual, identical (identical in any point of view) units — which we call "Arithmetic of groups".

If the entities are 'Arithmetical of variable" — there we measure it and if the entities are 'Arithmetic of groups' then we count it.

● House of Children :

In a 'House of Children' we start with Arithmetic of variable and when our child

(i) have a clear concept of unit and their roles in counting.

(ii) knows what is the relation between quantity of one and above one.

(iii) knows the relation exists between the quantities in succession from 1 to 10.

Then he is ready from group counting or 'Arithmetic of Group'.

We use the material which is similar to long stairs and we call it 'NUMBER RODS'. The length of this rod materialises the natural succession of numbers and the relation that exists between the shortest and the longest rod.

● Number Rods :

Material Description :

The number rods consists of 10 rods. The shortest one is 10 cm long and red in colour. Other rods gradually increase by 10 cm with red and blue colour alternatively. So the longest rod is 100 cm and which is an arithmetical variable of the smallest rod.

Two types of counting we find out in No. rods because here we measure it and also count it by colour.

In a environment the Number rods are display on a stool, in a same manner like a long-stair.

Invitation : I hope that you have already worked with long stair. Look here we have another rods like long-stair and call it 'NUMBER RODS'.

Come, I will show you, how we work with this.

● Presentation of Number Rods :

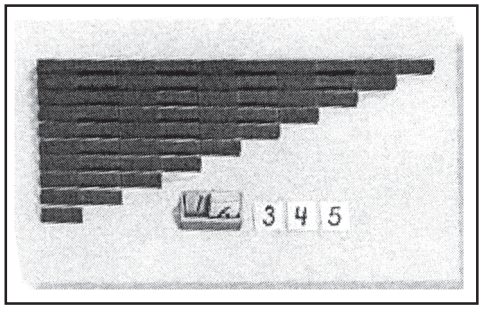
Place of Presentation : "On Working Mat".

Presentation : (Individual Activity — Individual Presentation)

The child brings all the rods on the working mat; He hold the rods like long-stairs.

Adult helps the child to arrange the rods on the mat like long-stairs but red section of all the rods are in the left-hand side of the adult and with the left square face on the same line.

The rods are also arranged in their successive order of length.



Ist period : The adult now takes the rod of 'ONE' and says to the child. "This is rod of …… ONE". "Look, this is rod of …… ONE". Next the adult takes the rod of 'TWO' and says to the child — "This is rod of …… Two", "Look, this is ONE, TWO."

The adult hold rod at the middle with the left hand and points out the section with two fingers of the right hand. "So, this is the rod of …… TWO". Next the adult

takes the rod of THREE and says to the child — "This is the rod of …… THREE." "Look, this is ONE-TWO-THREE, So this is rod of …… THREE."

IInd Period : Now the adult asks the child various questions like these,

Adult — "Give me rod of …… '3'.
Show me rod of …… '2'
Hide rod of '3'.
Count rod of '2' etc.

At the conclusion of the above, the adult asks the child to put rod I here, then rod of 2 before rod of one and rod of 3 before it i.e. arrange the rods in succession.

III period : Now the adult asks the child some questions and child replies as follows :

Ad — Which rod is this?
Ch — 'One'
Ad — Which rod is this?
Ch — 'Two'
Ad — 'Count this'.
Ad — 'Which rod is this?'
Ch — 'Three'
Ad — Count this etc.

After these three names, the child needs another name-lesson for '4' and '5'.

Ist period : The adult ask the child to show the rod of '1'.

Ad — "This is ……"
Ch — "Rod of …… ONE"
Ad — 'This is ……'
Ch — "Rod of …… TWO"
Ad — Count this.
Ad — "This is ……"
Ch — "Count this."

Then adult takes the rod of '4' and says to the child, "This is rod of …… Four." Now adult points out the section.

ONE, TWO and THREE and the child says, 1, 2, 3 and then adult say …… FOUR.

"So this is rod of …… FOUR."

Next in same manner adult says Rod of …… FIVE."

IInd period : Same as before.

III period : Same as before.

In this manner the adult give all the names of rods from ONE to TEN.

● Control of error :

The control of error lies in 3rd period.

● Direct aim :

(1) To help the child associate the already familiar names of quantities from 1-10 whith the precise quantities they signify.
(2) Helps the child to get to know the succession of natural number from 1-10.

Indirect aim :

(1) To help the child have a clear concept of numerals.
(2) To give the child a firm foundation for the decimal system of numbers.

Age of presentation : Around 3½ years of age.

Check your Progress :

Q.1. How many rods in Number rods?
What's the length of smallest are and the longest are?

Ans. There are Ten rods in Number rods.

The length of the smallest rods is 10 cm and longest one is 100 cm i.e. 1 meter.

Q.2. In number rods why we use Red and Blue colour?

Ans. These red and blue colour is primary colour and they are extremely contrast.

Q.3. How many period in name-lesson?

Ans. In name-lesson there are three periods.
1st period we say the names.

2nd period we give so many commands about that names.
3rd period is for confirmation. Adult ask about the names and child will confirm it.

● Exercises of Number Rods :

Exercise 1 :

Presentation : Arranges of the rods in succession away from the place of presentation. Adult ask the child "Bring the rods of …… 5."
Child bring the rod of 5 then adult ask the child to count the rod. The child count the rod of 5 and put back the rod at its place then repeat the activity.

Exercise 2 :

This exercise is same as Exercise 1 but in this case keep al the rods away from the presentation place in mixed-up.

Exercise 3 :

Same as Exercise 1 and 2 but here the adult asks the child "Bring 5" not rod of 5.

Memory Exercise : Is not possible here.

Direct and Indirect aim : Same as "Number Rods."

● "Sand-paper Figures" :

Material description : In a box we have ten sand-paper figures which are pasted in middle of a rectangular boards which are blue in colour. A white line is drawn below each figure to help the child to realize the actual position of the figure. The figures are 0, 1 2, 3, 4, 5, 6, 7, 8, 9.

Place of presentation : 'Chowkie.'

Invitation : "You have know all the name of numbers. Come today I show you how to write these numbers."

● Presentation :

Before presentation child must do finger tips bathing activity.

Then child bring Number 1 and place it on the chowkie.

The adult ask the child "Look, how I hold this. Hold the figure with left index finger and thumb at left base corner.

Then adult slowly trace the number using the finger tips of he right index and middle finger. When doing the activity adult folds all other fingers and thumb in such a manner that the tracing is visible to the child.

When tracing the figure, the adult mentions the name of the Number and give some pauses and then repeat the tracing.

One day we present only one name.

When the adult presents '0' then child asks, "What is 0?" Then the adult says, "It is nothing.

So Zero is nothing.

● Control of error :

If the child's tracing is in an incorrect direction or if he associates the wrong number with the symbol, the control of error lies in the adult.

Direct aim : To help the child associate the already familiar names of quantities with their symbols by means of his visual, muscular acoustic sense and tactile sense.

Indirect aim : To help the child prepare himself directly for writing and reading by recognising the figures.

Age of presentation : 3½ years of age.

● "Special Name-Lesson for Sand-paper Figures"

In English 6 and 9 figures are similar in appearance, so we give special name-lesson.

Presentation : (I.A. – I.P.)

1st period : In a tray adult carry only these two figure 6 and 9, not whole box.

First adult keep figure 6 on chowkie — child says …
"This is … 6".
Then adult keep another figure '9' on Chowkie and child says, "This is 9".
Adult ask the child to trace the figure.

2nd period :

Now adult says —
"This is … 6".
"This is … 9".
Then adult asks so many questions about 6 ad 9 e.g.
Trace 6, put 6 here, trace 9 etc.

3rd period :

Here adult says —
"This is … " and
"This is … "
The child responds and mentions the number.

Check your Progress :

Q.1. How many figures in sand-paper figure? What are the names of that figures?

Ans. There are ten figures.

The figures are '0', '1', '2', '3', '4', '5', '6', '7' '8', '9'.

Q.2. Why we drawn white line below the figures?

Ans. It is an indication mark, child can understand by seeing he white line, which is the actual position of the figure.

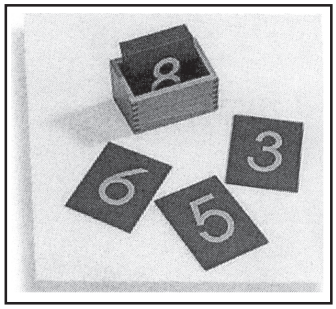
Q.3. When we offer special Name-lesson?

Ans. When the objects are similar in appearance; similar sounding names, or both, similar in appearance and similar sounding names, then we offer special Name-lesson.

Q.4. Why we have only 0 to 9 figures in sand-paper figure box?

Ans. These 0 to 9 figures are basic numbers in our society because we can make any number by the help of these ten figures.

● "Number Rods and Number Cards"



Material description : In a box here are ten number cards i.e. 1. 2, 3, 4, 5, 6, 7, 8, 9 10 and it is displayed on the right side of the 'Number Rods'. The base of all cards are white and numbers are printed in black, without any indication mark below the numbers.

In this box "Number 10" is a singe card but there is no zero (0) card.

● Presentation :

(Individual Activity – Individual Presentation)

Invite he child and ask him to bring number rods and keep it on working mat in succession and then bring box of cards. The adult now picks up the card 1 and ask the child, "What is this?" The child says "1". Then adult asks the child, "Where is the rod of 1?" Then child shows the rod of 1. Then adult asks the child to count rod of 1 and keep the card of 1 near the rod of 1.

Then adult pick-up card of 2 and asks the child to find out the rod of 2 and count it and then put this card of 2 near rod of 2 and repeat the activity upto the card of 9.

Then adult picks up he card of 10 and tells the child, "This is … TEN". The child says, "Why? This is 1 and 0"

The adult says, "Yes, this is 1 and 0 makes 10. So we count the rod of 10 and then keep this card 10 near the rod 10.

Then adult asks the child, "Look, how I put back the cards in succession."

The adult takes first the card of 10, and keeps it one side of the mat, then card of 9 and so on. Till all the number cards are placed in succession.

Control of error : Lies in the child's counting.

Direct aim : To help the child associate quantities from 1 to 10 with symbols by using the names of the quantity.

Indirect Aim : Same as "Number Rods".

Age : 3½ yrs. of age and only after having completed tracing of sand paper figure and special name-lessons.

● Exercise

Exercise 1 : Bring the rods on working mat and keep it in succession. Then mix-up all the cards and keep it up-side down.

The child pick-up one card and see the number and then find-out that number of rods. Count that rod and keep the card at the side of that rod and repeat the activity.

After this activity, the child put back the cards like presentation.

Exercise 2 : Same as Exercise 1 but here cards are in succession but the rods are mix-up.

Exercise 3 : Same as Exercise 1 and 2 but here both cards and rods are mixed-up.

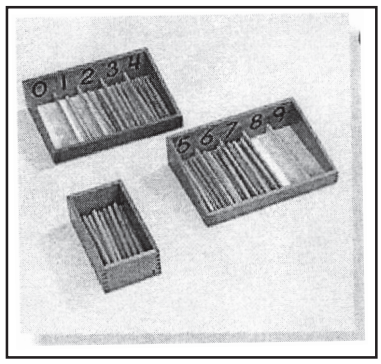
Check your progress :

Q.1. How many numbers in Number Card box?

Ans. There are ten cards i.e. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

● "Spindle Boxes"

Material description : There are two boxes without lids. Each box have five compartments. On the rear side of the 5 compartments of the 1st box, numbers from 0 to 4 are painted and on the 2nd Box the number 5 to 9 are painted.



Spindles are kept in each compartment according to the numbers are painted on that compartment.

The Spindles are fusiforms.

Display : Display these boxes on a chowkie.

Characteristics :

(i) Quantities are in form of groups.

(ii) Number of the spindles are arranged in succession.

(iii) the role plays by '0' as a symbol.

Place of presentation : 'Working mat' or 'Chowkie'.

Invitation : "You know counting 1, 2, 3, … with number rods. Come, I will show you another material for counting."

"Look, this is Spindle Box. You carry this box at the place of presentation without any noise."

● Presentation : (I.A. – I.P.)

Keep the Box 1 at the middle of the working mat and adult asks the child, "Watch, how I try to take out the spindle without any noise or as little noise as possible."

The adult pushes the spindle against the rear end of the compartment with his right thumb and lifts it so that he can hold the spindle with his index, thumb and middle finger and slowly takes it out. Spindles are kept to the left of the adult.

After taking out all the spindles from the box, then adult tells the child, "Now watch how I put back the Spindle."

The adult indicates the number 1 and says to the child, "Here is one, so I put one

spindle here." The adult picks up one spindle with the right hand index, thumb and middle fingers and places one end against the back wall and put it down slowly. So that there is as little noise as possible.

Next the adult tells the child, "Now watch, here is 2, so we put 2 spindles here."

The adult puts one spindle in the compartment with the symbol 2 and after placing it he says 'ONE'. Then he takes another Spindle and after placing he says, "This is another one, Now it is Two."

Every child shows interest in '0' and ask the adult, "Why is there no spindle?"

The adult asks the child, "What number is marked here?" The child says '0'. Adult says, "You know this is '0' and '0' means nothing. So there is no spindle here."

After the child repeats the first box then he can use 2nd box and then he can use both the boxes together.

● Control of error :

Lies in the entire material. If a child makes a mistake in any one compartment, he can understand his error by himself.

Direct aim :

To help the child further consolidate—

(i) his capacity to associate quantity with their symbols.

(ii) his knowledge of succession of numbers.

(iii) his ability to count.

Indirect aim :

To help the child —

(i) realise that quantity above one can be made with the help of loose, individual identical units (they can be identical from any point of view).

(ii) Pass from arithmetic of variable to arithmetic of groups.

Age : 3½ yrs. of age.

● "Zero Activity"

Presentation : Child here the sound 'Nothing', zero is nothing.

But that is not enough, they must feel what nothing is. For this purpose we employ exercises which amuse the child immensely. I place myself in the midst of them as they as they sit around in their little chairs; I turn to one who has already performed the counting exercise and say to him, "Come, dear, come to me zero times."

The child almost always runs to me and then return to his place. "But my child, you have come once, and I said zero times." He beings to wonder. "But what ought

I to do then?" "Nothing, zero is nothing." "But how do I do nothing?" "Do nothing; you must stay where you are, you must not move, you must not come any times; zero means no times."

We repeat the exercise, "You dear, throw me zero kisses with your fnger-tipes." "Clap zero times." etc.

With these activities the children being to realise the actual meaning of "zero".

● Control of error :

To help the child, control of error is a social control of error.

Direct Aim : To help the child experience with his whole being, both intellectually and emotionally; that '0' (zero) signifies absence of all quantities.

Indirect Aim : To help the child control his emotions by will effort directed by his intelligence.

Age : The child who shows interest about '0' when working with spindle Boxes.

● Chit Game

Presentation : (Group Activity – Group presentation)

In a box, we have ten slips of paper on which a number from 0 to 9 are written and folded.

In another small basket there are 45 little cowries. Invite the children to come one by one, takes out a slip; carries it to his place, look at it stealthily, fold it again to hide the secret. Again we invite them to come one at a time and take the cowries corresponding at the number written on your slip.

The child with '0' written as his slip does not comes, because '0' means nothing.

The adult then check the number of cowries and number of slips are coincide or not. The activity being challenging can be repeated.

● Control of error :

Lies in the material.

Direct Aim : To give the child further opportunities to apply his ability in associating quantities with symbols.

Also further helps the child to consolidate his knowledge with regard to significance of 'zero'.

Indirect Aim : To help the child control his emotion by applying his will a directed by his intelligence.

Age of presentation : 3½ yrs. of age and have an experience with '0' activity.

Check your progress :

Q.1. Why we hold the spindle with three writing fingers?

Ans. It is directly helps the child for holding any writing instruments.

Q.2. Why '0' in the first box?

Ans. We give the presentation with first box and child can see that '0' means absence of all quantities.

Q.3. Say the names of the activity which helps the child to realise that '0' means absence of all quantities?

Ans. 'Zero' activity and 'Chit game'.

● "Number Cards and Counters"

Material Description : In a box, we have ten number cards from 1 to 10. In the same box there are 55 small attractive an identical objects called counters. This box is displayed next to the spindle boxes.

Place : Working mat.

Presentation : (I.A. – I.P.)

Ask the child to bring the box and mixed up all the cards on the mat. Then adult asks the child, "Keep all the cards one after another from 1 to 10 and keep some space between the cards." The child puts '1' then adult ask the child, "What comes after 1" keep this here." The child keeps '2' and so on.

After placing all the cards, the adult checks up the sequence of the cards. Now adult asks the child, "We have put these counters below these numbers. "So this is ……?" Child says '1'. Adult — "So we keep one counter below one." In this way child does the activity. The child is free to arrange the counters in any design he wishes.

● Control of error :

Lies in the material and helps the child in counting and correcting the mistakes.

Direct Aim : To helps the child to further associate each symbol with its equivalent quantity from 1 to 10 and thus become aware of the names of the numerals in succession.

Indirect Aim : To help the child confirm to himself, indirectly that he knows the numbers in succession from 1 to 10 and can also associate correct quantities with their corresponding symbols.

"Even and Odd"

Presentation : Ask the child. "Keep the cards from 1 to 10 on the working mat in

succession and keep the counters below the cards in rows of two or two together". In between the two rows of counters there must be some space."

We use an indicator and give name-lesson of "Even" and "Odd".

1st period : The adult places the indicator between the rows of the counters and asks the child, "How many counters are on this side?" (e.g. pointing to the left). The child says "3". Then adult asks, "And on that side (pointing to the right side)" The child says "3". Then adult says, "So the number of counters on both sides of the indicator are equal. This is called on EVEN NUMBER. So 6 is an EVEN NUMBER.

In this way adult helps the child to understand at least any three even numbers.

Then adult places the indicator between the rows of counters of an ODD NUMBER says 5, and asks the child, "How many counters on this side?" The child says "2" and how many counters of that side? Child says '3'.

The adult then says, "So the number of counters of one side is '2' and other side is '3'. So both the sides, the number of counters are not same. This is called 'ODD NUMBER'. So '5' is an 'ODD NUMBER'.

In this way adult helps the child to understand at least any three ODD NUMBERS.

II Period : Adult asks the child so many question about 'ODD' and 'EVEN' number like this — "Count on EVEN NUBVER Counters.

Show me any 'ODD NUMBER' card. Give me any ODD NUMBER counters etc.

III Period : The adult asks the child, "What number is this?" This child says — '6'. The adult asks, "What is 6? 'ODD' or 'EVEN NUMBER?"
Child says — "EVEN NUMBER".
Adult — "What number is '3'?
'EVEN' or 'ODD'
Child says — "ODD NUMBER"

● Control of error :

Lies in the IIIrd peiod.

Direct Aim : To helps the child to get to know the two names 'ODD' and 'EVEN'.

Indirect Aim : To keep the child's interest alive in working with number cards and counters.

Check your Progress :

Q.1. How many counters in "NUMBER CARDS AND COUNTES" Activity.

Ans. There are 55 Counters. The addition of 1 to 10 in 55.

Q.2. Why we offer 'NUMBER CARDS AND COUNTERS' activity?

Ans. Here child further associate both quantity and symbols and consolidate her knowledge about the Number from 1 to 10.

● "Special Exercises with Number Rods"

Exercise 1 :

Presentation : (I.A. – I.P.)
Child brings number rods and arranges then in succession on the working mat. Adult asks the child to bring rod of 10 in front of you and count it

Then adult ask the child to bring rod of 9, and keep it below rod of 10 and count it.

Then adult ask the child, "See a gap here, which rod will fill-up the gap? Count it."

Child : 'One'.

Then child bring rod of 1 and count it and then fill the gap.

Adult ask the child to count 9 and 1 together.

Adult : "So 9 and 1 together makes ten so 9+1 = 10."

Then adult asks the child to bring the next longest rod and put it below the rod of 9 and count the rod.

Adult : "Which rod will fill-up he gap. Cunt the blank portion."

Child : "Rod of 2."

Child bring rod 2, count it and fill-up the gap.

So 8 and 2 together makes 10.

So 8+2 = 10.

In this way child will do the activity. When the child puts the rod of 5 and needs another 5 to fill-up the gap, then adult suggest to put the rod of 5 again in the blank portion and say the child that if we take 5 two-times it also makes 10.

So 5×2 = 10.

Exercise 2 :

Same as above but here child first bring longest rod, then bring any one rod below the longest rod and then fill up the gaps
e.g. 3+7 = 0
1+9 = 0 etc.

Exercise 3 :

Here ask the child to bring any one rod and keep it in front of the child. Then bring any other rod keep it below the rod and count it, then fill up the gaps and put back all the rods.

e.g. Rod 5
Rod 3+2 = 5 etc.

Exercise 4 :

Here child can do all these exercise mentioned above by keeping all rods in scattered way.

Exercise 5 :

Here hide rod of 10. Adult ask the child to bring longest rod i.e. 9 in front of the child and count it. Then next longest rod keep it below the rod of 9 and count it, then fill up the gap.
So 8+1 = 9
In this way do the activity. Again hide rod of 8 and do the activity.

● "Subtraction"

Presentation : The adult asks the child to bring the number rods and makes them equal to ten.

Then adult takes rod of one from (9+1) and asks the child, "How many numbers have I takes away?"

Child — 'ONE'

Adult — "Now how many are left? Count it.

Child — '9'.

Adult : "First I have 10, and if I take one from ten then it is 9.

So 10 – 1 = 9. This is call subtraction.

In this way child will do the activity.

In case of 5, adult asks the child "Here we make 10 by doubling the 5.

Now if we fold this 10, then we get 5. So 10 ÷ 2 = 5 and this is called division.

● Control of error :

Lies in the child's counting.

Direct Aim : To help the child to apply and consolidate all the knowledge which he has acquired from quantitative symbols from number 1 to 10.

Indirect Aim : To help the child to have a glimpse of arithmetical operation addition, subtraction special case of multiplication and division.

Age : 4 yrs. of age.

Check your Progress :

Q.1. Why we offer special Exercise with Number Rods?

Ans. The Exercises helps the child to learn Addition, Subtraction, Multiplication and Division.

● Decimal System (Static Part)

Golden Bead Material :

Material Description : A box with four compartments, whose rightmost shallow compartment have 9 golden beads for units and in the next compartment we have 9 bars of ten, on each bar compose of 10 beads.

In the next compartment we have 9 bars of hundred. Ten bars of 10 makes together form a Hundred and it is square shape.

In the last compartment, have a cube of THOUSAND makes by ten bars of hundred together.

Along with these we also have a tray with green bowl on it.

Purpose : This activity helps the child to become aware of the simple laws that governs the decimal system by his own active personal experience.

Name of the Activity : 'Name-Lesson'

Place : Working mat.

Invitation : "Come, today I show you a huge amount of beautiful materials."

(Child and Adult bring the material and Adult keeps the box on his right side with the unit compartment near his right hand side.)

● Presentation : (I.A. – I.P.)

1st Period :

The adult takes one bead keeps it near the right side of the mat and says to the child—

"Look, this is …… ONE".

"This is …… ONE".

Then adult shows the child one ten-beads bar and asks the child "How many beads are there? Count this."

"Look, 1, 2, …… 9, 10."

"So this is …… TEN."

Then adult takes out a hundred and put it near the child and says, "Look, this is …… HUNDRED. There are so many tens are there. Count, how many tens in hundred?" Adult starts counting, "Count, 1 ten, 2 tens …… 10 tens.

So 10 tens makes Hundred.

So this is …… HUNDRED."

Then adult takes out the cube of thousand and says to the child,

"Look this is ……."

Child, "What is this?"

Adult, "Are you like to hold it?"

Then adult gives the cube to the child's hand from a distance. Child sees the cube and feel it.

Adult, "This is …… THOUSAND."

"There are so many hundreds stacked into one. Now we count how many hundreds are there." Adult takes the cube in his left hand and traces with right hand's finger from the side of the top most hundred.

Adult traces the sides and says —

"ONE HUNDRED, TWO HUNDRED …… TEN HUNDRED."

"So this is …… THOUSAND, 10 hundred makes a …… THOUSAND."

Adult will arrange all the quantities from right to left, i.e. THOUSAND — HUNDRED — TEN — UNIT.

2nd Period :

Adult asks so many questions to the child like this;

"Show me 10, Give me thousand, Hide 100, Count how many tens in hundred, Count how many 100 in thousand, Count 10 etc.

Then adult arranges the quantities from right to left.

3rd Period :

Adult asks the child —

"What is this?"

Child — 'ONE'

Adult — "What is this?"

Child — 'TEN'

Adult — "Count, how many beads in ten."

Adult — "What is this?"

Child — "HUNDRED"

Adult — "Count how many tens in HUNDRED."

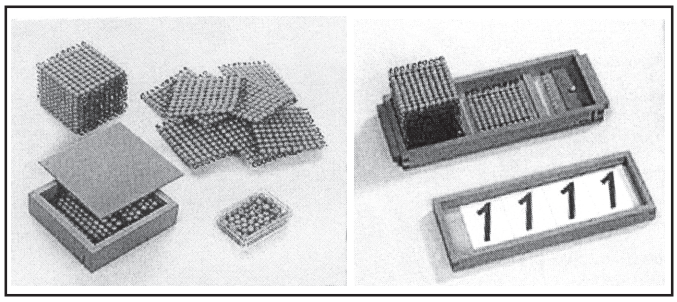
Adult — "What is this?"

Child — "THOUSAND"

Adult — "Count, how many hundreds in THOUSAND."

● Arranging with the Golden bead Material

Presentation : Adult arranges the quantities from right to left, e.g. TH – H – T – U.



Then adult asks the child "Look, here we have one bead and there are so many beads in the box. Now we count how many beads are there."

Child then count the beads like 2, 3, …… and keeps all beads in one vertical line and distance between two beads in equal to a bar of 10. After arranges 9 heads then child says, 'there are no beads'.

Adult — "Suppose there is one more beads, then ……"

Child — "Then it will be 10".

Adult — "Where is TEN?"

The child shows a ten bead bar.

Adult — "Look, there are so many tens in the box, count them and keeps it one vertical line."

Child — Counts 1 ten, 2 tens, 3 tens …… 9 tens and put them in one vertical line.

Adult — "How man tens are there?"

Child — '9'

Adult — "Suppose there is one more ten then ……?"

Child — "Then it will be 10 tens."

Adult — "What do we call 10 tens?"

Child — Ten tens are hundred."

Adult — "Show me hundred." Look there are so many hundreds in the box, you count and put them one vertical line.

Child will count one hundred, two hundred, upto nine hundred and keep them one vertical line.

Adult — "Suppose, there is one more hundred, then ……"

Child — Then it is 10 hundred."

Adult — "What we calls ten hundred?"

Child — “THOUSAND”

Adult — “Where is thousand?”

Child — Show the thousand.

(The materials are displayed for presentation on the shorter side of the working mat).

● Formation of Quantity

Presentation :

After arranging the golden bead materials, the adult asks the child to bring a tray with green bowl and keep the bowl at the right base corner to the tray.

Then adult sys the child, “I shall asks you some quantity and you will give me that much of quantity from these beads.”

Adult asks, “Give me 600 and you start to pick-up the beads from top.” Child takes 6 hundred beads bar from top and comes to the adult.

Adult check the number and ask him to put back the all bars.

Next adult asks the child, “Bring 1 thousand 2 hundred.”

Child carry the beads and adult will check it and says put it back.

Then adult ask the child, “Bring 2”.

Child — “2 of what? tens on hundred?”

Adult — “2 units and bring it in the green bowl.”

Child — “What is unit?”

Adult — “Look, these loose beads are called unit. When I ask any number like, 2, 3 etc., then you should understand it is unit and bring it from loose beads and keep them in the green bowl.”

Then adult asks the child, “Bring 1 thousand 3 hundred 3, i.e, combination of 3 hierarchy.

After that ask the child to bring combination of four hierarchy i.e, 1 thousand 3 hundred 4 tens and 1 and lastly asks the child to bring 1 thousand 9 hundred 9 tens and 9.

After checking the materials asks the child to put back the material in the box and asks the child, “How many beads are on the mat?”

Child says “Nothing”.

This 3 activities helps the child to have a clear idea about the unit of various hierarchies.

● Control of error :

(1) In the 1st activity, "Name-lesson" control of error lies in the 3rd period.

(2) In the 2nd activity, the control of error lies in the material.

(3) In the 3rd activity, there is no need for control of error.

Direct Aim : To help the child enjoy handling large quantities within the frame work of decimal system of numeration.

Indirect Aim : To helps the child become aware of the law's of the decimal system of numeration by means of his personal activity, the Laws are :

(1) There can be only 9 units in any one hierarchy.

(2) The number of hierarchies on a level are limited to three : Unit, Tens and Hundred.

(3) In the number of levels there are no limit on which these three hierarchies repeat themselves.

(4) The ratio between the unit of one hierarchy and the unit of next higher hierarchy is 1 : 10.

(5) The relation between one level to the next higher level is 1 : 1000.

Age : 4 yrs. of age and know the numbers of 1 to 10 and significance of '0'.

● Decimal System (Static Part)

Card Material

Material Description : Card materials are keep on a wooden box whose one of the wall is collapsible.

There are 9 cards i.e. 1 to 9 units. The numbers are written in green on white base.

Another 9 card of ten (i.e. 10 to 90) which are as broad as unit card, but twice as long. The numbers are written in blue on white base, so blue colour stands for tens.

There are 9 cards of hundred which are as broad as unit card but three times longer. The numbers are written in red colour on white base, so red colour stands for hundred.

Along with these cards there is one card of thousand which is as broad as unit card but four times longer. The number is written in green as in unit cards because it is also a unit of the next higher level.

Display : In a box, first we keep thousand card then hundred card on it, in such a manner that they hide the three zeros of the thousand.

Ten number cards are placed on hundred by hiding two zeros of hundred. The unit cards are placed next to tens by hiding one zero of tens.

This card material is placed near the "Golden Bead Material".

Place — On working mat.

● Presentation : (I.A. – I.P.)

Asks the child to bring the box on the working mat and keep the box at the right side of the adult and also bring a tray.

1st Activity : Name-Lesson

Tell the child, "you have already hear the names ONE, TEN, HUNDRED AND THOUSAND. Come today I show you how to write these names".

1st period :

Show the child card 1 and asks him, "What is this?"

Child says — "ONE"

Show the card '10' and asks the child, "What is this?"

Child says, "TEN".

Adult — "How many zeros are there in Ten?"

Child — 'ONE'

Adult — "So this is …… TEN".

Then adult sow the card of hundred and tells the child, "Look, this is …… HUNDRED."

"Count how many zeros are there in 100?"

Child — "TWO"

Adult — "So this is …… HUNDRED."

Showing the card of thousand and say the child, "This is …… THOUSAND."

Count how many zeroes are there in the thousand.

Child — "THREE"

Adult — "So this is …… THOUSAND."

2nd Period :

Adult asks so many various questions to the child. Like this —

"Show me Ten."

"Keep thousand here."

"Hide ten"

"Count how many zeroes in hundred."

“Where is unit? etc.

Then arrange the cards like TH-H-T-U.

3rd Period :

Adult — “What is this?”

Child — “ONE”

Adult — “What is this?”

Child — “TEN”

Adult — “Count how many zero in TEN.”

Child — “HUNDRED”

Adult — “Count how many zeroes in HUNDRED.”

Child — “TWO”

Adult — “What is this?”

Child — “THOUSAND”

Adult — Count how many zeroes in THOUSAND.”

Child — “THREE”

At the same sitting, we give the 2nd activity.

● ‘Arranging the Cards’

Presentation :

Ask the child to arrange the cards one to thousand like, TH-H-T-U.

Show the child card ‘one’ and ask the child, “What is this?”

Child — “ONE”

Adult — Look there are more cards in the box. So we arrange all the cards in a vertical line.

We keeps the card one after another each card touching the other. Child will arrange all the cards upto 9. Adult ask the child, “What comes after 9?”

Child — “TEN” and child will show the card 10. Then adult says, “So this is one ten”.

“Look there are so many tens in the box. We put them one after another and says, one ten, two ten, three ten etc.

Adult — “What comes after 9 tens?”

Child — “Ten tens”.

Adult — Ten tens means one hundred. “Show me one hundred.”

Look there are so many hundred in the box. We arrange it like 1 hundred, 2 hundred upto 9 hundred."

Then ask the child, "What comes after 9 hundred?"

Child says, "10 hundred".

Adult — "So ten hundred is one thousand.

Ask the child to put back the cards in order in a stack but first show him how you put card 8 before 9 and so on. Then child can talk over.

● Name of the Activity : (3rd Activity) : "Formation"

Presentation : (I.A. – I.P.)

Ask the child to arrange all the cards on the working mat. Then asks the child to bring a tray and give me 400. But child brings four cards of hundred from top like golden bead materials.

Adult — "I ask you to bring 400, but you bring so many cards."

Adult takes 100 card and hide two zeros of hundred and ask the child, "What is this?"

Child says, "This is ONE."

Adult asks the child "Look, two zeroes are there. So this is one hundred, 2 with two zeroes i.e. 200. So 4 with two zeroes i.e. 400. So you keep this card only on the tray and put back other cards.

Then adult ask the child to bring the cards like combination of two hierarchies; then combination of three hierarchies and last combination of four hierarchies.

Then ask the child now look how I arrange the cards, — take thousand card first, then on top of it keep hundred card then ten card and then unit card, after that tape all the cards against zero and helps the child to say the numbers by showing the cards.

Lastly ask the child to bring 1 thousand, 9 hundred, 9 tens and 9 unit and then ask the child how many cards on the mat?

Child says — "So many".

● Control of error :

Same as golden head materials.

Direct Aim : To help the child to enjoy handling graphic representation of quantities within the frame work of decimal system of numbers.

Indirect Aim : To help the child become aware of the laws governing the decimal system.

● "Bead and Cards"

1st Type : "Bring cards for quantities.

Adult asks the child to arrange the beads and cards on separate working mats.

The adult tells the child, "Bring a tray with green bowl and then I will give you same beads on the tray and you will count it and bring that amount of cards. Then adult check it and repeat the activity.

2nd Type : "Bring quantities for Cards"

Now adult gives the child some cards and child will read it and then bring that amount of Beads.

3rd type : "Bringing both for oral commands"

Adult ask the child, "Listen carefully, I will ask you some number, you will bring that number from both cards and beads."

Suppose, adult ask the child to bring one thousand, three hundred, one ten and four.

The child bring that number from both beads and cards, then adult check the number and says "One thousand three hundred and fourteen."

Child — "Why fourteen?" It is one ten and four.

Adult — "Yes, fourteen is the another name of one ten and four." From this activity on words we use the Traditional *Names of Numbers* when we check the materials.

● Control of error :

Adult will inspect that both beads and cards are coincide or not.

Direct Aim :

To help the child in counting to enjoy handling large quantities and their graphic representation within the frame work of decimal system.

Indirect Aim :

(1) Same as that of other activity of decimal system.

(2) To help the child to get interested in the traditional names of combination of one ten and one to nine units, various groups of tens and combination of various groups of tens and one to nine units.

Check your Progress :

Q.1. Why in decimal system of Golden bead, material is called static? And Dynamic box — called Dynamic?

Ans. In Golden bead material box, each compartment we have 9 unit. So we cannot change them from one hierarchy to another. That's why this Box is called static.

In Dynamic Box, each compartment we have 45 units. So we can change them from one hierarchy to another. That's why this box we called Dynamic.

Q.2. What are the Laws of Decimal System?

Ans. See the Indirect aim of Decimal System of Golden Material.

● Name of the Activity :

The decimal system. (Dynamic Part). Bead Materials & Card Materials.

Material description : There is a container with 45 golden beads. To the left of that container there are 45 tens in another container. In another container, there are 45 hundreds. They are symbolic hundred— on a square wooden plaque the 100 beads are printedin blade an orange coloured paper.

We also have symbolic 9 thousands— 9 wooden cues whose 6 faces are covered, with imprients of hundreds.

We also have card material just as the Cards of Static part only there are thousand Cards up to 9 thousands instead of 1 thousand.

We also have 3 sets of small cards. The figures printed an them are smaller and there are thousand cards up 3 thousands.

We also have 3 independent natural coloured trays for the dynamic part with 3 green bowls. We also have a larger size green bowl.

Name of the Activity : The Change Game.

Material needs : All the golden bead material— 9 thousands, 45 hundreds 45 tens & 45 units (loose beads).

Presentation : (I.A.— I.P.) :

Invitation : "You have been worked with large quantity. I am sure that you also like to work with still larger quantity— Won't you ?"

Ask him to showing the hundred that, "Now we have going to use this material as hundred. There are hundred heads are printed here. These are symbolic hundred."

If the ask that,— "But I like the beads."

Then say him that— "There are so many hundreds you see. But here is no space to keep all the bead hundreds."

Now take out 3-4 thousands, & some hundreds, tens & units in a bowl. Mix-up all the thousands, hundreds & tons in a heap.

Ask the child— "Look what a huge quantity ! Do you have any idea that how much are there ?

Child say— "No".

“Let’s find out how much we have, Now we are going to count all these quantities.”

“Which do you want to count first ?”

Child— “Thousand”

So you count thousands and put one on top of the other.

Again ask the child what he wants to count now ? If he says “Hundred”, Then short out all the hundreds from the heap.

Then count upto to ten hundred keeping them one top of the other. Ask the child— “We call 10 hundreds— one thousand.”

So you put these ten hundreds in the box back and take a thousand cube from the original box and put it on the top of the thousands cubes.

Ask the child, “Every time when we have ten hundreds, we have to change them into one thousand.”

Ask the child to count the remaining hundreds. There are 9 hundreds, so he can’t change it.

Ask the child what does he want to count now.

Child says— “Ten.”

Ask the child to count them. When he count upto ten, ask him, “Ten tens means—”

Child says— “One hundred.”

So ask him to change them to one hundred and keep it on the hundred stack. Them there are 10 hundred. So ask The child to change them into thousand. “Ask the child to count the other tens. There are seven tens. So we can’t change them.

Then ask the child to take the smaller bowl. Ask the child to count units & put then in the smaller bowl.

When he count upto ten then ask him to change then into + one ten :

After the child has done all the necessary counting and changing then ask him.

“How many quantity are there ?” Child count the quantity (i.e. thousand hundreds, tens and units).

Ask him to take the tray and bring the quantity in cards. When Chaking you say:

e.g. forty five instead of four tens and five.

If child asks you, say to the child, “We also call four tens and five in the same of fortyfive.”

Ask the child to put back the materials in the box and make another heap & find out how much are there.

N.B. : Always keep some thousand, hundreds tens, in the box, so that the child can change whenever he wants to change.

Control of error : No need for control of error.

Direct Aim : To help the child enjoy handling still longer quantity and their graphic representation within the frame-work of decimal system.

Indirect Aim : (1) To help the child become familier with the mechanism of changing and thereby experiencing the dynamism within the frame-work of decimal system.

(2) To help the child experiencing the ordering effect of the application of laws of decimal system in clarity.

Age of presentation : About 4 years after he has enough experience working with decimal system static part.

● Parallel Exercise over Addition

Name of the Material : “Addition strip board.”

Material description : It is a rectangular wooden board grayish white in colour. On the board there is a frame-work of squares ; colour of the lines is blue. There are 12 horizontal rows and 18 squares in each rows. Over there 18 vertical rows of squares numbers are printed upto 18. 1 to 10 numbers written in red colour and 11 to 18 are in blue colour. After 10, there is a red line along the width of the board.

There are also 2 sets of wooden strips blue & red in colour. Width of the strips are corresponding to the width of the squares. There are 9 strips in each set. Their length correspond to the 1 to 9 squares of the board.

At the right end of the strips, number are printed in red on blue strips. The increasing of strips are seen from 1 to 9 and from left to right.

Other strips are red in colour. They are squared— number correspond to the strip of the square are printed on the right most square in blue.

Both are arranged in this manner so that blue strips are at the left of the red.

Presentation : (I.A.—I.P.) To the child who has experience asking with decimal system dynamic part golden head material.

Take the child to the material & introduce him with the material. Ask him to take out blue & red strips and tell him low to arrange 1 to 9 strips.

Tell the child— "This is addition strip board, so let's do addition. We add 6 with 7.

The first number are always take from blue.

Put the strip on the first row of the board. It goes upto the 6th square.

Tell the child,— "We take the second number always with the red strips."

Put it at the side of the blue strip.

Ask the child— "It goes to the square of—"

The child says— "Thirteen" "So 6+7 is thirteen."

Ask the child to keep back the stripsand make another addition.

You should think for same time to stimulate the child., so that he himself ask numbers for addition.

If the child wants to keep the record of his activity then he can use the squared papers to write you also ask him to read out the activity like this— "Six plus seven is thirteen."

Largest number in blue strip that is the strip of 9. e.g. to make 13.

The child should use— 9+4=13
8+5=13
7+6=13
6+7=13
5+8=13
4+9=13

to make 15.

Now the child observe that certain combination repeats but in a reverse manner. It also helps to discover the commulative law of addition. He also reads the combination. So make some space between the numbers and draw the child's attention to where the numbers are in a reverse manner.

Direct Aim : To help the child to concentrate on addition of two quantities from 1 to 9.

Indirect Aim : (1) To help the child get to know all the basic addition by heart.

(2) To help the child discover by personal experience the commulative law as it refers to addition and these realise that real basic additions are very limited in number (45 addition).

Age of Presentation : When he have had plenty of experience of working addition with decimal system dynamic part bead material and realistic the nature of operation by heart.

Control of error ! : When child work with addition strip board, then there is no need for any control of error.

Later when the child fills the sheets without any material help, at that stage he needs central of error.

Then there are various control which we use called CONTROL CHART.

Exercise 1 : Ask the child to take anyone number from the blue strip. Ask him to keep it on the board and ask him to add every red strip (from 1 to 9) with it, one at a time. e.g. he adds : 8+1=9, 8+2=10, 8+9=17.

When the child to performing his first exercise, we draw his attention to **The printed addition table.**

Name of the activity : The printed addition table.

Material description : A tray with 9 compartments. There are printed tables of numbers from 1 to 9. On those printed tables there. are green compartments horizontally from 1 to 9. The first numbers are in green & the second numbers are in brown as black.

Suggest the child to do addition on this printed table. When he filled all the compartments of the printed table, then make a book of his own by punching than together.

Add Table of 1	**Add table of 2**	**..... .....**	**Add table of 9**
1+1=2	2+1=3		9+1=10
1+2=	2+2=		9+2=
.....	.....		.....
1+9=	2+9=		9+9=

Exercise 2 : Ask the child— "There is something we do with addition strip board."

Ask the child to bring the board. Ask him— "Let us try and find out that how many ways we can make any number using two numbers at a time— one from blue & one from red strip. e.g. "Take the number 15."

Child can do the activity all by himself. He first take any are strip from blue then he try to find out the number from red strip which make 15.

Ask him not toput back the strips and ask him to take another number from blue strip and find out with which number of red strip it can make 15.

He see that he can do it in 4 ways.

6+9=15, 7+8=15, 9+6=15, 8+7=15.

Suggest another number and ask the child to find out how many ways we can make the number.

Latter an suggest the child to start the activity by using the.

Name of the Material : "The Multiplication Board."

Material description : On this Multiplication Board we are 100 of such pits. There are 10 horizontal rows of pits and 10 vertical rows. Over this 10 vertical rows, numbers are written from 1 to 10 in black colour.

Along the middle of the left side of the board, there a rectangular pit. It looks like a window. This is made for number cards, so that number can be visible.

Over the left top corner of the pit, there is a large circular pit also red in colour. Over it there is a red skittle.

There is a box an in it, there are 100 red beads. In the lid of the box there are 10 number cards 1 to 10. The numbers are painted in red. These numbers are painted at the right hand side of the card. The back ground of the card is white.

We use this number card to show the **Multiplicant.**

Numbers on the board are **Multiplier** & by the red beads,we show **product.**

Presentation : Invite the child and ask— "Look this is Multiplication with it." We bring the board and box with lid."

Tell the child, "See this is the multiplication board. (Pointing to the Board) and I show the cards and say, "See this numbers— you can multiply with these numbers on the board."

Then I show the skittle is used to remember how many times you have to multiply?"

I keep the skittle over the red circle.

Now I ask the child to choose one of the cards to serve as multiplicants.

Suppose the child take out the card of 3. "Let's put the card on the window. (The rectangular pit on the left hand ride of the board.).

"Let's multiply 3 with 2."

So we have to take 3 two times. We take the skittle and put it over 2. Now we take 3 red beads & arrange them below 1. and again take 3 beads & arrange then below 2 in vertical way. Then ask the child to count how many beads are all together. “Child counts & tell,” There are 6 beads.” So 3 taken two is 6.

In this way child may be multiplication at random like 3×4, 3×5, So on.

Then we suggest to multiply in a linear manner. I ask the child to chose any number, suppose 5. Child puts the card of 5 in the window then ask the child, “Now we multiply 5 with all the numbers of the board written on top.

So we keep the skittle over No. 1 That means time on (5) multiply are time. So put 5 beads below 1 and count and see 5 multiply by 1 is 5. Then he slips the stittle to the No. 2, that means he has to multiply 5. two times. So he put 5 more beads below the No. 2. The ask the child to count all the beads together. Child count and say 10. So 5×2 is 10.

Again I move the skittle over 3 means 5 to multiply by 3. So the child puts 5 more beads below number 3— and comit and find it is 15. So 5×3 is 15. Thus he continues doing this way upto 10.

When child wants to keep the record of multiplication, he has done, he use a printed tape like this (e.g. Multiplication tape of 2).

The frame work of this table surrounded by red line.

The multiplicant is written in red and other numbers in black. To the right blank place for the product to be filled up by the child.

Multiplication Table of 2

2×1=2
2×2=
2×3=
2×4=
2×5=
2×6=
2×7=
2×8=
2×9=
2×10=

Control of error : Lier in the counting as long as the child is working with the Multiplication Board. When he starts to record the Multiplication without any material help— then we, give him the first control chart. Where he can see the 2 numbers and the product of them.

Direct Aim : To help the child concentrate as the product of numbers from 1 to 10.

Indirect Aim : (1) To help the child to realise that he knows the multiplication tables from 1 to 10 by heart.

(2) To help the child became familier with the mechanism of Multiplying numbers by 10.

(When we multiply a number by 10, we actually don't do the multiplication— we just put a zero at the right side of the number. In other words we promote each digit of the number to the next higher hierarchy.

e.g. 426×10=4260.

Age of Presentation : After the decimal system of dynamic part.

Name of the Material : "Substraction Strip Board."

Material Description : The board is of same shape ; dimension ; colour & squarer with Addition Strip board. There are also 18 vertical and 12 rows of squares. Numbers are written on 18 vertical rows— Number from 1 to 9 is in blue & number 10 to 18 is red in colour.

The line along the width of the board is after 9 and colour of the transversal live is blue. There are an set of blue strip from 1 to 9 and another 17 strips correspond to the 1 to 17 squares of the board. They are of same colour as the surface of the board.

No numbers are written on 17 strips because they do not represents any quantity at all.

They are used to short the board according to quantity from which you subtract.

Presentation : (I.A.—I.P.) : Invite the child & say "Come, to-day I am introduce you with a new material with which you can do subtraction all by yourself."

Presentation should be an working mat.

Ask the child, "Look, this is a subtration Strip board."

Then you bring the material and suggest the child to arrange the strips.

Blue strips arrange same as addition stripboard & (1-17) strips are arrange at the left side of the blue strips.

Then ask the child—

"Let's do subtraction. We subtract 4 from 18. So we take 4 from blue strip & put it below 18."

It covers the numbers from right to left and difference are shown at the left.

Ask the child— "What is the number here ? (indicating the square of left of blue strip)."

Child see the number of the square which is at the left of the blue strip and said it is 14."

"So the difference, is 14."

After same subtractions done from 18. ask the child— "Let's us subtract 8 from 15.

So you cover the numbers, 18, 17 & 16 with this strips (indicating to the natural coloured strips) & then put 8 from blue strip below 16." Ask the child— "What is the difference ?" Child can see the board and say "7".

Do save another substractious with other numbers also and when he understand ask him to put back the material.

If he wants to keep the record ofhis activity he should use square sheet of paper— 5 square horizontally & vertically more than five.

Exercise : After he has done all the subtractions for some days, we ask him to concentrate an only those subtractions where the difference is only 9 or less than 9.

Ask the child— "You have been doing many subtraction, with subtraction Strip board. But we don't need them all. So come, we shall do those subtractions which are need really." "We subtract from 14. So we first prepare the board upto 14 using the natural colour strip. Cover 15, 16, 17, 18." "We need only those subtraction where the difference is 9 or less than 9. When the difference goes only upto the blue line, then you will stop."

"So you should begin to subtract with the largest strip 9 and then go on. When the difference is 9 & touch the blue line then we stop."

"We don't need the difference that goes after the blue line i.e. move than 9.

After he understand the nature of the activity, ask him to go on subtraction with any number but remind him to do only those subtraction where the difference are only 9 or less.

If the child want to keep the record of his activity, he has to use printed table. Tables upto 18. They are kept in a tray, like addition strip board but twice as broad as that board. Each of this table has a frame-work, numbers are in black & blue.

There are only 1 subtraction in 18. i.e. 18-9 ; in 17, 17-9 ; 17-9 ; in 16 ; — 16—9 ; 16—8; 16—7 etc. When the child does the subtraction without the help of the board & on the table ; he needs control of error. Then we offer him control chart.

Direct Aim : To help the child concentrate or basic subtraction.

Indirect Aim : To help the child gets to know subtraction by heart without having done so deliberately.

Age : After he has plenty of experience of doing subtraction with decimal system dynamic part & knows the nature of subtrauction.

Name of the Material : The Division Board (Board of Unit)

Material Description : In a Box, there are 89 green bends and 9 green skittleson the lid on the box each of which represent an unit. On the board, there are 9 pits in each row and there are 9 such rows. There is green band over the board. Or it there are 9 larger its where 1 to 9 are written.

At the sideof the board No. 1 to 9 are printed vertically. The numbers are represents the quotients and the horizontal numbers are the divisions. There is also a green bowl.

Presentation : Tell the child, "There is also a board where you can do division all by yourself. Let us do the division."

Ask the child, "Let us divide 36. So we take 36 beads in the green bowl." When he has taken the beads tell him, "Let us put 9 skittle on the larger pit." You can show him first by joins or putting the beads below the skitteles. While putting the beads tell yourself are to you are to you etc.

Tell the child, "There is no more beads. So each skittle gets 4 beads." Noo— "Let us divide 36 bends among 8 skittles. So take away are skittle & the beads below it." Put the beads under the skittle once more.

There are only 4 beads. So tell the child, "I have only 4 beads. So I cannot given then to anybody." And take them away and keep than in the bowl.

Then remain only 4 beads. So 4 is remainder.

Again ask the child, "Let us divide 36 beads among 7 skittles. So take away the 8th skittle and the beads, below it."

Give the remaining beads to the skittles once move and there is only one left.

Tell the child, "So every skittle gets 5 and 1 in the remainder." "Let us divide 36 among 6". Child gives the remaining beads once more and say that or the board the beads books like a square. "Now let us divide 36 heads among 5". Here quotient is 7 and remainder is1. "Let us divide 36 by 4."

The quotient is 9 and no remainder. "Now let us divide 36 among 3. Take are skittle is no place to give the beads once more. So we cannot divide 36 beads among 3 on thin board.

If the child wants to keep the records of divisions, he can record them as the division table.

After a few days you suggest, "You do not need to record all the divisions. You need only those divisions which have no remainder.

e.g. in 36, we need only (36 ÷ 9 = 4 ; 36 ÷ 4 = 9, 36 ÷ 6 = 6) 3 divisions to be recorded.

Then he also realizes that the multiplications i.e. 9×4=36, 6×6=36, 4×9-36

Control of error : We do not suggest any control of error but if the child requires any he may use the Multiplication chart.

Direct Aim : To help the child concentrate all basic division and also helps the child to realize the relation between basic division and basic multiplication.

Indirect Aim : To help the child prepare himself for the use of division board of 10's and board of 100 for doing long division.

Age of presentation : After the child has had plenty of experience with decimal system of dynamic part and also knows the nature of division.

● "Traditional Names in Arithmetic"

In arithmetic, when child shows interest about these traditional names, then we offer it. Actually we start to saying the names at the 9th activity of decimal system of static part when adult check the material at that time he says traditional names.

There are 3 groups in traditional names :

(1) Combination of one Ten and one to nine units i.e. (11-19).

(2) Various groups of Tens i.e. (10, 20, 30 …)

(3) Combination of various groups of tens and one to nine units i.e. (21-29, 31-39 …).

Here we first helps the child to associate the names with quantities, then associate the names with symbols and after that associate the names both quantity and symbols.

1st Group : Combination of one ten and one to nine units.
Name of the activity : Name-Lesson (in English 11-19).

Material : 9 tens and 45 units of golden bead materials.

● Presentation :

1st Period : Ask the child to bring the materials. Showing one ten and ask the child,

"Look, this is one Ten." Then adult takes one bead and keep it at the side of one ten and ask the child, "This is one bead and now we count all the beads together."

Touch the beads with finger and the child counts it like, one, two …… ten (child and adult together), Adult says ELEVEN.

"So one ten and one is also called ELEVEN."

Again keep another ten and ask the child "What is this?"

Child says — "One ten."

Keeping 2 beads at the side of ten, ask the child, "What is this?"

Child — "Two."

Ask him to count all the beads together. Child starts to count, join with him at eleven and say "TWELVE", after eleven.

"So, one ten and two is also called TWELVE".

2nd Period : Ask the child various question like this —

"Where is TWELVE".

"Put ELEVEN here".

"Count TWELVE".

Then ask the child, "Put eleven here", "Put twelve here" etc.

3rd period : Adult — "What is this?"

Child — "ELEVEN"

Adult — "Count this".

Adult — "What is this? Count this".

Child — "TWELVE".

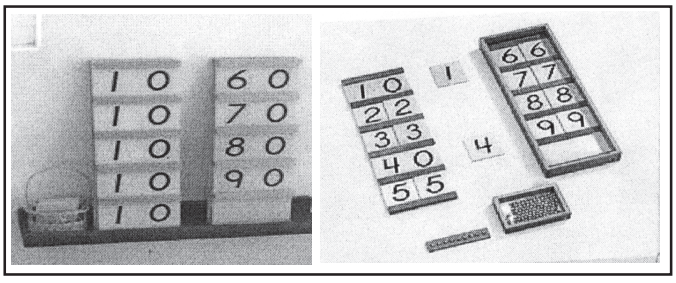
(N.B. — English (11, 12); (13,14), (15,16), (17,18,19).

● "Name-Lesson with Symbols"

Material : "First frame of SEGUIN"

Material Description : It is a narrow rectangular frame whose length is divided into 5 compartments and breadth is divided into 2 compartments.

'1' is printed on the left most 5 compartments with black colour on white base and on right most 5 compartments '0' is written.



Compartments are divided by wooden strips.

On the right half of the frame there are grooves, so that we can insert other cards into this.

On the 2nd part of the frame '1' and '0' are written on the first 4 compartments and 5 compartment is black.

There are also number cards from 1 to 9.

The dimension of the number cards corresponds to the compartments of the frame, so that they can cover the '0' of the TEN.

Presentation : (I.A. – I.P.)

"Come today, I will show you how to write eleven, twelve etc. with the help of "Seguin Frame".

1st Frame :

1st Period : Keep the 1st frame in front of the child and the box to the right side of adult. Ask the child, "What is written here?"

Child — "TEN"

Inserting card 1 into the groove of the 1st compartment and ask the child "What is this?"

Child — "ONE".

Adult — "So one ten and one is called —

Child — "ELEVEN"

In this way show the child upto FIFTEEN.

2nd Period : Take out all the cards from the frame. Ask the child to make fifteen here (pointing any compartment) "Make twelve here". etc.

Before winding up the 2nd period, ask the child to make the numbers 11 to 15 in succession.

3rd Period : In the 3rd period ask the child "What is this?" etc.

Ask him to say the names in succession.

● "Associating the Names both Quantities and Symbols"

Material : "Activity with first seguin frame. 9 tens and 45 golden beads."

Presentation : Showing the frame tell the child, "Look, there are so many tens are written on the frame, so you keep 9 ten bead bars at the side of tens".

Ask the child to insert '1' over '0' of the 1st frame. Then it is eleven. "So we put one bead near one ten bead bar at the top and make 11 and count all the beads".

Then 2nd compartment and keeping 2 beads at the side of bar of ten, says, "TWELVE".

In this way he completes the 1st frame and then he works with 2nd frame.

After making 19, he sees that there is one ten bar and nine units then he can imagine if there is one more bead, then it will be two tens.

Exercise with First Sequin Frame

Mixed up all the cards and keep it up-side down. Ask the child to take one card from the top and make the number with it by inserting the cards over the '0' of the first compartment and makes the number with golden beads.

In the way child will done the activity with all the cards.

II Group

Names of Tens (i.e. 10, 20, 30 … 90)

(a) Name associate with quantity.

● Name of the Activity : Name-Lesson

Material : A box 45 tens of golden beads.

Invitation : "Dear child, come with me, today I show you the another name of 2 tens, 3 tens … etc.

Presentation : Keep one bar of ten in front of the child and asks him, "What is this?"

Child — "One ten".

Adult — Keep two bar of tens below the first bar of ten and asks the child "How many tens are there?"

Child — "Two tens"

Adult — "2 tens we called TWENTY. So this is TWENTY."

Then adult keep 3 tens of bar below the 2 tens of bar and ask the child, "How many tens are there?"

Child — "3 tens".

Adult — "So 3 tens is called THIRTY. So this is THIRTY."

2nd Period :

Asks various questions about these 3 names and then arrange the bar by commands like this, "Put 10 here, 20 here and 30 here."

3rd Period :

Adult — "What is this?"
Child — "10".

Adult — "What is this?"
Child — "TWENTY".
Adult — Count how many tens in TWENTY etc.
Another day we give the other names i.e. (40, 50), (60, 70) and (80, 90).

● "Associate the names with Symbol"

Material : Box of cards from 10 to 90. Pointed with blue on white base.

Presentation : Name-Lesson

1st Period :

Put the card 10 in front of the child and ask "What is this?"

Child says "TEN"

Then adult keeps the card of twenty and ask the child, "What is this?"

Child says "TWO TENS."

Adult — "TWO TENS we call TWENTY". Similar way adult present upto 5 tens i.e. FIFTY.

2nd Period :

Asks various question about that 5 cards i.e. FIFTY.

3rd Period :

Adult asks the child and child confirm the 5 names.
(Next day Adult give the other names (i.e. 60 to 90) in same manner.

● "Associate the names both quantity and symbols"

Material : 45 bars of tens and cards 10 to 90.

Adult show the card of ten and ask the child, "What is this?"

Child — "TEN"

Adult ask the child, "So you keep this bar of ten at the left side of this card." In this way child read all the cards & associate these with bar of tens and read the 2nd Group of tens in succession.

● Traditional Names III Group

Name of the Activity : Combination of various groups of tens and one to nine units.

Materials : First with twenty one to twentynine. Material needed 2 tens and one to nine units.

(a) Name associate with Quantity.

Presentation :

1st Period : Keep 2 bars of tens in front of the child, and ask him, "What is this?"

Child — “Twenty”.

Keep one bead at the side of twenty and ask “What is this?” (hide twenty with left hand’s palm).

Child — “ONE”.

Adult — “So twenty and one is twenty one”.

In this way child will read upto twenty nine.

2nd Period : Here give only two commands to the child like —

“Make 21, Count 21.”

“Make 25, count 25.” etc.

3rd Period : Adult makes the quantity and child confirm it.

(b) Associate the names with symbols.

Materials : With cards of twenty and one to nine unit cards.

Presentation : Same way : keep one to nine cards on the zero of the card twenty and make the numbers from 21 to 29.

Then do 2nd and 3rd period.

● Associate the names both quantity and symbols together

Material : Card of twenty and one to nine units and 2 tens golden bead bars and one to nine loose golden beads.

Presentation : Ask the child to make numbers with card and make the same quantity with beads at the side of he card.

After child knows the names 21 to 29, then we give the names 31 to 39. 41-49 and 91 to 99 in the same way.

When child knows the names upto 100, we should take the opportunity to count upto 100, whenever we get a chance.

● “Second Seguin Frame”

Material Description : 2nd Seguin frame same as 1st Sequin frame but here the numbers are pointed from 10 to 90.

There are also cards from 1 to9 with this material.

Along with this, there are 9 tens and 9 loose golden beads are need for the activity.

Presentation : Ask the child to watch the first compartment where 10 is painted — insert 1 to9 unit cards in the first compartment one by one and say the names and make the some quantity with beads on the mats.

Then ask the child to do the same with other compartments and ask him to make the same quantity with beads at the side of the compartment.