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The clinical and academic correlates of a perceptual training programme for Grade 1 children

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APPENDIX A

NOTES TO TEACHERS ON THE PERCEPTUAL TRAINING PROGRAMME

1. Treat the whole class as one group until week 2. At this time you will probably still have children to test, but you will be able to divide the rest of the class according to the way in which they responded to the initial exercises. Put the untested children with any group until you have tested them.
2. Hereafter, most of the activities are group activities, but there are some which are whole class activities.
3. For every day of the week, the children should do one activity from each section e.g. an orientation activity, a motor training activity, etc., so that, by the end of the day, the child has had training in orientation, in the motor-, auditory-, tactile-, and visual-perception areas, and has participated in dramatisation.
4. For each activity, demonstrate in front of the whole class, make sure they understand, and then get the children to perform the exercise in their respective groups. While they are performing, you can give individual attention to those showing persistent difficulties - (refer to the special training activities at the back of the programme where necessary).
5. You can either run through the entire day's programme in one session (it should take about an hour to an hour-and-a-half), or you can fit the various activities into your time-table as it suits you. What is important is that you let your own ingenuity and feeling for the children be your guide as to when to introduce a task, and when to terminate it.
6. Always get the children to pack away any equipment, and ensure that each piece has its own set place.
7. When you are engaging in auditory exercises, the room should be as quiet as possible.

THE PERCEPTUAL TRAINING PROGRAMME

Week I

A "Getting to know you" (orientation)

Introductions: Introduce yourself. Ask each child for his full name. Introduce the children to the classroom - devise a means of recognising it,

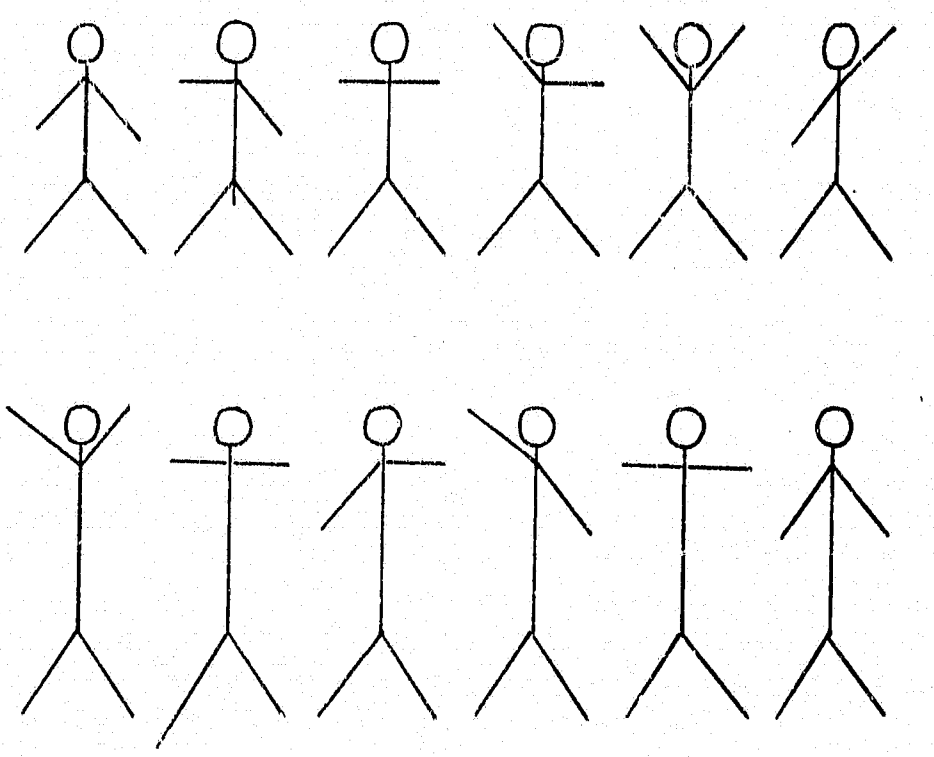
Take the children on a "tour" of these places. Point out landmarks to help them remember where these places are.

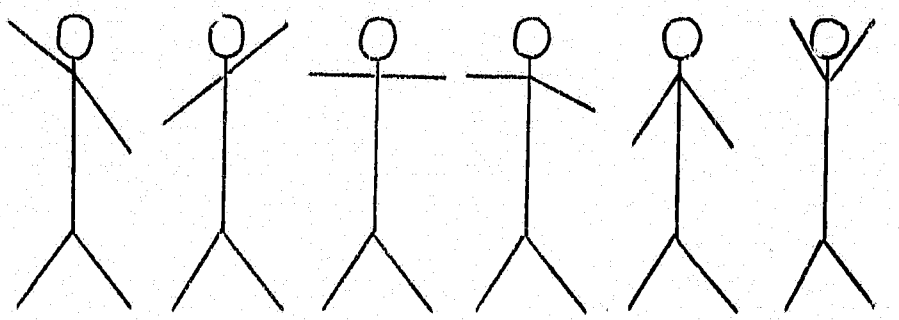
- playground,
- school boundaries,
- offices and hall,
- toilets and when they are to be used,
- school rules,
- the ringing of the bell at various times of the day.

B Motor training

1. Use both hands to touch certain parts of the body:
   "Touch your toes."
   "Touch your knees."
   "Touch your legs."
   (This activity can be repeated with eyes shut.)
2. Touch parts of the body with other parts of the body:
   "Touch your nose with your knee".
   "Touch your ear with your shoulder".
   "Touch your leg with your foot".
   (Repeat with eyes shut).
3. Instructions:
   "Hop on your right foot".
   "Walk forward to the desk in front of you".
   "Look to your right".
   "Touch your right shoulder".
   (The teacher should use the words 'left' and 'right' from the beginning, but introduce aids to remembering e.g. "left is the side closest to the window.")

4. Copying of various positions:
Children face the teacher and copy her actions(Mirror - Images).





5. Angels on the snow.
The child lies flat on his back on the floor with his arms at his sides and his feet together. He is then asked to move his feet apart as far as he can, keeping his knees stiff. He is then asked to move his arms along the floor until his hands

come together ove his head, keeping his elbows stiff. Encourage the d to press against the floor with his heels as he mov his legs and with his hands and wrists as he moves his arms. He should be aware of his hands and feet and their positions at all times during the exercise. The tactual sensation from contact with the floor will increase this awareness. Then change time - "move fast" and then "move slow".

When the child brings his feet together, encourage him to "click his heels." When he brings his arms down to his sides, encourage him to slap his sides. By this means, awareness of body parts can be increased through the addition of tactual stimulation.

When he has learned to make bilateral leg and arm movements easily and smoothly and equally on each side, ask him to combine the leg and arm movements. He is asked to move his legs apart and at the same time move his arms over his head.

Be sure he keeps his movements smooth. He may try to avoid the problems of the exercise by moving one limb or pair of limbs independently and then "catching-up" with the others.

Introduce unilateral and cross-lateral movements. Ask the child to move his right leg only to the extended position. Then ask him to return it. Always stop at the end of any movement to allow him to appreciate the new posture. Then do the same with his left leg only, then his right arm only, then his left arm only.

Some children will have difficulty moving one leg or one arm without moving the other. In this case, hold one foot down while the other leg is being moved. Encourage the child to complete the single movement without help as soon as possible. Pressing the non-moving foot against the floor will increase tactual stimulation and help him make the transition.

Some children will not be able to identify the leg or arm to be moved if we merely point to it. These children will need the additional help that results from the

teacher's touching the limb to be moved. The intensity of the tactual stimulus can be gradually decreased by using a lighter and lighter touch as he progresses. When the child has mastered these simple unilateral movements, introduce more complicated unilateral movements. Ask the child to move his right leg and right arm together. Next ask him to move his left leg and left arm. When he has mastered these movements, introduce cross-lateral movements. Ask him to move his left leg and right arm together. Then ask him to move his right leg and left arm. In all of these exercises, timing and the synchronization of timing are important and must be given constant attention.

When these basic movements have been completed, alter the time factor. Ask the child to move fast, then slow, then in rhythm to a beat or count. All the types of movement discussed above should be repeated with this timing factor added. Ask the child to turn over face-down on the floor and repeat all the exercises in this new position.

The following is a special exercise for those with difficulty. Place a pillow under the child's abdomen so that by raising his shoulders and legs he can be free of the floor except for the pivot provided by the support. The entire series of exercises should be repeated in this position. Now he has an added anti-gravity factor which requires a greater muscle tonus throughout all the muscle systems involved in posturing. The child is required to perform all the former tasks while maintaining this increased tonus of the postural muscles. Do not forget that this position is very tiring. Therefore, the periods of practice in this posture should be short. Do not ask the child to maintain this posture continuously for more than one or two minutes at the outside.

This exercise is designed to help the child learn laterality and to increase his awareness of his body. Asking him to make movements in time sequence or rhythms helps him to gain good bilateral control in which each side maintains its

independence but is integrated with the other. He can see his response both as a sequence in time and as a change in space and he learns the relationships between these two methods of seeing the same act.

Make a note of all those who experience difficulties.

C Auditory training

I. Asking the children to "listen carefully", issue simple instructions, e.g. stand next to your desks,
fold your arms.
Watch for those who are slow to respond, or who consistently look to others for guidance.

2. Tell the children that you are going to repeat the same set of instructions. Do so.
Make a note of those who still have difficulties.

3. Ask the children to listen to the sounds around them. Ask them to identify the sounds to themselves, then go around the classroom, asking each child to identify a sound.
During the week, introduce variations, e.g. which noises are loud, which noises are soft, which noises are far away. Which are close by? What else makes a noise like this?

D Tactile training

I. Get the children to touch parts of their bodies, starting from the top of the head, and ending at the toes.
Demonstrate each part before you get them to touch themselves, e.g. touch your hair, then ask the children to do the same.

2. Isolate certain parts e.g. the cheeks and the elbows. Ask the children to feel each, and then to tell you how they feel (hard and soft; smooth and rough; thick and thin).

3. Ask the children to feel their own hair and then a neighbour's hair; their own and then their neighbour's nose.
Introduce the concepts of "shape" and "texture" after they have had the tactile experience of each.

E Visual perception

I. Ask the children to hold something large (2-3 inches in diameter) at armslength, and at eye level. Ask them to look

at the object, and to remain looking at it. Ask "who sees one thing?" and then "who sees two things?" List those who report seeing double.

2. Ask the children to point to a target as they look at it. Tell them to follow the movement of their hands to the target. Make sure that they "lock on" visually when the target is reached and that the task does not become one of looking at the hand.
   List those children who point to the wrong place, and note where they point to e.g. "left of the midline". The child who misses when he points may be pointing to the location where he actually believes the target to be.
3. Then get the children to hold their targets in different positions e.g. to the left and right, above and below the line of sight. (Start with small displacements and increase the size as the children gain proficiency.) The children may move their heads instead of their eyes. In such cases, hold the head lightly and ask the child to turn his eyes toward the target.
4. Get the children to hold 2 large objects (2-3 inches in diameter) one in each hand. The hands must be an armslength away from the body, and in the line of vision. Beginning with the hands slightly apart, and increasing the distance between them as the children gain proficiency, ask the children to fixate the one object. Upon command, the children should be told to shift gaze back to the 1st object. Repeat the procedure several times, ensuring that the gaze is shifted only on command.
5. When the children can perform in the lateral direction, get them to hold one target above the other, so that vertical movements are required; on the diagonal so that diagonal movements are required.

F Dramatisation

Find or make up a story containing elements of the day's perceptual training, e.g. a visit to the optometrist.

Week 2

The children are still ungrouped.

A Orientation

I. Continue the activities of the first week, e.g. take the children for a walk around the school boundaries. Draw the route to the offices and hall in chalk on the classroom floor, marking in the landmarks on the way. Get some children to play "headmaster/mistress" and "secretary", and send others with "messages for the office".

2. Teach the children to cross a road. Draw a chalk-road on the floor and teach the children the elements of road safety.

3. If your school has a scholar patrol, introduce the children to the idea of scholar patrols, stop streets and robots.

4. Arrange a visit to the nearest Road Safety playground.

B Motor Training

I. Ask one child to lie on a large sheet of brown paper. Another child is asked to copy the child's outline on the brown paper. Use very thick crayons. The form is then cut out, finger painted and the children are asked to paint in eyes, nose and mouth.

2. Duck Walk.

Ask the child to place his hands on his knees and perform a deep knee bend. In this position, ask him to walk forward. He may also place his hands behind his back with his palms together and his fingers pointing backward in imitation of a duck's tail.

3. Rabbit Hop.

Ask the child to place his hands on the floor and perform a deep knee bend. Have him move his hands forward and, keeping his hands on the floor, bring his feet forward between his hands with a jump. He then moves his hands forward again and repeats the process as he progresses across the room.

4. Crab Walk.

Ask the child to squat down reaching backward and putting both hands flat on the floor behind him without sitting

down. Ask him to walk or run in this position. He should keep his head, neck, and body in a straight line.

5. Measuring Worm.

Ask the child to place his hands on the floor in front of him and about shoulder width apart. His legs should be stretched out straight behind him with the weight of the body supported on the arms and toes. The arms should be kept straight and the body should be straight from head to heels. Keeping his hands stationary and knees straight, he should bring his feet up by little steps until they are as close to his hands as possible. Next, keeping his feet stationary, he should move his hands forward with little steps until he has reached the starting position again. This series of movements is repeated as the child progresses forward across the room.

6. Elephant Walk.

Two children are required for this game. The first child grasps the second at the hips. The second child then jumps upward and locks his legs high around the hips of the first. He then drops backward and works his head, shoulders, and arms between the legs of the first child. The first child then drops forward onto his hands keeping his arms and legs stiff. Both children hold these positions while the first child walks forward.

(List all those who show persistent difficulty.)

Variation: Introduce a whistle or a handclap as a signal to stop the various exercises. Whistle or clap hands in the middle of an exercise and note which children have difficulty in re-starting the movement.

C Auditory

I. Read a story about animals, the noises they make and the way they move about. If possible, play the record of "Old MacDonald had a farm". If not, teach the children the song.

2. Give each child a toy animal. If you do not have enough toys, pictures may be substituted. Ask them to listen carefully. The teacher makes an animal sound. When they hear the sound their animal would make, they bring the toy or the picture to the teacher. Another way of doing this is to point to a child to make a sound. The one who has that animal must then

switch animals with the one who called. It is then his turn to make a sound.

3. A child makes a sound and the others listen. Whoever identifies the sound gets a chance to make a sound of his own.
4. For the following exercises, let the children imitate you row-by-row. Those who are not imitating may keep their eyes open.
   a. Ask children to close eyes and listen as you clap your hands several times. "Clap just as I did". Vary this procedure by clapping in different rhythms.
      Suggested claps are:
      three slow claps
      two slow claps
      two fast claps, pause, two fast claps
      two fast claps, pause, one clap.
   b. Teacher stamps foot three times. Children, one at a time, imitate the rhythm and correct number of stamps.
      Follow directions of (a).
   c. Teacher claps hands twice and snaps fingers twice. Children, individually or in a group, imitate the actions. Begin with an even beat and progress to a syncopated rhythm.
      Suggested rhythms:
      one clap, one snap
      three claps, three snaps
      one clap, two snaps
      two claps, one snap
      one clap, three snaps
      three claps, one snap.
      List the children with persistent difficulties.

D Tactile

I. Collect objects for each child which illustrate the qualities of
   "large and small"
   "thick and thin"
   "dry and wet"
   "rough and smooth"
   "warm and cool"
   "sharp and blunt"

Ask the children to close their eyes and "find something hard" (or soft, or wet, etc.) They should then hold up the article so that you can list those who consistently make mistakes.

2. Combine two or three qualities e.g. hold up something which is hard, dry (and sharp).
3. Ask the children to collect three "hard" (soft, sharp, etc.) objects at home and bring to school the following day. The whole class should get an opportunity to see the whole collection of "hard" objects. Introduce the concept of "same" and "different" e.g. if there are 6 stones, ask the children: "Which are the same?" Group all the same articles together. Ask the children which objects are different from the stones. Group all these objects together. As many variations can be introduced as there are objects. The object of the exercise is to introduce the concept of classification on the basis of "sameness" and "difference".

E Visual Perception

Repeat no's 3 & 4 of Week One's Visual Perception programme. Attend to each child in turn to ensure that progress is being made, and that the child is not merely practising his errors. If the child does not show observable improvement in this second week, it is doubtful that the visual training procedure will be effective if continued. Refer to the special eye-training exercises. Watch the eyes carefully to determine when they are pointed toward the target. If the child has lost the target, stop the movement of the target immediately and ask the child to re-fixate it by such remarks as "Where is it?" "Where did it go?" "Look at it". It is very important that the child learns that it is possible to keep the target in view at all times and never to "lose" it.

F Dramatisation

Read a story about a daily occupation. Excellent stories can be found in Richard Scarry's "What do people do all day?" (Obtainable at the C.N.A.) After the reading, the children can be asked to act the story.

Week 3

By this stage, you should have determined the strengths and weaknesses of most of the children. For each child, list weaknesses and then decide on the appropriate training exercises as given in this manual. Group the children according to their weaknesses e.g. all children with motor difficulties should form one group. The children who show no discernible weaknesses can be grouped according to their strengths e.g. all those with high I.Q.'s. It is best to have about 5 children per group. If there are more than 6 or 7 children with the same difficulty or strength form two (or more) groups.

The training activities that follow are for all the children. Once those with no discernible difficulties have been divided into groups they should follow the programme as it is laid out below. The children with special difficulties should concentrate on those activities which will correct their deficiencies, but it is most important that they also experience the other activities laid out in the programme.

Note: These groups will probably change fairly often. When a child with a special difficulty has completed the programme of activities specific to that difficulty, and has demonstrated that he has mastered the difficulty, transfer him to a group appropriate to his new level of functioning. (Each programme of special training activities includes the means with which to judge whether the difficulty has been mastered.)

A Orientation

1. "What do you pass on the way to school?" Each child must tell what the landmarks are on the way to school e.g. churches, traffic officers, shops, etc.
2. Each child must learn and memorise the elements of his own address i.e. the number of the house or flat, the name of the building and/ or road, the name of the suburb and the name of the city. Have a class discussion on the necessity for, and the meaning of an address.
3. All those who have telephones should memorise their telephone numbers. Those who have no telephones should memorise a relatives number or father's telephone number at work. Introduce the concept of number and the different arrangements of the same numbers to make up telephone numbers.

B Motor (Body - image, laterality, rhythm)

I. Obtain bongo drums or similar objects which, when struck with the hand, produce a strong characteristic sound. Using the same instrument as the children, beat out a constant rhythm pattern in which all of the beats are of equal length and are equally spaced (da-da-da-da-). Ask the child to repeat on his drum what you have produced. In the early stages of training permit the child to watch you and to beat his drum along with you. Alter the rhythm pattern by increasing or decreasing the overall rate; that is, beat a fast constant rhythm, then beat a slow constant rhythm, etc. When the child is able to identify the rhythm and to reproduce it while watching you, ask him to close his eyes and listen to your beat and then reproduce it.

2. When he is able to recognize and establish simple constant rhythm patterns move on to more complex rhythms. Present a simple two-beat rhythm (da-dit, da-dit, da-dit). Again vary the speed of the overall rhythm and begin by permitting him to watch as well as listen until he is able to pick up the rhythm from the auditory clues alone.

3. Next go to three-stage rhythms (da-dit-dit- da-dit-dit). These three-beat rhythms can be altered in various combination of two items taken three at a time (thus, dit-da-dit-, dit-da-dit, dit-da-dit). As the child is able to master these three-beat rhythms, we can move on to four-beat, five-beat, six-beat etc. In all these rhythm exercises, be sure that the child establishes a smooth rhythmic flow. The child should then produce these rhythms in various ways. In addition to beating the drum with his dominant hand, he should learn to produce the same rhythm by beating with the non-dominant hand. Then he should learn to establish the same rhythm with both hands together. He should also beat the rhythm with his feet, produce it with his vocal cords by a series of vocal sounds, etc.

4. When the child has learned to establish rhythm patterns on one side of the body and with one part of the body alone, he must learn to establish the same type of rhythm pattern when

both sides of the body are used or when the part used to produce the rhythm alternates from one side to the other. For this activity, pairs of bongo drums or any other suitable instrument is used. Beat out a simple alternating rhythm in which the beats are of equal length and are equally spaced: R-L-R-L. The rhythm should alternate regularly from right to left. Ask the child to reproduce this rhythm pattern. In the early stages of training, let him watch you as well as listen to you. When he has been able to establish the rhythm, ask him to close his eyes and develop the rhythm on the basis of the auditory information alone. Vary the overall speed of the rhythm: sometimes beat a fast rhythm, sometimes a slow rhythm. Be sure that the child flows smoothly from the right to left so that the rhythm is smooth and constant, not jerky or accented.

5. When the simple R-L-R alternation has been mastered, present rhythms in which two beats with each hand are alternated: thus, R-R-L-L-R-R. Again, be sure that the flow of the rhythm is smooth and that the rhythmic pattern is not interrupted when it crosses from one side of the body to the other. When the double alternation has been mastered, present alternating series of three (R-R-R-L-L-L-), four (R-R-R-R-L-L-L-L), and five. Whenever the child has difficulty, permit him to watch you as well as listen. However, as soon as he is able to do so, ask him to develop the rhythm pattern on the basis of the auditory stimuli alone.
6. When these regular rhythms have been mastered, present irregular rhythms (R-R-L-R-R-L). When simple irregular rhythms have been established, we can move on to irregularities involving four beats, five beats, six beats, etc. It is desirable that the child learn to establish these rhythm patterns up to as many as ten or twelve beats, where all of the rhythm was on one side and where the rhythm alternates from one side to the other. Then ask the child to beat the rhythm out with his feet, either using the drums or tapping out the rhythm on the floor. Ask him to beat with the right hand and the right foot and also with the left hand and the left foot. Ask him to beat with the right hand and the left foot and with the left hand and the right foot.

C Auditory

I. Record many familiar enviromental sounds, especially sounds that signify danger e.g. an oncoming car with hooter blaring. Bring to the class toys or pictures representing the sounds you have recorded. As the sounds play, hold up the appropriate toy or picture. Thereafter, give the recorder and pictures/toys to each group of children. Their task is to match the toys/ pictures to the recorded sounds.

2. Seat the children in a circle. Have one child leave the room. Give one of the children in the room a bell (one that is small enough to hide in his hand.) Ask the child who left the room to come back in. When the child has returned, have all the children stand and shake their fists above their heads. The child who returned must name the child with the bell.

3. "Same or different".
The teacher pronounces a word, then pronounces the same word or one that is very slightly different from it. The child called on must say whether they are the same or different.
e.g. bag-back; bang-bank; bag-bag;
boat-both; chip-ship; day-they.

4. Children have to recognise words from their sounds, e.g.:
bo-at h-ea-r
r-oo-m bla-ck-b-oa-rd
c-a-n

5. Draw a circle on the blackboard, then clap once to indicate that one figure represents one sound. Next draw two circles and clap twice. Follow with three and then with four. Ask the children to look at each series of figures and clap the correct number of times for each set. Then stand behind them and clap a certain number of times; ask them to point to the set of figures corresponding with the number of sounds that they hear.

D Tactile

I. Repeat no. 3 of the Week 2's tactile exercises.

2. For each child, collect two objects that are the same in every way except size e.g. a large and a small ball. Get the children to feel the difference in size first with their eyes open and then with their eyes shut. They can be asked to hold up the small

(large) one.

3. Get the children to remove their shoes and then to feel various textures with their bare feet e.g. grass, stones, marbles. The textures may be felt first with the eyes open and then with the eyes closed.

   Variation: The objects may be felt first with the hands and then with the feet, first with the eyes open and then with the eyes closed.

4. Introduce the concept of the skin as a temperature guage: e.g. get the children to plunge both hands in cold water and then in hot water and then one hand in cold water and then the other in hot water and then to report the sensations. Put ice next to the cheek of each child and get him to experience "cold wetness". Then introduce the children to a thermometer and it uses.

E Visual Perception

1. Divide the children into pairs. One child moves the target for the other child, observes his eyes as he follows the target. When the first child has been trained, the children reverse places and the first child now trains the second. It will be found that children become very adept at helping each other. They watch each other's eyes very carefully and spot difficulties readily. This paired training has the additional advantage that the child who is performing the training is also receiving training himself, since he must move the target smoothly and therefore must exert neuro-muscular control similar to that required of the child being trained.

2. The teacher draws on the board a "road", using the flat side of a piece of chalk and drawing a strip about an inch to an inch and one- half wide. The child is given a plastic vehicle which he is asked to "drive" by pushing it along with his hand on the road. Two- wheeled vehicles such as motorcycles are more satisfactory than four- wheeled vehicles since the former require more attention to keep them on the road. Begin with straight roads and proceed to curved and wavy roads which require considerable skill to negotiate. A series of roads can be constructed and, each child can work on his particular road.

3. Lay out before each child a series of poker chips alternating red, blue, red, blue, etc. Ask the child to "read" the line of

chips by looking at each, naming the colour, then moving to the next. He should "read", "red, blue, red, blue" etc. Emphasize a smooth regular progression with equal intervals between chips. Be sure that his eyes fixate on each chip in turn and help him establish a constant rhythm both with the eyes and with the voice. Be sure these two rhythms are synchronised so that he looks as he says.

It may be desirable to introduce a kinesthetic clue to aid him. Ask him to point to the chips as he "reads" them. Auditory clues can be added if necessary by reading if the teacher reads the line of chips with the child. Initially the hand may lead and the eye follow. Later, the eye should begin to lead the hand. Finally, the eye should be able to perform independently of the hand. When the child can maintain a continuous visual rhythm, more complex rhythmic combinations can be introduced. Tell the child that the red chips are long and the blue chips are short like the dashes and dots of Morse code. The line now reads red, blue, red, blue, red, etc. More complex rhythm patterns can be introduced by grouping the chips by colours rather than simple alternation. Blue-blue red, blue- blue- red; or blue- red- blue- blue- red, blue- red-, blue- blue- red.

F Dramatisation

I. Read or make up a story of a motor-car accident. The story should be full of sound effects. The injured child should be taken to hospital, examined in detail by a doctor, his temperature ta[illegible], etc. Try to introduce as many elements as possible of the days programme into the story.

Week 4

A Orientation

I. Each group plays follow the leader up and down the aisles between the desks. The leader must call out when he's turning left, and when he's turning right, and at the same time put his right or left arm out (as when signalling while driving a motor car.) As each child turns, he too must call out "left" or "right", and put his arm out. Each child should have a chance to be "leader"

2. Introduce the concepts of up, down, behind, in front of, next to, e.g. use two children standing next to one another as a model of "next to", let one child stand on his desk (up) while another crouches on the floor (down). After demonstrating the meaning of these concepts, divide the children into pairs comprising one boy and one girl, and instruct them to "stand next to each other", "boys in front of girls," etc.

3. Show pictures depicting the spatial relations dealt with above e.g. a car in front of a house and ask questions such as Where is the car?" "Where is the house?"

B Perceptual-Motor (where perceptual comes to dominate motor)

I. Ask the children to walk to a goal and stop when they reach it, using perceptual information to determine the stopping. Initially the goal should be a solid object such as a wall or a piece of furniture. If the child fails to use the perceptual information to influence the activity, the walking will be stopped by the goal itself. The child's attention can then be called to the perceptual information which he failed to use. He can be encouraged on the next trial to use the perceptual information, to which his attention has been called, to stop walking before he is physically stopped by the goal. He can be asked to walk to the wall, stop before he runs into it, and when he is close enough reach out and touch it.

2. Introduce simple games. Children run across the room from one wall to another while the one who is "it" attempts to catch them. "It" can catch a child only when he is not in contact with either of the walls. This game can be varied by giving "it" a soft ball. Upon a signal, children run from one wall

to the other. "It" catches a child by hitting him with the ball while he is running across the room.

3. The child is asked to control his walking or running by perceptual information alone. The goal is no longer a concrete object but is a perceptual element. The child might be asked to walk to a line but to stop before he steps over it.
4. The child is asked to walk along a line. If the child's coordination is adequate, a line can be drawn on the floor with chalk or laid out with masking tape. The child is asked to walk along the line without stepping off. If the child's coordination is less adequate, an alley can be devised by laying two strips of masking tape along the floor. The width of this alley can be adjusted to the coordination of the child. He is asked to walk down the alley without stepping out.

C Physical Training

I. A light stick is held horizontally at a small distance above the floor. The child is asked to jump over the stick. He is encouraged just to clear the stick, not to jump as high as he can. The influence of the perceptual data on the jumping activity can be altered by varying the height of the stick above the floor.

2. The child can also be asked to jump into prescribed areas successively. A ladder can be laid down on the floor. The child is asked to jump from the space between two rungs into the space between the next two rungs and so on. Modifications of the game of hopscotch can be used in the same fashion, by reducing the number of areas laid out in the [illegible]n and the complexity of the series of movements requ[illegible]

3. The children are asked to form a line. In the [illegible]ial stages the children may be asked to line up along a line on the floor. In this task each child places his body in pos[illegible]tion in terms of the perceptual information from the line on the floor. His attention is also called to the perceptual data represented by the group of children, each of whom is lined up with the line on the floor. At a later stage the children can be asked to form a line without the ad[illegible] clue of the line on the floor. This is a more difficult t[illegible]k and requires more complex use of

perceptual data. If the child is "out of line" in such an activity, do not put him back in line but rather ask him to put himself in line. Call his attention to the perceptual data which he needs to use to accomplish the task and permit him to experiment with the use of these data to control his body and his movements. Staying in line while walking or marching is a good variation of this activity.

D Auditory

I. Read out the following:

If a pile of dishes fell, what kind of sound would you hear?	crashing squeaking scraping shuffling whistling
If you heard two children whistling, you might think they were	angry happy sad sick
If you heard that something was made of gold, you would think it was	red, white & blue yellow and shiny black and rough green and white soft and white

Make up a similar series of statements.

2. "First and Last"
   Make two sounds and children have to tell which sound was first and which sound last.
3. Have the children lie with their heads on their arms, eyes closed. Make sounds which they can identify e.g. jingle money, close a book. Later, make two sounds simultaneously and have the children identify them. Once the children have mastered 2 simultaneous sounds, make three sounds simultaneously.
4. Introduce the children to fast and slow sounds e.g. a train starting up, and a motor car zooming past. Present a series which must be identified as "slow" or "fast".
   Variation: The children can be asked to classify the sounds as "slow and loud" or "fast and soft".

E Tactile Gustatory, and Olfactory

I. Each child must bring a number of different fruits to school. The fruits should be laid out on the desk and then with closed eyes, picked up one by one by the child, and identified.

2. Using the same fruits, introduce the children to the concept of classification on the basis of sameness and difference. The following is an example of this exercise:

TEACHER: Can you tell me what this is, Mary?
MARY: A banana.
TEACHER: What else can you tell me about it?
MARY: It's straight.
TEACHER: What else?
MARY: It has a peel.
TEACHER: It has a peel ... Tom, what can you tell me about it?
TOM: Umm ..... It has some dark lines on it.
TEACHER: Uh-huh.
TOM: It has some green lines on it.
TEACHER: What can you do with it?
TOM: You can eat it.
TEACHER: That's right.....Now let's see.....
CHILDREN: I love bananas.
TEACHER: What is this?
CHILDREN: An orange.
TEACHER: Is it really an orange?
CHILDREN: .....Yes.
TEACHER: Look at it closely.
CHILD: It's an artificial one.
TEACHER: Oh, that's right, it's an artificial one...But, what else can you tell me about it?
CHILDREN: You can eat it .... It is round....
TEACHER: Yes.
CHILDREN: .....Orange.
TEACHER: That's right.
CHILD: It has a stem.
TEACHER: Now, look at this one....What's this?
CHILDREN: An orange ..... orange.
TEACHER: And what can you do with it?
CHILDREN: You can eat it ..... and it's round .....

TEACHER: It is round .....

CHILD: It has a peel ....

TEACHER: It has a peel ..... Now, look at these two things. Are they the same?

CHILD: No.

TEACHER: What's different?

CHILDREN: This one .... this one here is pressed in on the side a little ..... this one is lighter.

TEACHER: Do you know what this really is? This is a tangerine: ..... and this is an orange. Now tell me in what ways they are alike.

CHILDREN: This is smaller and that's bigger.

TEACHER: I said, "In what way are they alike?"

CHILDREN: They are both round .... they both have a stem ... both orange.

TEACHER: They both have a stem, both round, both orange; Anything else alike about them?

CHILD: They're both fat.

TEACHER: Yes. What can you do with them?

CHILDREN: We can eat them ....

TEACHER: We can eat them .....Now, tell me, what's the same about all these things?

CHILD: These are round, but this isn't.

TEACHER: I said, what is the same about them, not what's different about them.

CHILDREN: They're both round ..... they're round ..... and both are artificial.

TEACHER: They're all artificial, and, ... are they all round?

CHILD: No.

TEACHER: What about the banana?

CHILD: It is straight.

TEACHER: But, ... tell me something else that's the same about all of these things.

CHILD: ..... They have ....all have a peel.

TEACHER: That's right, too, but what can you do with all of them?

CHILDREN: You can eat them.

TEACHER: That's right. That's the same about every one of them. Do you have a name for all of them?

TEACHER: What?

CHILD: A banana.

TEACHER: A banana? No .... is there something that you can call all of them?

CHILDREN: Fruit .... fruit.

TEACHER: And what's the same about all fruit?

CHILDREN: They are all round except bananas.

TEACHER: No ..... why do you call all of these things fruit?

CHILDREN: Because you can eat them.

TEACHER: You can eat them.

CHILDREN: And they are food.

TEACHER: And they are food. If I had a piece of bread here, would that be fruit too?

CHILDREN: No.

TEACHER: Why not?

CHILDREN: Because it is not sweet .... not round ....

TEACHER: Because it is not sweet. I think that's a good reason and you eat bread too?

CHILDREN: Yes.

TEACHER: But it is still not a fruit .... right?

CHILDREN: Yes.

3. After the exercises outlined above the children should eat the fruit, concentrating on the different tastes; (hard and crunchy; soft and smooth, etc.)

4. Identification by taste: "What tastes bitter?"
"What tastes sweet? etc."

5. Identification by smell: "Smell the different fruits, close your eyes and identify the fruits by their smell.

F Visual

1. Lay out for each child a row of five flash cards with pictures. Give the child a comparison card containing one of the pictures in the row. Ask him to find which is like the comparison, considering each card in order and indicating whether or not it matches. To be sure he is concentrating on each card and to provide additional clues to the search task, ask him to point to each card as he reports on it. Guide the child into a systematic search. Point out that any orderly

procedure is correct but the left to right top to bottom is preferred.

2. Move on to workbook materials with multiple choice matching items similar to that described above e.g. the Frostig exercises "BEGINNING PICTURES AND PATTERNS" by FROSTIG. Require the child to mark each item using one designation for an item which matches (✓) and another (X) for an item which does not match. This change forces him to deal with each item. Watch his performance to see that he deals with them in order.
3. Orient the items vertically on the page so that the child is required to search from top to bottom. This will be useful in many of the paper and pencil problems in arithmetic.
4. Scatter ten to twenty poker chips or any other suitable objects of various colours randomly over the table top. Ask the children to sort these chips by colour, placing each colour in a separate container. Require them to deal with the chips in order, considering each as they come to it and disposing of it in terms of its colour. Stress the left-right, top-bottom directions as being preferred.
5. Scatter the chips randomly again. Ask the child to pick out the red ones and place them in the container, leaving the blue ones and white ones where they are. Require him to point to each chip in order and indicate how he will dispose of it. Do not permit random procedure.

G Dramatisation

I. For every day of the week read the children a dramatic story e.g. Hansel and Gretel.
2. Place at the disposal of the children such materials as water, sand, clay, wood, stone, pastry, dough, plasticine etc. as well as such materials as paints, wool, string, etc. and allow them to recreate the story as they like.
3. Collect an assortment of objects and clothing that could serve as elementary props and costumes and make these available to the children. Read a story, and then get the children to re-enact the events, using the materials you

provided in any way they wish. Let them choose the parts they want to play. Make sure that each child has an opportunity to play some part during the week.

Week 5

A Orientation in Space

I. Begin the "Look and Learn" "SPATIAL RELATIONSHIPS" book.

B Motor

I. Begin the Look and Learn "BODY CONCEPT" book.

2. Make templates out of cardboard sheets with cut out portions in their centre. The cut out portions should be simple shapes like circles, squares, triangles, and rectangles. The children must insert their fingers, a pencil or chalk in the cutout and trace the boundaries of the form. The cutout portion can also be used as a template - here the child runs his finger or pencil around the outside edge of the form. Call the child's attention to what his hand is doing - attention must be on the control of the movement and not on the particular shape being traced or outlined. He is encouraged to control this movement visually and to use the template as little as possible. He is asked to draw close to the edge of the template but not touch it.

3. A strip an inch to an inch and one-half wide can be drawn on the chalkboard or on a sheet of newsprint. The child is told that this is a road. He is given a toy car and is asked to "drive it down the road without getting into the ditch". The child's attention is drawn to his hand, and he is encouraged to "keep the car on the road". (If the road is extended and the child is stationed in the middle so that the hand crosses the midline, directionality is involved. If the road is long the relationship between the hand, arm, and shoulder as described above is also involved.)

When the child is able to manoeuvre a straight road in both a vertical and a horizontal direction, curves can be introduced. When he is able to handle roads in a diagonal direction, a combination of curves and straight lines can be used. Now the patterns can be quite complex and the tracing task can become quite difficult. At this stage, the roads should not cross each other as this involves a figure - ground problem.

4. Provide the children with simple pictures and forms drawn with

broad lines outlining the periphery so that the degree of precision required is limited. The child is given a crayon in a colour contrasting with that of the outline to be traced. He traces over the outline, keeping his crayon on the line. The task can be increased in difficulty by decreasing the width of the line to be traced. When sufficient control has been developed, tissue paper or other transparent materials can be placed over the picture and the child can trace on the transparent paper. After the tracing has been completed, the transparent paper can be removed and the child can observe his product independent of the original copy.

C Auditory

I. Select pictures or a series of objects that are used together and place them before the child (stove, sink, refrigerator; pencil, pen, paper; hat, coat, gloves). Say the words for him and ask him to repeat the names while simultaneously looking at the pictures. Then remove the pictures and ask him to say the series.

2. Sheets of pictures are given to each child and he listens to directions, such as, 'Listen, I will say the names of some things on your paper. You are to listen and mark the ones I say. Ready? Mark the apple, the orange, and the grapes ..... Next. Ready? Mark the table, the chair, and the lamp".

3. A series of instructions are more difficult to remember than a series of words because the physical act of executing the command often interferes with recall. Give the child a sheet of paper with pictures and ask him to: Draw a line around the house and a circle around the dog. Put a green mark under the cow and a red mark over the cat. Make certain that the child understands individual words and phrases before giving him a series of instructions.

4. Use a series of instructions necessitating moderate physical movements:
Touch your nose and clap your hands.
Put your hand on your head and cross your legs.
Gradually work towards a more complex series of commands, such as those normally given by parents at home or by teachers in school:

Go to the cupboard and get a ball and the blocks.

5. Give the child sentences to repeat, beginning with two or three words and gradually adding more. To facilitate recall, keep the ideas related:

I see.

I see a dog.

I see a dog and a cat.

I see a black dog and a cat.

Read sentences such as those outlined below and ask questions about each.

Mr. and Mrs. Jones live at 318 Elm Street.

Question: Where do Mr. and Mrs. Jones live?

Who lives at 318 Elm Street?

D Tactile

I. Using the templates which were used in the motor exercises, get the children to feel shapes. Introduce these shapes in as many different ways as possible e.g. brightly coloured shapes; wooden shapes; shapes cut from materials with different textures. Allow the children to feel for themselves that the shapes remain constant even though the texture changes.

2. Get the children to feel <u>sharp</u> and <u>blunt</u> instruments, objects, tools, etc, and to differentiate between the two sensations. Have a discussion on the utility of both sharp and blunt objects.

3. Begin the Look and Learn "PERCEPTUAL CONSTANCY EXERCISES."

E Visual - Perception

I. Continue with no. 2 of the WEEK 4 visual training tasks.

2. From a random distribution of pictured objects, ask the children to select pictures of those items we eat or those we wear, etc. Stress the maintenance of a systematic procedure.

3. Begin the Look and Learn series on "PERCEPTUAL CONSTANCY".

F Dramatisation

I. Have a class discussion on "What do we buy at the chemist (grocer, greengrocer, bookshop etc.)?"

2. Play "shopping". Some children are "mothers" who require a

number of things from the shop. They ask their "children" to go to the shop to buy the following - here they would issue a verbal list of 3 or 4 items - which the "children" repeat to the "mothers" before setting out. Lay paths and roads on the floor with chalk. These "roads" lead to the shops where other children are playing "shop - keepers". The "children" tell the "shop - keepers" what they want, the "shop - keepers" repeat the list, and then sell the articles to the "children", who return home via the "roads". Many variations can be introduced e.g. real articles can be "bought" over the counter; real money can be used; different sorts of shop selling different sorts of merchandise can be visited, etc.

Week 6

A Orientation in Space

I. Continue with exercises in the "SPATIAL RELATIONSHIPS" book.

2. String some beads in a particular pattern (red-blue-red-blue-red-blue- etc.) Provide the children with bead stringing equipment, and get them to copy your pattern. When they have mastered simple patterns, increase the complexity e.g. red-red-blue-red-red-blue.

3. String a sequence of beads in front of the children, verbalising your actions e.g. "Now I'm going to string a red bead". Put the string out of sight and ask the children to reproduce the sequence from memory on their own strings. Start with simple patterns, and increase the complexity as the children master the task.

B Motor

I. Continue with the "BODY CONCEPT" exercises.

2. One child is to to do any physical movement or activity he likes e.g. dance, hop, jump. When he hears your whistle or hand clap, he is to "freeze". The other children then adopt the "frozen" position.

3. The children should be allowed to play freely on any equipment such as swings, slides, jungle gyms etc, that the school possesses.

Set up a series of large flat stones as "stepping stones" and intersperse these with large cardboard boxes to be crawled in and out of, to be stepped over, to be gone round, to be crawled through (the boxes becomes a tunnel) etc, i.e. set up an obstacle course.
Vary the activities by making the children walk sideways, backwards, on all fours etc, through the obstacle course.
For those children who show persistent difficulty, refer to the special motor training exercises.

4. Teach the children songs which involve certain physical activities which they are to perform while singing the song. Demonstrate these activities so that you serve as a model for the children to imitate. They should be encouraged to consider their responses before they perform so that

corrections and alterations are made before the pattern is exteriorised in overt performance. Try to present as large a variety of movements as possible and do not use the same movements over and over again.

5. The children are seated in a circle. The first child is given an object and asked to pass it to the second child. The second child must pass it on with the same movement which the first child used in delivering it to him. The object then passes around the circle, each child imitating the movement of the leader. On the second round, the next child becomes leader, and each must imitate him in turn. The child should be encouraged to think of how he is going to move before he performs. In the event of an error, he should not be corrected directly but should be encouraged to observe what he did wrong and then to determine how he could change his performance.

C Auditory

I. Provide each child with an object or instrument which, when manipulated produces a sound. The object of the exercise is for the child to learn that his activity alters the sound in various ways,

e.g. The harder one blows on a toy trumpet, the louder it sounds; Rhythm is related to the pace of movement - if a drum is beaten rapidly, a rapid series of sounds is produced; Pitch is related to the location of movement - a toy xylophone can be used in which the pitch of the sound is related to the position in which the instrument is struck.

2. Encourage the children to imitate vocally the sounds they are producing e.g. when they change the volume of a sound, they should imitate the change with their voices, emitting sounds which are now loud, now soft. They should also duplicate the rhythm with some vocal expression. Different pitches of sounds should be also reproduced vocally.

3. Play musical chairs. The children start and stop when the music starts and stops. This game can be varied by asking the children to walk or run while the music is playing and to stamp their feet loudly when the music ceases etc.

4. Teach the children to time their actions in response to auditory stimuli e.g. by requiring them to march to a drum beat or to music.

D Tactile

I. Place a group of common objects in a paper bag e.g. toy cars, doll furniture, chalk, pencils. Lay out in front of each child a group of objects exactly matching those in the bag. The child reaches into the bag, selects an object, and manipulates it without looking at it. He is then asked to point to the object on the table which is the same as the one he has in his hand. The child then removes the object from the bag and compares it with the one he has selected to check his match. Begin with objects in the bag between which the differentiation is very gross. Later, objects can be included which are very similar to each other. Care should be taken to select objects in which tactual information and visual information are parallel. Thus, the selection within the bag between two objects which differ only visually, such as in colour, is impossible. The aim in this task is to emphasize the relationship between these two areas. Therefore, the qualities on which differentiation is based should have parallels in the two sensory areas and this parallelism should be emphasized during the task.

2. More symbolic stimuli can be presented. Cut out letters or figures can be placed in the bag and the child can be asked to recognize the similar figure from among a group of letters or figures.

3. Ask the child to reproduce the object which he investigates. In this case, a single object is placed in the bag. The child reaches in and, without looking, manipulates the object until he has developed an awareness of it. He is then asked to draw a picture of this object. No direct comparison is permitted until the end of the task, when the child checks his production by removing the object from the bag and comparing it with his reproduction.

4. Figures (circle, square, triangle, rectangle) can be produced by preparing a mixture of wallpaper paste and placing

it in a cake decorator. On a piece of porous paper draw out the form with the cake decorator. When the paste has dried, it will harden and adhere to the paper so that the child can run his finger over the form and investigate it. The figure should be placed behind a screen so that the child feels it without seeing it. He is then asked either to recognise it from a group of visual forms which are presented to him or to reproduce it on paper.

E Visual Perception

1. Begin the Look and Learn series on "VISUAL-MOTOR CO-ORDINATION".
2. Continue with the Frostig exercises.
3. Continue with the Look and Learn series on "PERCEPTUAL CONSTANCY".

F Dramatisation

1. Introduce the children to the concept of mime and show them how miming is done. Then tell each child, without the others hearing, that he is to portray some emotion e.g. happiness, laughter, sadness, anger, by miming and making facial gestures. The other children must guess what the emotion is. The one who guesses has a chance to portray some mimed emotion.
2. Start a story and then stop at some dramatic point. Ask one of the children to go on from there. Allow him to go on until he reaches some dramatic point and then ask another child to continue, and so on.
3. If possible, show the children films. If the school has no projection facilities, cut up comic strips, and get the children to rearrange the pictures in a sequence, and then tell the rest of the group a story based on the sequence of pictures.

Week 7

A Orientation and Memory Training

I. Seat the groups of children in circles. The leader begins "I went to the book-shop and bought a .....(e.g. a pencil). The next child continues, "I went to the book-shop and bought a pencil and a .....(e.g. a rubber). This is taken up by the next child, who adds another object to the list, and so on until the last child in the group who repeats the whole list and adds his object. If a child forgets, the other children should help by giving clues. Once each child in the group has had a turn to add his object to the list, a new list begins, the initiator being the child next to the previous leader. The game can be varied by going to different shops e.g. a clothing shop, a sports shop, and by only allowing the purchase of certain objects e.g. blue, hard, round, wooden, etc.

2. Continue the "SPATIAL RELATIONSHIPS" exercises.

3. Divide the children into pairs. Each child should tell his partner "who lives in my house" e.g. father, mother, baby sister and me. The partner then repeats the sequence in the same order in which it was given. It is then his chance to tell "who lives in my house" and to listen while it is repeated back to him. Then the sequences must be given again this time using the first names of the family e.g. Robert, Mary, Jane, and Bobby. Finally, the sequences must be given, using the full names of all concerned e.g. Robert Jones, Mary Jones, and so on.

B Motor

I. The teacher stands at the chalkboard beside the child. He places a dot at random on the board. The child places his chalk on the dot. The teacher then places another dot at random on the board and the child draws from the first to the second dot. The teacher then makes another dot and, without lifting his chalk from the board, the child draws from the second dot to the third. Always wait until the child has drawn his line before placing the next dot. After demonstrating in this manner, divide the children into pairs. One places the dot, while the other joins them up. After

about IO dots, the children swop roles.

For the children who have difficulty with this activity, use shorter lines and permit the child to pause after drawing each line before he is given the new direction. Some children will have difficulty in establishing the direction in which they should draw and will start off in the wrong direction. Aid the child by calling his attention back to the target dot, as by calling, "Here," and tapping the dot with the chalk. If necessary, guide his hand to help him get started. Encourage the child at all times to "draw nice straight lines". Some children can initiate a movement successfully but then have difficulty stopping. Aid the child by guiding his hand by providing a cardboard stop at the target dot against which he can bump his chalk. Give him a stronger stimulus for the stopping response by using larger dots or coloured chalk which will produce a dot of a contrasting colour to the line he is drawing.

2. Ask the child to stand before the board with a piece of chalk in each hand. Ask him to perform circular motions with both hands simultaneously. Then ask him to bring the chalk in contact with the board so that he is drawing circles with each hand simultaneously. He should continue drawing pairs of circles, each pair on top of the previous pair. He should continue the motion, not stopping after each circle is drawn until he produces a series of retraced circles, one set with the right hand and one set with the left hand.

Normally we expect the child to draw his circles clockwise with the left hand and counterclockwise with the right. If he begins with these directions, ask him to change and draw counterclockwise with the left hand and clockwise with the right. When this movement has been established, ask him to make his hands parallel to each other, going clockwise with each hand. When he has established this movement, ask him to shift and go counterclockwise with both hands. In this manner, let him experience all combinations of direction of movement with the two hands. Call the child's attention to the movements and the difference in the way they "feel" by asking him to shift

abruptly during a movement pattern. Thus, while he is moving in the left clockwise, right counterclockwise pattern, call, "Change direction". At this signal, he is to shift direction as rapidly as possible without interrupting the movement. In like manner, ask him to shift from opposed to parallel patterns in the midst of the activity, and to change the direction of the parallel patterns without interrupting the activity.

In most cases, a change in movement will result in a disruption of the pattern which will in turn result in a distortion of one or both of the circles. Ask the child to correct the distortion (by watching the circles he is drawing) and to smooth out the movement as rapidly as possible. When a reasonably accurate, smooth circle has been achieved, give the signal for a change of movement pattern.

3. With one continuous line, draw on the board a figure 8 lying on its side. The figure should be approximately twenty-four inches wide and approximately ten inches high. Ask the child to trace over and over this figure with one continuous line without taking his chalk from the board. When he has achieved a smooth, free movement which is reasonably accurate, ask him to reverse directions without removing his chalk from the board or interrupting the activity. The child should be asked to trace this figure in both directions with the right hand and also in both directions with the left hand. He should be asked to stand so that the entire figure is to right of the centre of his body in some trials and so that the entire figure is to the left of his body in other trials. At other times, he should be asked to stand so that the centre of his body is directly in front of the crossing point between the two loops. Short periods of training with numerous changes in method are most rewarding.

4. Ask the child to trace with his finger over the circle which you have drawn on the board. This circle is drawn with a wide line and with a coloured chalk. If necessary you can increase the tactual information by asking him to press hard against the board with his finger. As he is able to perform more readily, decrease the tactual information by asking him

to press more lightly. During all this activity, call his attention constantly to the visual data by asking him to watch what he is doing and to stay on the circle.

5. Ask the children to trace around your circle with chalk. They are encouraged to observe this line while they are producing it and to compare it wit yours. Here again, you are still using the circle made with broad and heavy lines so that the visual information is at a maximum and the precision required is at a minimum. Be sure that the child maintains a smooth, free movement during the tracing. Some children will move very slowly and in short spurts, checking each spurt after it has occurred. Discourage such approaches to the tracing activity since they do not result in the type of learning which we are trying to achieve.

C Auditory

I. Devise a number of sentences such as the following, which create an awareness of opposites:
The stove feels hot but ice feels _____.
Some men are fat, but others are _____.
Go through the sentences with all the groups, giving each child a turn to respond.

2. Present pictures on cards, e.g. shoes and socks, needles and pins, bread and butter, salt and pepper. Ask the child to look at the pictures and repeat the words. Write the words beneath each picture. After he can repeat the word pairs, present the pictures again but say only the first word in each pair and ask him to say the second. If he cannot do so, give him the first sound of the word as an additional cue. When he can say each pair, point randomly to single pictures and ask him to name them. If he cannot, encourage him to silently reauditorize the set but to say aloud only the one to which the teacher points.

3. Teach a series of five or six items and present them in a logical sequence from top to bottom, e.g. hat, shirt, pants, socks, shoes. Repeat the series and simultaneously point to each item. Continue until the children can name the articles with their eyes open or closed. Then randomly point to various

items and them name only one. Encourage them to reauditorize, to think of the series until they can bring out the correct words. Other series to be taught include eating utensils, in order from left to right, napkin, fork, plate, knife, spoon.

4. Put six or eight pictures in front of the children and have them name them as quickly as possible. Time them and repeat the procedure until they can give words at approximately one per second. Children enjoy timing themselves and keeping records from week to week. "Warm-up" sessions at the beginning can be used by having the child name objects in the room as quickly as he can.
5. Use the Abraham Kirshner Chart and get the children to point in the direction of the arrows to the beat of a metronome, or a hand clap (I and 2 beats per second.)

D Tactile

I. Lay a series of coloured objects or shapes in front of each child. The child must "read" the colours from left to right e.g. red, yellow, blue, green. Start with coloured objects or shapes that are all the same, e.g. all circles. Increase the complexity by introducing different objects, which must be responded to only in terms of colour i.e. shape must be ignored. Then lay out 2 rows of objects, one below the other. Encourage the child to "read" the first row from left to right and then to re-orient to the left of the second row before "reading" it. Later, give the child three and four rows to "read".

2. Give the children plasticine and ask them to mold the shapes used in the exercise above. Encourage them to feel the shapes before moulding them in plasticine and then to compare their plasticine shapes with the originals and to correct them if necessary. If correction by vision is difficult for the child get him to close his eyes and to feel both shapes in succession.
3. Provide each child with 2 objects which illustrate the concepts of "light" and "heavy". The objects should be "weighed" by hand. If possible, get a weighing scale, show the children how it works and allow them to weigh their light and heavy objects.

4. Each child should weigh himself at home and come to school knowing his own weight. Choose a very big, weighty child and a small thin child as models, write their weights on the board and get the children to say which child is heavy and which is light. Make the correlation between the visual judgement of the children and the actual weights of the 2 children as written on the blackboard.
   e.g. "James is heavy and his weight is 90 lbs., Carol is light and her weight is 63 lbs. James weighs more than Carol. James is heavier than Carol. Carol weighs less than James. She is lighter than James". Choose another 2 children as models, and repeat the procedure. Then question the children to ensure they have learned the concepts e.g. "Who is heavy, Tom or Jack?" "Is Tommy heavier than Jack?"

E Visual Perception

1. Frostig exercises.
2. Look and Learn "VISUAL MOTOR EXERCISES".
3. Look and Learn "PERCEPTUAL CONSTANCY" exercises.

F Dramatisation

1. Bring tins, packets etc. of food and drink to school to illustrate that these commodities are sold by weight. Use commodities that are obtainable in various sizes e.g. large, medium and small packets of sugar. Make sure the children understand that the commodity remains the same, although the size changes, by questioning them e.g. what is inside these three packets of sugar? What is different about these three packets?
2. Get the children to go to the greengrocer with their mothers and to tell what happens "at the greengrocer". If the children fail to notice the weighing of certain fruits and vegetables, bring this aspect to their attention. Vary this activity by asking "what happens at the butcher, the dairy, etc."

Week 8

A Orientation and Memory Training

I. "SPATIAL RELATIONSHIPS" exercises.

2. Repeat no. I of last week's exercises.

3. Teach the children simple poems and songs which require bodily movements to match the words.

4. Introduce the names of the days of the week e.g. teach them that "Today is Monday". On Tuesday, ask them to recall that "yesterday was Monday," then teach them "Today is Tuesday" and so on. On Friday, teach them that "Tomorrow is Saturday". On Monday teach them that "Yesterday was Sunday, today is Monday".

B Motor

I. With broad heavy lines make a large coloured chalk circle on the blackboard. Ask the children to trace the circle in the air. They must hold their fingers up to the copy of the circle, but must not touch it. Make sure that they stay on the line even though their fingers are not touching the board.

2. Remove the colour clue, drawing the broad, heavy circumference with ordinary chalk. Then begin reducing the width of the line. Cut it down from an inch and a half to an inch, then to three-quarters of an inch, then to half an inch, etc., until you can draw a circle in which the circumference is made with a chalk line of normal width and which the child is still able to trace over with his chalk. As you reduce the width of the line, you are not only reducing the strength of the visual clues, but you are also increasing the precision of movement required of the child. Therefore, the process of reducing the width of the line is determined both by the child's ability to use reduced visual clues and by his ability to make more precise movements.

3. The next task is to get the child to <u>copy</u> and not <u>trace</u> your chalk circle. Help him by making a large bold X on the board. Ask the child to begin his circle at the X and to end it at the X. This helps him to keep in mind the point at which he began and the point at which he must end. Aid him by calling his attention to the X. As he becomes more proficient reduce these cues until he can perform without them.

4. Get the children to reproduce a circle from memory, and then to colour in the circle. Draw their attention to the completed product.

NOTE:

I. In all the activities described above, present circles of varying sizes so that the child learns the concept "circle" and not just one specific chalk circle.

2. Vary the speed with which the child is required to draw circles - sometimes he must draw quickly and sometimes he must draw slowly. This must be done so that the child learns that the constancy of rhythm is the important factor in drawing a circle, and not the rhythm itself.

3. Sometimes ask the child to draw clockwise, and sometimes anti-clockwise so that his attention is drawn to the fact that the circle is the same regardless of the direction in which it is produced.

4. Sometimes ask the children to draw or trace with the right hand and sometimes with the left hand. Again, call their attention to the fact that the product is the same regardless of the hand which is used. Similarly, ask them to draw clockwise with the right hand, anti-clockwise with the left hand and so on.

C Auditory

I. Repeat no.5 of last week's auditory activities, but this time require the children to vocalise the directions in which they are pointing e.g. when they are pointing upwards they must call out "up".

2. Introduce the concept of rhyming words. Play "I spy with my little eye something on the desk which rhymes with cook".

3. Ask the children to listen carefully and to raise their hands when they hear a "b" sound, then call out a number of words. The ones containing the "b" sound must have "b" as the initial letter. Repeat this exercise using other letters of the alphabet. Make a large cut out of the letter you are using, paint it a bright colour and refer to it often during the course of the exercise. Use the names of the children as illustrations of the letter and sound you are working on.

D Tactile

I. Concentrate on the experience of circularity. Get the children to find and feel as many circular objects as they can in the classroom and playground. "How does a round thing move?" Get them to roll stones, wheels, barrels, etc.

2. Get the children to make circles in the sand with their shoes. Get them to grasp a crayon between their teeth, and describe a circle with their heads so that they produce a circle on a sheet of paper.

3. Provide each child with cut-outs of the letters you dealt with in the auditory exercises above. Get them to feel the outlines and shapes of these letters.

4. Get the children to "be the sounds" e.g. for the sound "O" they can place their arms in front of them as if they are holding a large barrel, and chant the sound O,O,O,O.

5. Make the letters in both small lines on the classroom floor Get the children to walk the letter.

E Visual Perception

I. Frostig exercise.

2. "Visual motor" exercises.

3. "Perceptual constancy" exercises.

4. Give the children a newspaper sheet each. Ask them to "Put a ring around all the letters that look like this one (the one you have been dealing with during the week.)"

F Dramatisation

I. Read or make up a story about the first wheel invented, what people did before they had wheels, all the uses wheels are put to. Get the children to contribute ideas.

2. Choose and read stories which emphasise the sounds you have been dealing with during the week.

Week 9

A Orientation and Memory Training

1. "SPATIAL RELATIONSHIPS" exercises.
2. Repeat no. 3 of last week's exercises.
3. Continue teaching and testing recall of the days of the week. Introduce the name of the month.

B Motor

1. The Cross

Follow the procedure that was used in teaching the circle to teach the children to draw a cross (+). Begin with a template of a straight vertical line. A straight narrow groove is cut out of the template material so that when the chalk is placed inside the groove and moved in a vertical direction a straight line results. When the child can produce a straight line with a template he is given a ruler or straight edge. When he is able to produce a straight line with the ruler remove these supports and ask him to produce a straight vertical line without external aids. The horizontal line is taught in the same manner as the vertical line. Then teach the complete cross, first using a template, then a heavy chalk cross which the child must trace over, and eventually requiring the child to copy a cross you have drawn on the blackboard.

2. The Square

a) On the right side of the board draw a heavy line approximately an inch and one-half to two inches wide. Have the child place his chalk about eighteen inches to the left of this line. Ask him to draw to the line and stop before he crosses it. If he still has difficulty in stopping, place a ruler or straight edge along the right-hand side of the broad line as a "stopper". The child then draws his line until the ruler prevents him from going further. He is encouraged to stop before he hits the ruler and to stop on the broad, heavy line. Motivation may be increased by asking the child to imagine that his chalk is a motor car. He is asked to drive his car onto the street but not across the street. He must not hit the pavement (ruler) on the other side of the street. As the child becomes more adept, the ruler is removed and the

Week 9

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width of the line is decreased.

b) Draw a broad, heavy, coloured line on the right-hand side of the board. Ask the child to place his chalk about eighteen inches to the left of this line. Then ask him to draw over to the line and go down in the new direction without getting off the line. If he has difficulty, again use a ruler as a "stop". The child then draws over to the ruler and proceeds down its length. If he still has difficulty, provide two rulers, one on each side of the broad, heavy line. The child then draws over to the line and proceeds down between the two rulers. When the child begins to develop some skill in turning this corner, we can first remove the rulers and then decrease the width of the line. Eventually ask him to execute this corner without these additional clues. During the learning process, when the wide line is in use, motivation can be provided by asking the child to imagine that his chalk is a car, as before. The child then drives his car over to the road, turns and drives down the road without getting off. Now call the child's attention to the square form. This can be done with a template or a square cut from wood or cardboard. To the visual information regarding the corners, add tactual information by asking the child to feel these characteristics of the form. Get him to feel these, in order around the contour of the figure so that he is aware that there are four such elements in a certain relationship to each other. Add auditory information by asking the child to count the corners or to give an auditory signal when he arrives at a corner. Now ask the child to draw a square. Encourage him to complete this figure with one continuous line and call attention to the order in which the elements appear. Call attention to each corner as he approaches it and point out its relationship to the previous element and to the next element.
Refer to the "note" on the circle.

3. The rectangle
Ask the child to trace with his finger the two opposite sides of the rectangle simultaneously. Thus, he will trace

one side with his right hand and one side with his left hand. Call his attention to the fact that his hands remain the same distance apart during the entire tracing activity. Draw an angle on the board and ask him to trace the two sides of the angle simultaneously. Call his attention to the fact that in the case of the angle (nonparallel lines) his hands come together or grow wider apart, whereas in the case of the parallel lines they remain the same distance apart. Ask him to try this tracing activity on the two long sides of the rectangle and also on the two short sides. Call his attention to the fact that the same parallel relationship is present between the two long sides that is present between the two short sides. Ask him to bound with his hands the short side of the rectangle and, without moving the position of his two hands lay this distance along the long side of the rectangle. If the rectangle is, for example, twice as long as it is high, he can observe that he lays his hands out twice along the long side. Call his attention to the fact that the long side is "twice as long" as the short side. The same procedure can be used with the tactual stimulation of tracing with the finger. He can observe that it takes him twice as long to trace the long side as it does to trace the short side.

Use similar rectangles of various sizes. Call the child's attention to the fact that these figures are similar even though their overall lengths are different. You want him to observe that the basic concept of the rectangle is the proportion between the two sides and not the absolute length of the two sides. Therefore present a large number of figures, some of which are similar and some of which are dissimilar, and ask him to observe the similarities and dissimilarities, pointing out that these are a function of the proportionate differences between the sides.

Also present a rectangle where the long side is horizontal and one in which the short side is horizontal. As with the circle and cross ask him to trace with his finger around a template, to trace with chalk around a template, to trace a broad heavy line with his finger and with chalk, to copy the form, and to reproduce the form. In all of these activities, call particular attention to the sides and angles. If the child produces a sound or a word in connection with each side, and if the word or sound associated with the long side occupies a longer period of time than in the case of the short side, this auditory information can be added to the visual, tactual, and kinesthetic information to help him keep the elements of this figure separate and to keep their relationships in mind.

C Auditory

I. Ask the children to imitate:

a) human sounds. Examples: laughing, singing, crying, shouting, whispering, etc.

b) Animal sounds: barking, mewing, crowing, etc.

c) Sounds of insects.

d) Sounds of the weather.

e) Sounds of objects like singing kettle, aeroplane, train, etc.

2. Devise a set of instructions such as the following:
"Bring me something that can be brought."
"Bring me something that can melt."
"Sit on something that can be sat on."
The object is to abstract the qualities of everyday objects like a chair - a chair has the quality of being "sittable-on". Include a number of nonsensical instructions, which the children must spot, e.g. "Bring me the door."

3. Word Families
The teacher draws two houses on the blackboard. In the one house the ALL family lives. In the other house the IN family lives. The children suggest the names of words living in

each family and the teacher writes them in the windows of the house. For variety, the teacher can say a word, and call on a child to tell in which house it belongs.

4. The teacher pronounces several words that have the same final consonant sound (make, look, work, pick). Avoid words with the same initial consonant and rhyming words, in order to focus the child's attention on the final sound. The children are asked to clap when they hear another word that ends the same way as for example, "park". The sound may be exaggerated at the beginning of this activity, but later, it should be spoken naturally.
5. The teacher says, "Listen for the "t" sound" (making the sound, not naming the letter.) "Is it at the beginning, middle, or end?"

top	light
letter	button
cart	tell

Children take turns in locating the positions of the letters.

D Tactile

I. Draw two horizontal lines on the board, one longer than the other. Ask the child to "bound" the lines with his hands. In this procedure, the child is asked to place his left hand at the left end of the line and his right hand at the right end. He is then asked to transfer to the short line and perform the same operation. His attention is called to the difference between the positions of his hands when he bounds the short line and when he bounds the long line. Point out to him that when his hands are closer together the line is shorter and when they are farther apart the line is longer. Ask him to compare in a similar "bounding" manner various objects about the room. Get him to experiment with lines of different lengths.

Increase his tactual awareness of length by asking him to trace over the lines which you have drawn. Tactual information in such an activity is related to time. Ask

the child to trace at an even rate over the longer line and then at the same rate over the shorter line. Ask him to compare these two experiences pointing out the difference between the two. His appreciation of this difference can be increased by adding auditory stimulation by counting or chanting as he traces the length of a line. Encourage the child to look at the lines while he is experimenting with them. When you have helped him to compare by adding kinesthetic and tactual stimuli to the visual, ask him to make his judgments on the basis of the visual stimuli alone. Ask him to look at the two lines and tell which is the shorter. He can then check his judgments by the methods which he has previously learned.

2. When the child has become aware of "longer" and "shorter", he can move on to the concept of "equal". Use the same procedures as before. Bounding of two lines with his hands and observing that he need not change the position of his hands when he goes from one to another will help him to appreciate equal lengths in lines. Tracing with his finger and observing that the same amount of time is consumed in tracing one line as in tracing the second line will help him to establish the concept.

   He can then be asked to make a line which is the same length as one which the teacher has placed on the board and check his product by the tactual and kinesthetic methods. He can also be asked to divide a line in two parts so that the left part will be equal to the right part. Here again, he can be asked to check his visual judgment with kinesthetic and tactual judgments.

3. Introduce the children to the concept of height. Tell them to be measured at home and then ask them for their heights. Choose models in the same way that you chose models to illustrate the concept weight. Follow the same procedure as before (Week 7). Now choose models who are the same height. Use the words "taller than", "shorter than" and "the same as" repeatedly. Measure the models against some external criterion e.g. make a mark on the blackboard to represent the top of each model's head. Ask the children to judge, on the basis of the marks who is the taller and who the shorter and which models are the same size. Get them to check their answers by <u>looking</u> at the models again.

4. Introduce the concepts of "bigger than" and "smaller than". Get the children to compare shoe sizes, hand sizes, length of fingers, lengths of rulers, etc.

E Visual Perception

1. Frostig exercises.
2. "VISUAL MOTOR" exercises.
3. "PERCEPTUAL CONSTANCY" exercises.

F Dramatisation

Have a discussion on all the 1.) cross, 2.) rectangular and 3.) square shapes in the environment e.g. desks are rectangular.

4.) Have the children cut out from magazines coloured pictures of bread, pies, cakes, fruit, vegetables, and meat dishes. These are placed on a table over which a "cook" presides. Three or four children - the "customers" - sit around another small table, which may be set with paper plates, knives, forks, and spoons that have been designed, cut out, and coloured by members of the class. Before taking their seats, the customers look over the cook's display. The "waiter" takes each customer's order and repeats the order to the cook. The cook places the appropriate pictures on a tray, which the waiter carries back to the table. The waiter then distributes each "dish" to the proper customer. Vary with other kinds of merchandise (clothing, toys, garden supplies, furniture, etc.)

Week IO

A Orientation and Memory Training

I. "SPATIAL RELATIONSHIPS" exercises.

2. Make cut outs of essential key words, colour them brightly and discuss one a day e.g. place the word "run" in bright bold letters on your desk. Have the groups come up to the desk and examine the word. Get the children to discuss "things that run", ask them to "run back to their desks" and to ring all the "runs" on a sheet of newsprint. The following day, discuss another word.

3. Bring a number of common every day objects to discuss with the children e.g. balls, eating utensils, tools, etc. Get the children to enumerate the properties and qualities of these objects e.g. tools are for making things, cutting things, fixing things; they are made of metal, are sharp, are hard, etc. After the discussion, ask the children to recall as many properties and qualities as they can. Each child in the group should have an opportunity to contribute something he remembers.

B Motor

I. Ask the child to draw across the board in a diagonal direction. If he is unable to accomplish this increase the visual clues by providing him with a wide heavy line which you ask him to trace. If he still has difficulty, add a template as a guide. Help him to learn the diagonal movement by the same techniques used to help him learn the circular movement.

2. The Triangle

First present the triangle with its base down and its apex up. This would appear to be the most natural orientation for this figure and the one which the child appreciates most readily. First, provide him with templates and a broad, heavy line. Then remove the template. Later, reduce the intensity of the visual clues until he is tracing in a normal fashion. From this stage, he can proceed to copying and reproduction. Vary the size of the triangle and, to aid in figure-ground relationship, sometimes ask him to colour in the figure and sometimes trace around its periphery. When the child has begun to learn the triangle in its upright orientation present it in

the opposite orientation with the apex down. He should recognize that the triangular form is the same regardless of its directional orientation.

3. The Diamond

The steps in teaching the diamond are the same as those in teaching the square and the triangle. Begin first with maximum clues, using templates, a broad, heavy line, and maximum tactual stimulation. As the child progresses, gradually reduce these clues, removing first the template and then reducing the strength of the visual stimulus. Finally, ask the child to copy the form and then to reproduce it from memory. Present the diamond in various sizes. Also present it in both orientations: First with its long dimension vertically and then with its long dimension horizontally. It will be found that ability to produce this form in one orientation does not guarantee ability to produce it in the other orientation. It might be necessary to repeat the steps in teaching the form, for this new orientation. Help the child with his figure-ground construction by asking him to colour in the form part of the time. He should also learn that the diamond is the result of two triangles with their bases together. Aid in the development of these relationships by drawing a line bisecting the diamond figure and asking him to reproduce the two halves separately, pointing out that they are triangular figures. Give him cutouts of triangles which, when placed base to base, form the diamond figure.

4. At this stage the child can begin to learn the reproduction and recognition of letters. If, in some of the more complicated letter forms, he continues to have difficulty, help him by techniques similar to those used to present the more simple geometrical forms. It should be borne in mind that you are teaching the child the problem of form in the individual letter. You are not concerned at this point with teaching the alphabet. At this stage the child can learn to reproduce and recognize simple words and phrases. Just as with simple geometric forms, the child should trace the word either with or without templates, depending upon his ability, should then copy the word, and finally reproduce it.

After he has learned to reproduce a word, he should be able to recognize the word on paper or on the board. If he has difficulty in recognizing the word as produced by someone else (reading the word), aid his recognition by asking the child to trace over it or to reproduce it on the board. Reading involves the association of a verbal and auditory pattern with the visual pattern. For this reason encourage the child to verbalize during all of the drawing and copying processes. It is desirable to call the child's attention to the verbal association in all the training activities in this area. Thus, use the word "square" in association with his production of a square; ask him what he is drawing, and when he has finished, ask him what he has drawn. Similarly, ask the child to say the letter or word as he is writing it. When he has completed his writing ask him to read what he has written.

NOTE:

All of the above activities have been carried out on the board. In order to help the child make the transition to paper it will be found useful to bridge the gap by degrees. If the board is one which can be tilted, move it toward the horizontal orientation a bit at a time. The size of the reproductions which we ask the child to make on paper are considerably smaller than th se which we ask him to make on the board. Help him in making this size transition by approaching it through stages. At first use large sheets of newsprint on a table, permitting the child to reproduce his figures in approximately the same sizes that he used on the board. Move from the large newsprint and crayons to paper and pencils. Also, carry him gradually from large figures covering the entire sheet to small figures of the size desired. Be careful at each of these stages to see that the new size of drawings develops out of the total motor pattern which you began to establish on the board and continued to encourage on the large sheets of paper.

C Auditory

I. One child is "IT". "IT" says "feathers" (or "hair" or "fur" or "skin"). The other children raise their hands and guess the name of an animal that has feathers. The child who guesses correctly becomes "IT", and names the category for

the others to guess from.

2. Devise a set of questions containing words such as "who", "where", "when" etc. that require specific answers which tell "what person" "what place" "what time."

   e.g. Q: "Who is the headmaster of this school?"

   A: "Mister Brown."

3. Present a series of true and false statements e.g. dogs have two legs. The children must indicate which are true and false statements, and must correct them if they are false.

4. Present a series of absurd statements e.g. Mother mixed the flour, eggs, and sugar to make a cake. Then she put them in the "fridge" to bake. The children must spot the absurdities. Take care to word the statements in such a way that the meaning can be clearly understood.

5. Have a period of whispering. Draw the children's attention to the difference in voice quality between normal speech and whispering.

D Tactile

I. Have the children measure their desks with their hands, the length of the classroom with the feet, (putting one foot in front of the other) etc.

2. Put sand or coloured water in a large variety of containers. Ask the children which containers hold more, which hold less, which hold the same amount. After questioning them provide them with empty containers which are the same size as the ones in question and ask them to "experiment" with these, working out the answers to the above questions. After a session of experimentation, question the children again. What is important is that they have the experience of working with quantities, not that they give the correct answer. Most of them will probably give incorrect answers. Give some guidance, but do not give them the correct answers.

3. Bring objects that are hairy, fluffy, woolly, feathery and smooth. Have the children feel these different textures (with their eyes open). Present a smooth object after each of the other four textures and ask the child to feel and discuss difference. Then divide the children into pairs and ask one of the pair

to shut his eyes, while the other gives him an object to feel. The partner with open eyes thus monitors the performance of the other child. After the sequence of objects has been felt and identified by the one partner, the children reverse roles.

4. Repeat the same procedure as above, but get the children to feel the objects with other parts of their bodies e.g. their feet, their bare arms (the partner holds the object against the child's arm) etc.

E Visual Perception

1. Frostig exercises.
2. "VISUAL MOTOR" exercises.
3. "PERCEPTUAL CONSTANCY" exercises.

F Dramatisation

Have the children discuss things in nature and in the environment that are I) triangular

2) diamond shaped

3) woolly, feathery, hairy or fluffy

4) smooth

Lead the discussion so that you bring out (from the children) the utility of wool or feathers for the animal or bird; the uses to which man puts wool or feathers, etc.

SPECIAL MOTOR - TRAINING EXERCISES

The Walking Board

The walking board is a section of two-by-four measuring eight to twelve feet in length. Each end of the board is fitted into a bracket which serves as a brace and prevents the board from tipping over. When fitted into place, the board is raised approximately two inches off the floor. Each bracket has a combination fitting so that the board can either be set in flat with the wide surface up or be set on its edge with the narrow surface up.

The child is asked to start at one end of the board and walk slowly to the other. For beginners or those having difficulties, the four-inch surface is used. As the child becomes more adept, the two-inch surface is used. For the child who has extreme difficulty, a two-by-six or even larger board can be substituted. When the task is difficult, help the child by holding onto one hand. The child should be encouraged to dispense with this help as soon as he is able. However, he should not be forced, since he may develop a fear reaction which will interfere with further training.

The child first learns to walk the board forward. He must walk slowly and maintain balance at all times. Since balance is the function being trained see that he does not avoid the problem by running or otherwise changing the procedure. After the child has learned to walk the board forward, he learns to walk it backward. He will probably need help. But he must be encouraged to dispense with this help as soon as possible. He is allowed to look back to see where the next step should be, but is encouraged to learn where the board is behind him without his having to look back. He may have to explore with his toe before each step to locate the board behind him. He is allowed to do this but is encouraged to learn the direction "straight back" so that such preliminary explorations will no longer be necessary.

The child can now learn to walk the board sideways. After he has reached the opposite end of the board, he must return, sideways to his original position. Again, care must be taken that he moves slowly and maintains balance at all times. When he has learned these three basic procedures, the child can be taught to turn on the board.

He is asked to walk across the board and, without stepping off, to turn and walk back sideways. When he has mastered this he can be asked to walk forward, turn, and return walking forward. The most difficult is to walk backward across the board, turn, and return walking backward. Variations and combinations of these routines can be introduced to maintain interest and also to reduce anticipation e.g. ask the child to walk to the centre of the board, turn and walk back. Under these conditions, the spring of the board becomes an additional factor which must be considered in maintaining balance. The child should be encouraged to experience this spring and the resulting sensations. Allow him to "bounce" on the board and discover how it feels to be on a springy surface. Help him, if necessary, but encourage him to learn to maintain balance under conditions that are unusual.

For the child who is having exceptional difficulty, start with a paper alley, constructed by laying a strip of wrapping paper along the floor, or a "street", marked out by two parallel paper strips placed along the floor with the width between them adjusted to the needs of the child. The child is then required only to walk within the alley or "street" without getting off. When the child has learned control begin to increase the demands by reducing the width of the "street". He can then be asked to perform on the boards, beginning with the two- by- eight and proceeding to the two- by- six and finally the two- by- four.

The Balance Board

The balance board is a square platform sixteen by sixteen inches. Underneath and in the middle of the board is a balance post three inches in height. Three sizes of balance posts are provided: three by three inches, four by four inches, and five by five inches. These posts can be interchanged by means of a simple wing nut so that the task can be made easier for the child who is having greater difficulty. Some children may have to begin with the board flat on the floor with no post at all until they become accustomed to the task and to the idea of being off the floor.

Start the child with the largest post and, when he can balance without difficulty, change to the middle post. When he can use the middle post with ease, change to the smallest post. If the child has difficulty

pin up a picture or other visual target at his eye level and several feet in front of him. Ask him to keep looking at the picture while balancing on the board. Encourage the child to rock the board both in the right-left direction and in the forwards-backwards direction. Let him experience a shift of weight and of the centre of gravity and observe how such shifts are accomplished and controlled. When the child has achieved skill in the simple balancing performance, ask him to bounce a ball on the floor in front of him and catch it. Begin with a large beach ball and decrease the size until he can use a tennis ball. Let him bounce and catch the ball with both hands, then with the right hand, then with the left. Ask him to throw objects at a target. Use the board to help increase awareness of the body and its parts. While he is balanced on the board, ask the child to touch his shoulders, hips, knees, ankles, toes.

APPENDIX B

SOURCE TABLES FOR ANALYSES OF VARIANCE ON THE VALETT DEVELOPMENTAL SURVEY AND THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS.

TABLE 1 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE OF THE SUMMATED SCORES OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	130827,52	167			
BETWEEN SUBJECTS	118324,53	83			
SOCIO-ECONOMIC (A)	60952,38	1	60952,38	87,47	< 0,01
CONDITION (B)	137,52	1	137,52	0,20	
A x B	1488,10	1	1488,10	2,14	
ERROR	55746,53	80	696,83		
WITHIN SUBJECTS	12502,99	84	9833,69		
PRE-POST (C)	8743,71	1	8743,71	258,77	< 0,01
C x A	152,38	1	152,38	4,51	< 0,05
C x B	896,10	1	896,10	26,52	< 0,01
C x A x B	7,71	1	7,71	0,23	
ERROR (WITHIN)	2703,09	80	33,79		

TABLE 2 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE MOTOR INTEGRATION AND PHYSICAL DEVELOPMENT SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	10906,83	167			
BETWEEN SUBJECTS	5633,35	83			
SOCIO-ECONOMIC (A)	84,29	1	84,29	1,25	
CONDITION (B)	0,15	1	0,15	0,00	
A x B	158,15	1	158,15	2,35	
ERROR	5390,76	80	67,38		
WITHIN SUBJECTS	5273,48	84	601,87		
PRE-POST (C)	317,63	1	317,63	5,37	$< 0,05$
C x A	58,34	1	58,34	0,99	
C x B	121,72	1	121,72	2,06	
C xA x B	45,05	1	45,05	0,76	
ERROR (WITHIN)	4730,74	80	59,13		

TABLE 3 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE TACTILE DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	559,62	167			
BETWEEN SUBJECTS	420,62	83			
SOCIO-ECONOMIC (A)	50,38	1	50,38	12,23	$<0,01$
CONDITION (B)	2,38	1	2,38	0,58	
A x B	38,10	1	38,10	9,25	$<0,01$
ERROR	329,76	80	4,12		
WITHIN SUBJECTS	139,00	84	90,33		
PRE-POST (C)	64,38	1	64,38	103,84	$<0,01$
C x A	6,10	1	6,10	9,84	$<0,01$
C x B	11,52	1	11,52	18,58	$<0,01$
C x A x B	7,71	1	7,71	12,44	$<0,01$.
ERROR (WITHIN)	49,29	80	0,62		

TABLE 4 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE AUDITORY DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	2852,48	167			
BETWEEN SUBJECTS	2268,48	83			
SOCIO-ECONOMIC (A)	1184,02	1	1184,02	94,27	$< 0,01$
CONDITION (B)	2,38	1	2,38	0,19	
A x B	77,36	1	77,36	6,16	$< 0,05$
ERROR	1004,72	80	12,56		
WITHIN SUBJECTS	584,00	84	134,96		
PRE-POST (C)	103,71	1	103,71	18,26	$< 0,01$
C x A	6,88	1	6,88	0,38	
C x B	18,67	1	18,67	3,29	
C x A x B	0,02	1	0,02	0,00	
ERROR (WITHIN)	454,72	80	5,68		

TABLE 5 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE VISUAL-MOTOR COORDINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	1996,48	167			
BETWEEN SUBJECTS	1838,48	83			
SOCIO-ECONOMIC (A)	446,88	1	446,88	26,63	< 0,01
CONDITION (B)	40,02	1	40,02	2,38	
A x B	9,52	1	9,52	0,57	
ERROR	1342,06	80	16,78		
WITHIN SUBJECTS	158,00	84	107,35		
PRE-POST (C)	85,71	1	85,71	133,92	< 0,01
C x A	0,60	1	0,60	0,94	
C x B	20,02	1	20,02	31,28	< 0,01
C x A x B	0,38	1	0,38	0,59	
ERROR (WITHIN)	51,29	80	0,64		

TABLE 6 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE VISUAL DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	6118,99	167			
BETWEEN SUBJECTS	5529,49	83			
SOCIO-ECONOMIC (A)	1470,29	1	1470,29	29,46	$< 0,01$
CONDITION (B)	65,63	1	65,63	1,31	
A x B	0,48	1	0,48	0,00	
ERROR	3993,09	80	49,91		
WITHIN SUBJECTS	589,50	84	266,87		
PRE-POST (C)	195,01	1	195,01	47,80	$< 0,01$
C x A	18,01	1	18,01	4,41	$< 0,05$
C x B	49,29	1	49,29	12,08	$< 0,01$
C x A x B	0,48	1	0,48	0,12	
ERROR (WITHIN)	326,71	80	4,08		

TABLE 7 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE LANGUAGE DEVELOPMENT AND VERBAL FLUENCY SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	8395,84	167			
BETWEEN SUBJECTS	8016,36	83			
SOCIO-ECONOMIC (A)	4832,15	1	4832,15	124,35	< 0,01
CONDITION (B)	4,34	1	4,34	0,11	
A x B	70,72	1	70,72	1,82	
ERROR	3109,15	80	38,86		
WITHIN SUBJECTS	379,48	84	237,01		
PRE-POST (C)	182,29	1	182,29	101,27	< 0,01
C x A	15,48	1	15,48	8,6	< 0,01
C x B	31,72	1	31,72	17,62	< 0,01
C x A x B	5,72	1	5,72	3,18	
ERROR	144,37	80	1,80		

TABLE 8 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE CONCEPTUAL DEVELOPMENT SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	20435,25	167			
BETWEEN SUBJECTS	19130,76	83			
SOCIO-ECONOMIC (A)	5406,00	1	5406,00	32,36	< 0,01
CONDITION (B)	317,63	1	317,63	1,90	
A x B	41,01	1	41,01	0,25	
ERROR	13366,12	80	167,08		
WITHIN SUBJECT	1304,49	84	883,21		
PRE-POST (C)	819,29	1	819,29	153,71	< 0,01
C x A	20,72	1	20,72	3,89	
C x B	0,72	1	0,72	0,14	
C x A x B	37,15	1	37,15	6,97	< 0,01
ERROR (WITHIN)	426,61	80	5,33		

TABLE 9 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE SUMMATED SCORES OF THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	5425,40	167			
BETWEEN SUBJECTS	4376,40	83			
SOCIO-ECONOMIC (A)	981,17	1	981,17	12,26	< 0,01
CONDITION (B)	50,38	1	50,38	0,63	
A x B	69,43	1	69,43	0,87	
ERROR	3275,42	80	40,94		
WITHIN SUBJECTS	1049,00	84	687,21		
PRE-POST (C)	617,17	1	617,17	134,75	< 0,01
C x A	17,36	1	17,36	3,79	
C x B	42,00	1	42,00	9,17	< 0,01
C x A x B	6,10	1	6,10	1,33	
ERROR (WITHIN)	366,37	80	4,58		

TABLE 10 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE READINESS FOR SCHOOL ENTRANCE SUBTEST OF THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	2512,83	167			
BETWEEN SUBJECTS	2150,83	83			
SOCIO-ECONOMIC (A)	535,71	1	535,71	26,84	< 0,01
CONDITION (B)	10,50	1	10,50	0,53	
A x B	7,71	1	7,71	0,39	
ERROR	1596,91	80	19,96		
WITHIN SUBJECTS	362,00	84	238,94		
PRE-POST (C)	224,02	1	224,02	143,60	< 0,01
C x A	0,38	1	0,38	0,24	
C x B	12,60	1	12,60	8,08	< 0,01
C x A x B	0,38	1	0,38	0,24	
ERROR (WITHIN)	124,62	80	1,56		

TABLE 11 SOURCE TABLE FOR THE ANALYSIS OF VARIANCE ON THE READING READINESS SUBTEST OF THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIATION	SS	df	MS	F	p
TOTAL	685,14	167			
BETWEEN SUBJECTS	527,14	83			
SOCIO-ECONOMIC (A)	61,93	1	61,93	11,55	< 0,01
CONDITION (B)	21,43	1	21,43	4,00	< 0,05
A x B	14,88	1	14,88	2,78	
ERROR	428,90	80	5,36		
WITHIN SUBJECTS	158,00	84	106,59		
PRE-POST (C)	97,52	1	97,52	150,03	< 0,01
C x A	4,02	1	4,02	6,18	< 0,05
C x B	1,52	1	1,52	2,34	
ERROR (WITHIN)	52,06	80	0,65		

APPENDIX C

SOURCE TABLES FOR ANALYSES OF COVARIANCE ON THE VALETT DEVELOPMENTAL SURVEY AND THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

TABLE I SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE SUMMATED SCORES OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	628,62	628,62	19,54	$< 0,01$
ERROR	1254,98	32,18		
TOTAL	1883,59			

TABLE 2 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE MOTOR INTEGRATION AND PHYSICAL DEVELOPMENT SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	2,42	2,42	3,80	
ERROR	24,77	0,64		
TOTAL	27,18			

TABLE 3 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE TACTILE DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	3,93	3,93	7,96	$< 0,01$
ERROR	19,28	0,49		
TOTAL	23,22			

TABLE 4 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE AUDITORY DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	8,58	8,58	1,76	
ERROR	190,10	4,87		
TOTAL	198,68			

TABLE 5 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE VISUAL-MOTOR CO-ORDINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	12,59	12,59	18,34	$< 0,01$
ERROR	26,77	0,69		
TOTAL	39,36			

TABLE 6 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL $(\frac{EH + EL}{2})$ AND THE COMBINED DATA OF GROUPS CH AND CL $(\frac{CH + CL}{2})$ ON THE VISUAL DISCRIMINATION SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	8,54	8,54	1,05	
ERROR	317,42	8,14		
TOTAL	325,96			

TABLE 7 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL ($\frac{EH + EL}{2}$) AND THE COMBINED DATA OF GROUPS CH AND CL ($\frac{CH + CL}{2}$) ON THE LANGUAGE DEVELOPMENT AND VERBAL FLUENCY SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	25,07	25,07	6,93	$< 0,05$
ERROR	141,00	3,62		
TOTAL	166,06			

TABLE 8 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL ($\frac{EH + EL}{2}$) AND THE COMBINED DATA OF GROUPS CH AND CL ($\frac{CH + CL}{2}$) ON THE CONCEPTUAL DEVELOPMENT SUBTEST OF THE VALETT DEVELOPMENTAL SURVEY

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	10,49	10,49	1,60	
ERROR	255,73	6,56		
TOTAL	266,21			

TABLE 9 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED LATA OF GROUPS EH AND EL ($\frac{EH + EL}{2}$) AND THE COMBINED DATA OF GROUPS CH AND CL ($\frac{CH + CL}{2}$) FOR THE SUMMATED SCORES ON THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	22,67	22,67	6,08	< 0,05
ERROR	145,32	3,73		
TOTAL	167,99			

TABLE 10 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL ($\frac{EH + EL}{2}$) AND THE COMBINED DATA OF GROUPS CH AND CL ($\frac{CH + CL}{2}$) ON THE READINESS FOR SCHOOL ENTRANCE SUBTEST OF THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	7,39	7,39	1,74	
ERROR	165,48	4,24		
TOTAL	172,87			

TABLE 11 SOURCE TABLE FOR THE ANALYSIS OF COVARIANCE ON THE COMBINED DATA OF GROUPS EH AND EL ($\frac{EH + EL}{2}$) AND THE COMBINED DATA OF GROUPS CH AND CL ($\frac{CH + CL}{2}$) ON THE READING READINESS SUBTEST OF THE BANHAM MATURITY LEVEL FOR SCHOOL ENTRANCE AND READING READINESS

SOURCE OF VARIANCE	SS	MS	F	p
TREATMENTS	0,31	0,31	0,59	
ERROR	20,32	0,52		
TOTAL	20,63			

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