
UNIT 3 VISION TRAINING FOR LOW VISION

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3.1 INTRODUCTION

You have read about the procedure for the assessment of functional vision in the previous Unit 2, using which you can determine the extent to which the person is effectively able to use remaining vision. Of course, the functional assessment needs to be done by an expert. However, you can also carry out the assessment-related activities and get a rough idea about how effective (functional) is the person's remaining vision. This Unit describes activities that you can carry out to improve the person's use of the vision she has.

Objectives

After reading this Unit, you will be able to:

- explain the impact of low vision on functioning;
- state the importance of vision stimulation; and
- conduct activities for imparting visual efficiency so that the person is able to use her remaining vision more effectively.

3.2 IMPACT OF LOW VISION ON FUNCTIONING

You may expect a person with low vision to be like other non-disabled persons in many aspects of life, since she is able to see to a certain extent. However, even though the person has some vision, she is not able to see like others with normal vision. She may be able to see some things, while not being able to see others. She may get confused because there is a difference

between what she sees and what she hears, since what she hears is based upon what people with normal vision are seeing. **So persons with low vision need supervision and help. They need training to use their low vision effectively to overcome these difficulties.**

As a parent/family member/teacher, it is very important to know that an adventitiously low vision child (i.e.: a child who did not have the condition of low vision from birth, but developed it after some years), will be affected more psychologically since the child knows what it is like to see when the vision is normal. If the child is helped to develop a positive attitude towards her vision, she will be better able to adjust psychologically with her condition.

Unless a low vision child is emotionally prepared to see, she may not show an interest—in seeing. Many parents, teachers and professionals working with low vision children believe that all low vision children can use the vision that they have effectively, and can also perform many activities. However, many a times the low vision child fails in doing activities because of lack of attention, motivation, training, inability to correlate objects and lack of understanding on the part of the caregivers. For example, a low vision child who has peripheral vision but no central vision cannot do activities that involve central vision such as reading. On the other hand, low vision children with severe peripheral loss may be able to read print because their central vision is functional. Further, some children with low vision may have fluctuating vision while others may have dimness of vision, haziness or a film over the eye. Thus, they may perform well in certain activities and fail in other tasks. When the child is unable to do certain activities, the parents/teachers tend to think that the child lacks interest, attention and understanding. They may fail to realize that the child has genuine difficulties in doing these activities. Also some children with low vision, who have a squint, may turn their head inappropriately when seeing something. These mannerisms may cause them to be ridiculed by the children and adults around them.

If people with low vision encounter negative reactions repeatedly, they will begin to feel that their visual behaviours are not socially accepted. This affects them psychologically, lowers their self-confidence and they may lose interest in seeing. Thus, they will not be able to perform activities that they could have. Frequently, it is the attitude of the people towards the visual behaviour of persons with low vision that reduces their interest in visual functioning.

In fact, what should be promoted is the opposite. There is a need to help the child to develop efficient use of her low vision through a programme of visual stimulation and utilization. **It is also important to understand that each low vision person “sees” differently, depending upon the type of vision loss. So the training in activities for daily living, mobility, social interaction and learning will be different for each person.**

3.3 VISION STIMULATION

Stimulation of vision is the most important aspect in the training of use of vision. **Vision stimulation means helping a person to develop maximal use of her residual vision (i.e. the vision that she has).** The children who have very little vision, or those who have not used it, need to know that they can use their vision. It may mean teaching a low vision person to use visual mode of learning instead of tactual mode (i.e. learning by touch). Vision stimulation enhances the level of visual awareness and efficiency. Remember, that the person needs encouragement and support to use her remaining vision.

The aim of vision stimulation training is to provide appropriate visual stimulation activities in a particular order and sequence, which will help the person to use her limited visual ability to the best. Since the persons with low vision may have very limited experience in looking at things visually, learning to use one's vision may initially be a tiring experience, or an unpleasant activity for most. So the visual stimulation activities selected should be appropriate, attractive, interesting, motivating and enjoyable. It is also important to know that eyes do not get damaged by using vision or holding things close to the eyes.

In the following sections, we will describe some vision stimulation activities. **Vision stimulation training may also be called visual efficiency training activities.** While organizing the training activities keep in mind that you should:

- Impart training as a part of day-to-day routine activities of the person
- Keep the duration of each training session short
- Provide a variety of items
- Make the training activities fun
- Include training of other senses, such as hearing and touch
- Work in the best lighting condition.

3.4 VISUAL EFFICIENCY TRAINING

Visual efficiency is another way of referring to functional vision. It refers to the extent to which available vision is used effectively. It includes

- visual acuity at far and near distances (recall Unit 1)
- control of eye movements
- accommodative ability (shifting gaze from one place to another) etc., and
- the processing ability of the brain (i.e. the ability of the brain to make sense of the images that the eyes are seeing).

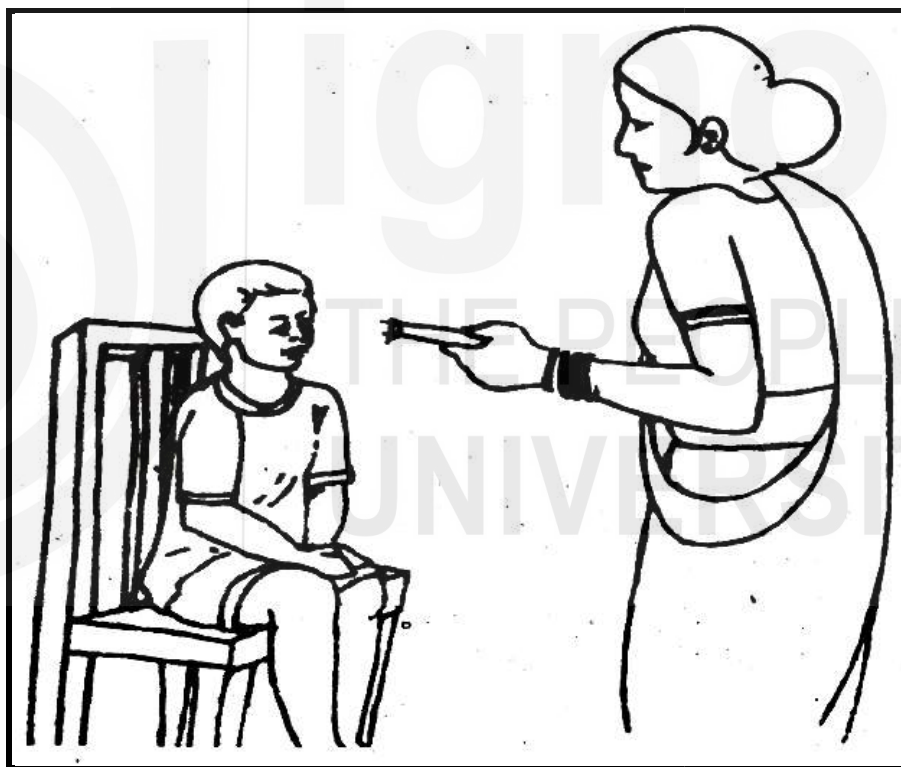
Visual efficiency is unique to each person. Visual efficiency can be developed by training and though it can be assessed broadly and functionally, it cannot be predicted accurately by medical, psychological or educational personnel.

Before we describe activities for visual efficiency training, let us understand the concept of **best field of view**. The term is self-explanatory. **A person's best field of view is the direction and distance at which the person with low vision is best able to see something.**

Take a pen torch and hold the pen light in front of the person's face at a distance of about 15 cm. Observe if the person blinks her eyes in response to the light. Move the light in different directions, for example, to the left, right; above and below the person's face at a distance of 15 cm. Again observe if the person blinks. You can flick the light on and off to catch her attention.

If the person blinks, it means she can see the light. If the person has a history of epilepsy the activity of flicking the light on and off may best be avoided.

If the person does not blink, vary the distance of the light from the person's face and repeat each of the above steps at different distances. Note the distance and the direction where the person shows a response by blinking. You can thus clearly identify the distance and direction in which the person is best able to see. This is the person's best field of view.



Finding out the person's best field of view

For providing visual efficiency training, begin by doing the activities described in this Unit in the person's best field of view and then vary the distance, as suggested in the activities.

The following are some activities for providing visual efficiency training. These have been presented with respect to the nine skills, about which you have read in Section 2.3 of Unit 2. Remember that the earlier it is detected that the child has low vision, the better are the chances of the child being trained to use her residual vision effectively. However, the activities described below can also be used with adults.

3.4.1 Skill 1: Visual Awareness and Attention

We see something when we become aware of it and when we attend to it. **This is the basic skill that has to be developed in a person who has low vision.** You may organize activities such as the one described below, to help her develop this skill.

Activity 1

Take a bright object, like a coloured ball or a toy, and move it in your hand. Watch the child's eyes to observe if she has noticed the object. Vary the distance until he notices it. Do this many times till the child learns to look at the object and continues to look at it for some time. **This is called fixing the gaze.**

Try to increase the period of fixation up to 3 seconds. When the child can attend to close objects, increase the distance and hold the objects in different positions in front of and at the sides of the child.

Encourage the child to reach out and touch the object. After that, tell the child to pick up the object.

3.4.2 Skill 2: Control of Eye Movements

We can read or recognize objects, only when we attend to them or gaze at them. This means that we must focus only at that object and ignore all others in our visual field. **This requires control of eye movements and involves the ability to track objects as well as the ability to scan.** People with low vision may confuse between objects and among letters due to lack of controlled gaze over the words in a line or over the lines themselves (up-down). Due to this, the person may even fail to adopt the left to right reading direction required for most languages.

- **Tracking**

As you know, 'tracking' refers to the ability to follow a moving object. It includes controlled movements of the eye for effective gaze in a particular direction. This ability can be developed through the following activities:

Activity 2

Shine the pen-torch or present an object to the person at a distance at which she can see it (that is, in her best field of view). Now move the light/ object in a particular direction and ask the person to hold her head still, while following the moving light or object with her eyes.

Present the light from different directions — moving it from left to right, up and down and in circles.

Increase the distance between the person and the object when the person progresses.

Activity 3

Take a balloon. Tie it on a string. Holding the balloon in the child's best field

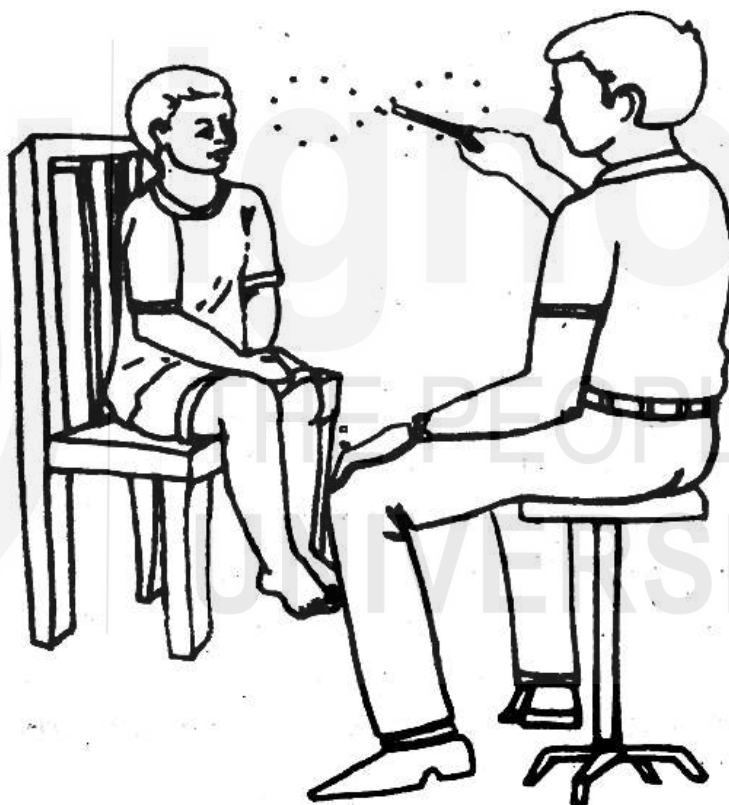
of view, ask her to follow it with her eyes as it bounces up, down and around on the string.

Activity 4

You can plan many activities with rolling and throwing objects, such as balls. Suspend or hang a ball from a hook. Swing the ball keeping it in the child's best field of view. Ask the child to follow it with her eyes, as it swings from side to side, without moving the head.

Activity 5

Take a pointer or a thin wooden rod. Colour the end with bright colour (such as white colour if the rod is wooden). Move the pointer in figure '8' formation in front of the person within her best field of view. Ask the person to follow the end of the pointer with her eyes, without moving her head. Repeat the activity till the person becomes good at following the figure of '8' that you draw.



Activity to develop the ability to track

- **Scanning**

It refers to the ability to search for a particular visual stimulus among other visual stimuli. For example, you must have noticed that your eyes scan/ search for a particular book among a number of books on the shelf. This scanning helps in the identification of the needed book.

You can develop the ability to scan through the following activities:

Activity 6

Place three objects such as a ball, a model of a car and a toy in a line and note whether the child scans the line from one object to another. Place the objects within the child's best field of view. Ask the child to name the objects as she

sees them. Practice by changing the objects, and also by changing the location of the objects.

Activity 7

If the person reads print or is at least able to identify letters, — give her a page from a book. Ask her to circle a particular letter. For example, in the sentence ‘He came’ again after you had gone” ask the person to circle the letter ‘e’ in the sentence.

Activity 8

Letters or numbers can be placed in different parts in a figure. Ask the person to point to/encircle a particular letter or number in the figure.

You can also ask questions like the following:

- Which numbers are in the rectangle but not in the triangle?
- Which numbers are in the triangle but not in the rectangle?
- Which numbers are neither in the rectangle not in the triangle?



Activity to develop the ability to scan

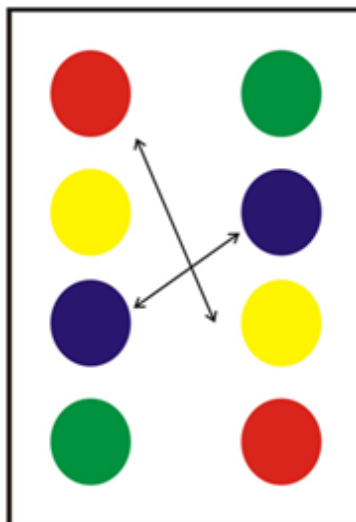
3.4.3 Skill 3: Visual Discrimination

This refers to the ability to distinguish different objects on the basis of their colour, shape or size. This ability also helps the person to determine whether an object is near or far.

Activity 9

Colours can be used to develop the person’s ability to discriminate and, simultaneously, she can be taught the names of different colours. Prepare a worksheet on which are pasted coloured papers — as shown in the figure on the next page. Ask the person to match colours pasted in one row of the cardboard sheet with the ones pasted in the second row.

First give the person practice with the primary colours (blue, yellow and red). When the person can identify and match these, provide the secondary colours (green, purple, orange) and later move on to shades of a colour (dark blue and light blue, bright green and pale green).

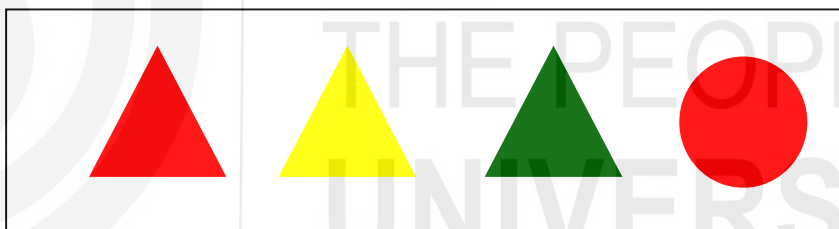


Activity to foster the ability to identify colours

Activity 10

Teach the child the names of different geometric shapes (square, rectangle, circle etc.) and their different features, e.g. comers, straight lines, and curved lines. To teach these aspects, paste different shapes on a sheet, using different colours for different shapes. Begin by asking the child to identify each shape. Gradually teach her the name and point out its specific features.

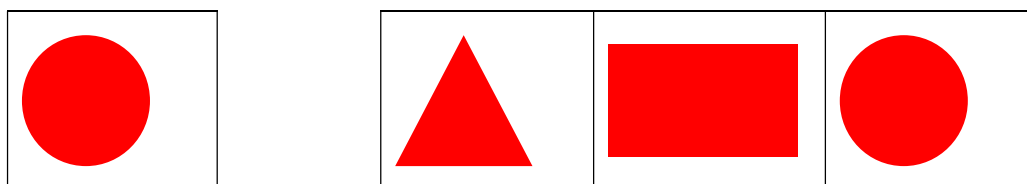
You can also ask the child to point out the shape that is different from the others, as in the following figure.



Which shape is different?

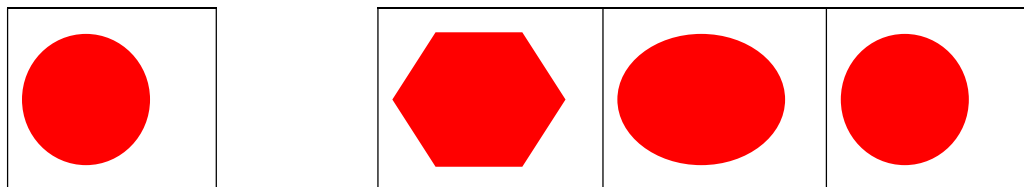
Activity 11

Paste different shapes on a cardboard. Of these shapes, paste one shape separately on a cardboard. Give this to the child and ask her to match this shape with the same shape pasted on the cardboard.



Activity develop the ability to match shapes

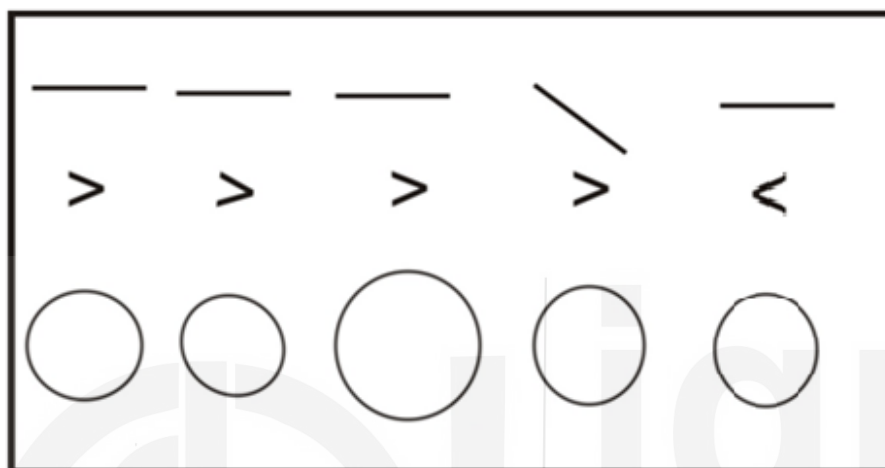
In order to refine the skill of visual discrimination, make the activity a little more difficult by pasting shapes that look similar. Give one of these shapes to the child as explained above and ask her to match it with the same shape pasted on the cardboard.



Activity to develop the ability to discriminate among similar looking shapes

Activity 12

Develop similar activities to help the person learn the differences between lines, angles, and sizes as depicted in the following illustration.



Activity to develop the ability to discriminate between lines, angles and sizes

Activity 13

The following activity will help the person to discriminate details of objects, without the use of touch.

Show one object, such as a toy or a vegetable, to the child and help her to get familiar with it, without touching it. Describe the object to her and tell her its name. Ask the child to describe what she sees. Once she becomes familiar with this object, show her this object along with three others and ask her to point out this object when you say its name, without touching it. Gradually, familiarize the child with a variety of objects in this manner.

For objects that cannot be brought to the child (for example, the handle on the door), name the object and let the child walk up to it to look at it closely.

3.4.4 Skill 4: Visual Figure-Ground Discrimination

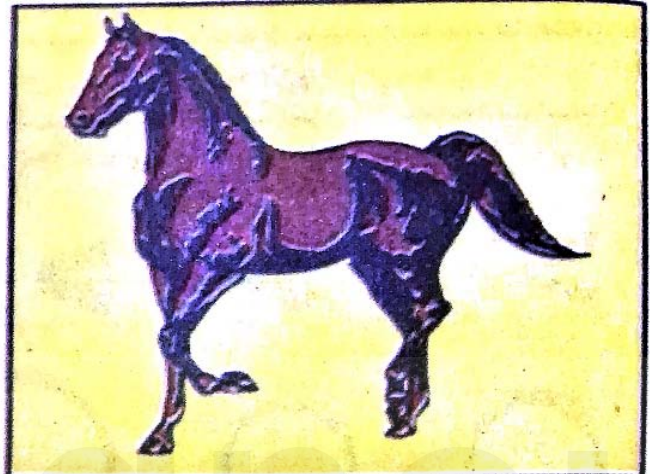
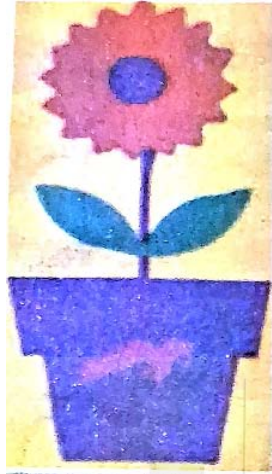
We see objects against a background. When you see the figure of a house in a painting, the house is seen against the background of the painting. You see the outline of the house and discriminate it from the background; you may also discriminate the various features of the house.

Similarly, we see people and the actions they perform, against a background. The background in this case is the room where the person is standing, the chair, the cooking stove, the playing field and so on. The ability to discriminate an object from its background is called figure ground discrimination. It is the skill of perceiving and organizing the various objects

in one's field of vision as well as seeing the distinctive features of an object. The following activities will be helpful in developing this skill:

Activity 14

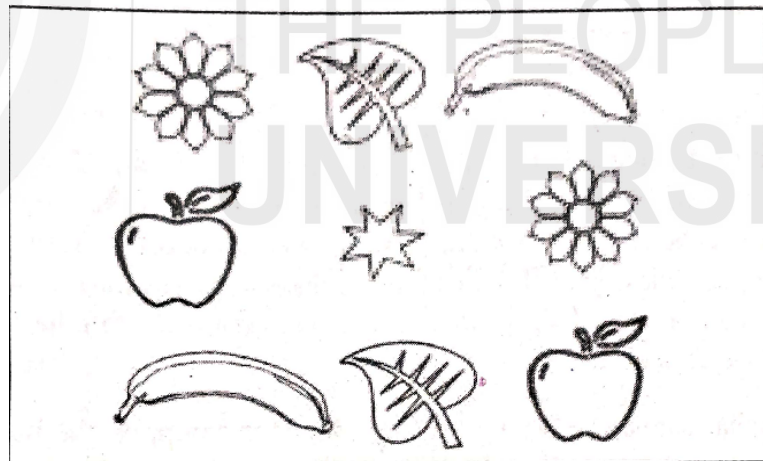
Show the person a picture of a horse (or any other picture). Draw her attention to the outline of the horse's face, body, legs and tail. In this way, she will learn to distinguish the horse from its background.



Activity to foster figure-ground discrimination

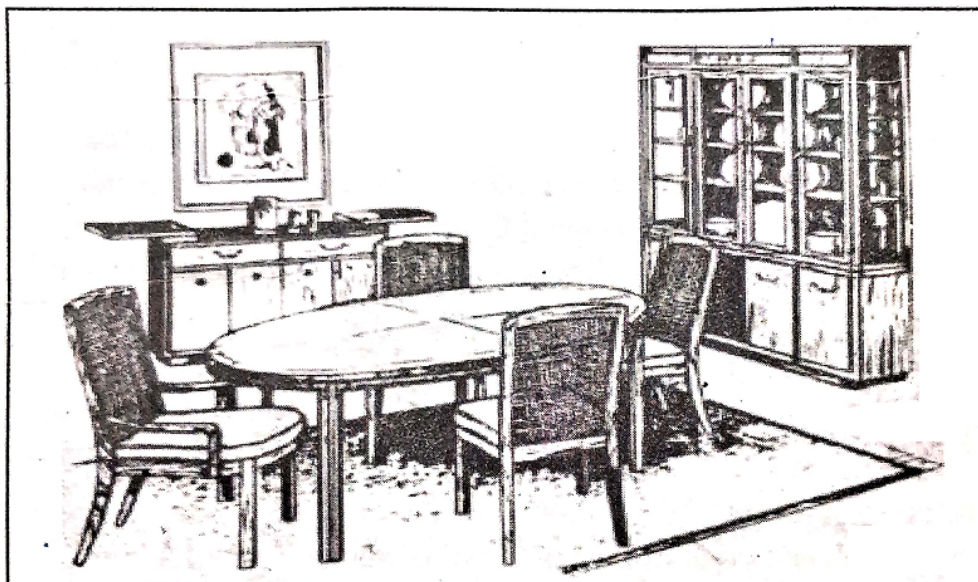
Activity 15

Show the person a card containing simple line drawings of various objects such as in the figure below.



Activity to foster discrimination among objects

Ask the person to circle all the apples in the picture, then all the leaves and so on. When the person is able to do so, give complex pictures such as one depicted in the illustration below, and help her practice by asking her to identify specific objects in the picture.



A more complex activity for fostering figure-ground discrimination

Activity 16

Spread out several items, for instance a pencil, a pen, some books, a bag and an eraser on a table. Take one item, for example, the eraser, and show it to the person. Help the person to see its features and recognize it, without touching it. Then ask the person to close her eyes. Put the eraser in a different place, may be on top of the book. Ask the person to find the eraser. Such activities develop the skill of organizing the visual field into objects.

- **Recognizing Actions**

The following activities will help the person to recognize various actions.

Activity 17

Carry out activities that require the person to imitate body movements. Start with movements involving the whole body and then move on to smaller movements using the arms, legs, hands and fingers. Some examples of movements are bending the body from the waist, kicking with the leg, throwing with the arm, waving the hand, making a fist, moving a finger, and so on.

Activity 18

After teaching body movements, ask the person to imitate the expressions of the face such as smiling, closing the eyes, opening the mouth. Remember to carry out these activities in the person's best field of vision.

3.4.5 Skill 5: Visual Memory

Most of us remember some details of objects and people that we see. This is called visual memory. Carry out the following activities to strengthen the person's visual memory.

Activity 19

Stand before the person. Ask her to study you for a short time, i.e., to observe your appearance or the clothes you are wearing. Leave the room and change

something in your appearance. For example, a bag that you were carrying may be left behind or you may come back wearing a different shirt. Return to the person and ask her to identify what is different about you now.

Activity 20

Give the person a photograph of somebody she is familiar with. Ask the person to name the person. To do this, the person has to recall the image of the person (in the picture) from her memory.

Activity 21

Ask the person to draw objects from memory. These could be pictures of trees, flowers, people, objects, or a scenery.

Activity 22

Give a picture that shows a theme; for example, a picture of a zoo or a picture of a game, such as a cricket match. Ask the person to study the picture for a short time and take it back. Ask her to describe the picture from her memory. Encourage her to give as many details as possible.

3.4.6 Skill 6 : Visual Closure

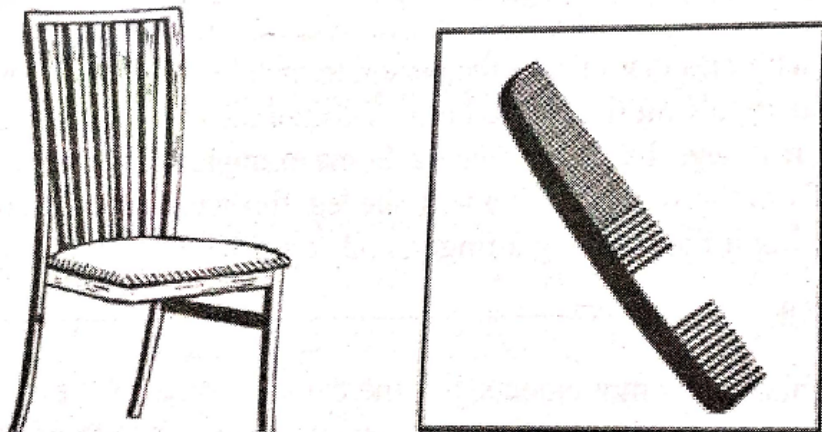
It is the ability of a person to perceive a total picture or an object when only a part of it is visible.

Activity 23

Hide an object in such a way that a part of it is visible. Ask the person to find it.

Activity 24

Draw a picture of an object or an animal, leaving out some part. Ask the person to identify the missing part and, if possible, to draw it.



Fostering the skill of visual closure

Activity 25

Ask the child to assemble the parts to form a known object. For example, you could paste the picture of a bird, say a sparrow, on a piece of cardboard, and

then cut it into 3-4 pieces. The child can then be asked to combine the different parts to form the complete picture.



Activity 26

If the person can read, ask her to identify the missing part in letters or numbers.



3.4.7 Skill 7: Form Constancy

Those of us who have normal vision, tend to recognize an object whichever angle we may see it from. Try out for yourself. Identify any object in your room, such as a chair, and view it from different angles — front, back, side, from above the stairs and while lying on the ground. Whichever angle you see it from, you recognize it as a chair. This image of the chair that is formed on the retina of the eyes from these different angles is different, but the brain processes these different images and understands that these are the different images of the same object. **This ability to realize that the object is the same despite the fact that it appears different when viewed from different angles, is referred to as form constancy.**

People with low vision find it difficult to achieve form constancy. The same object when viewed from different angles may appear different to them and they may think it to be a different object. They need practice in viewing an object from different angles and understanding that it is still the same object. The following activities will help in this regard.

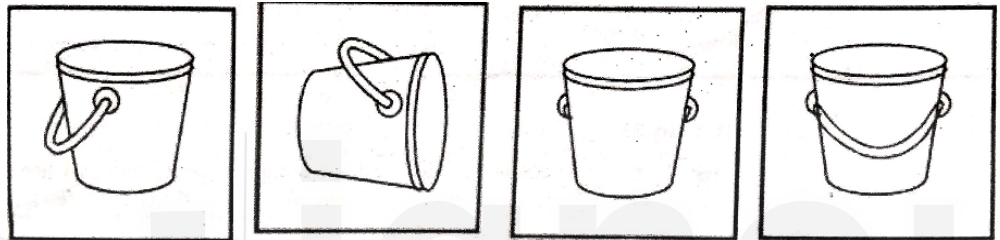
Activity 27

Hold a spoon at different angles and help the person to observe the shape of the spoon from these angles. Teach the person that though the shape of the object “seems” to be changed, it is actually constant.

Objects like comb, spoon, knife, scissors etc. can be used to practice this skill. Help the person to view large objects like a table or a cupboard, as well as people from different angles.

Activity 28

Two dimensional pictures of objects such as bucket, watch, flowers and pencil, can be pasted at different angles on a paper to show how the objects would appear when seen from various angles.

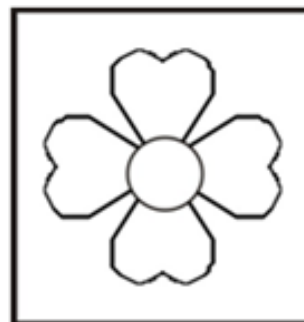


3.4.8 Skill 8: Eye-Hand Coordination

We are able to carry out the various activities that we do because we are able to coordinate the movement of our hands with what our eyes are seeing. Thus, for example, your hand reaches for the soap exactly where your eyes see it; the badminton player moves his hand to hit the shuttle cock exactly where he sees it. This is so automatic for most of us that we do it without thinking. **This ability to perform a task using our hands and eyes in coordination is referred to as eye-hand coordination.** However, a person with low vision is likely to have difficulty in coordinating what her eyes see and the movement of her hands in reaching out to the object. She needs practice in developing this skill.

Activity 29

Ask the person to colour the picture without going out the boundaries.



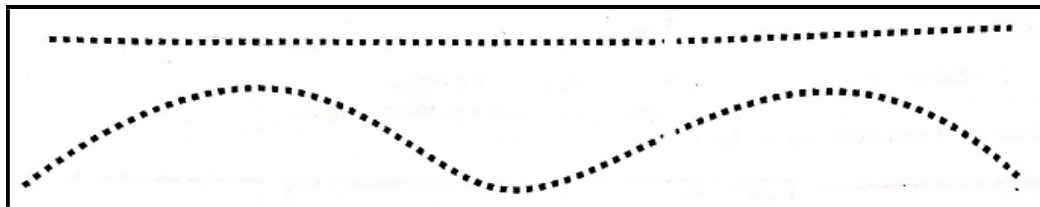
Activity 30

Ask the person to drop beads or nuts into a box through a narrow opening at the top of the box. This will help her to practise judging (with her eyes) the

size of the hole and the beads, as well as the distance, and then moving her arm in the appropriate manner and direction, and to the right extent, to put the bead in the hole.

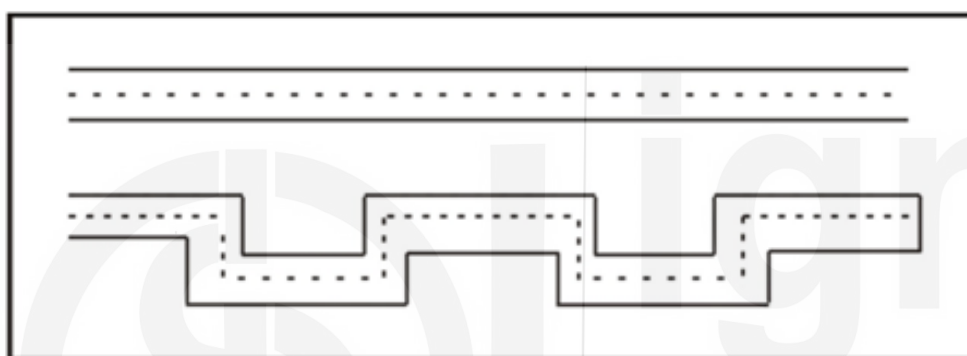
Activity 31

Ask the person to connect the dots to form straight or curved lines.



Activity 32

Ask the person to connect the dots without going outside the two dark lines.



3.4.9 Skill 9: Eye-Foot Coordination

Just as we coordinate the movement of our eyes and hands in picking-up, throwing or holding objects when writing, cooking, bathing and playing, similarly we need to coordinate the movements of the eyes and legs for walking, running, playing and jumping. People with low vision need help in developing this skill.

Activity 33

Ask the child to walk a short distance by herself.

Give the child practice in kicking the ball.

Roll a ball and ask the child to move towards it.

Ask the child to go up and down the stairs putting both feet on each step.

Functional vision can be improved with training. The earlier the vision stimulation activities are begun, the greater is the chance of improvement in the person's functional vision.

Check Your Progress Exercise 1

- 1) State whether the following statements are correct or incorrect.
 - a) Each person with low vision “sees” in the same way. ()
 - b) Vision stimulation means helping a person to develop maximum use of her residual vision. ()
 - c) Visual efficiency is unique to each person. ()
 - d) Vision stimulation training helps the person to use her limited visual ability to the best. ()
 - e) Visual stimulation activity selection should be appropriate. ()

2) Fill in the Blanks.

- a) Visual discrimination refers to the distinguish different objects on the basis of their colour, shape or size.
- b) Persons with low vision may confuse between object due to lack of
- c) involves the ability to track objects as well as the ability to scan.
- d) refers to the ability to visually follow a moving object.
- e) refers to the ability to search for particular visual stimuli among other visual stimulus.

3) Why visual figure-ground discrimination is necessary?

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4) What is Visual Closure?

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5) What is Form Constancy?

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6) Why is Eye-Foot Coordination necessary?

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3.5 SUMMING UP

In this Unit, you have read that you can train a person with low vision to use her remaining vision effectively.

Vision stimulation means helping a person to develop maximal use of her residual vision.

This training is unique to each person, depending upon the specific areas in which she needs assistance.

This training helps the person develop skills related to visual awareness and attention, eye movement, visual discrimination, figure ground discrimination, visual memory, visual closure, form constancy, eye-hand coordination and eye-foot coordination.

3.6 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise

- 1) State whether the following statement are correct or incorrect.
 - a) Incorrect
 - b) Correct
 - c) Correct
 - d) Correct
 - e) Correct
- 2) Fill in the Blanks.
 - a) Ability
 - b) Controlled gaze.
 - c) Control of Eye Movement
 - d) Tracking
 - e) Scanning

- 3) The ability to discriminate an object from its background is called figure-ground discrimination. It is the skill of perceiving and organizing the various objects in one's field of vision as well as seeing the distinctive features of an object.
- 4) Visual Closure is the ability of a person to perceive a total picture or an object when only a part of it is visible.
- 5) Form Constancy is the ability to realize that the object is the same despite the fact that it appears different when viewed from different angles. This ability, is referred to as form constancy.
- 6) Eye-Foot Coordination requires coordinating the movements of the eyes and legs for walking, running, playing and jumping. Persons with low vision need help in developing this skill.



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