The Child:
Development In The First Twelve Month
"Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances."

- Indira Gandhi
Block 2

**THE CHILD:**
DEVELOPMENT IN THE FIRST TWELVE MONTHS

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The birth of child is generally a joyous occasion. The routines of the family members change, revolving around the infant's needs. The young children in the home play with the infant, marvelling at her hands and feet. They perform a variety of tricks to win a smile from her. And as soon as the infant is able to make speech sounds, they make efforts to teach her their names.

The first year is a period of rapid development. It is a year of firsts: the first smile, the first step, the first tooth, the first words, the first attachment. In this Block we trace the growth of the baby from the time of conception till the first birthday. Unit 6 describes development during the prenatal period. Units 7 to 10 describe the milestones of physical development, the nature of thought, the steps in the acquisition of language, and the beginnings of interpersonal relations. These descriptions will be clearer to you if you supplement them with observations of infants in your home or neighbourhood as has been suggested to you in the Practical Manual.

The last unit of this Block (Unit 11) focuses on some play activities that can be organized for infants. These are examples. With imagination and observation you can devise other activities relevant to your situation. A section of this Unit also deals with the attitudes of the caregiver conducive to interaction with children.
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UNIT 6 PRENATAL DEVELOPMENT AND CARE

Structure

6.1 Introduction
6.2 Conception
6.3 Intra-uterine Growth
   6.3.1 Period of the Ovum
   6.3.2 Period of the Embryo
   6.3.3 Period of the Foetus
6.4 Birth of the Child
6.5 Care of the Mother during Pregnancy
   6.5.1 Nutrition
   6.5.2 Health Care
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6.8 Answers to Check Your Progress Exercises

6.1 INTRODUCTION

The growth of the baby within the mother's womb is most fascinating. It is important to understand prenatal development so that the mother can take adequate care during pregnancy and thereby provide a good environment for the baby to develop. The health of the mother, the amount and the quality of food she eats and her emotional states influence the development of the baby within the womb. The uterine environment not only influences development in the prenatal period but is also important for development and adjustment after birth.

With advancements in the field of medicine we have information about intra-uterine growth which was not available earlier. There are detailed illustrations and pictures of foetuses in textbooks of physiology. Nowadays there are methods to scan the unborn baby in the womb using very advanced techniques. The period of prenatal development is no longer completely mysterious, though we do not know the answers to all the questions.

Objectives

After studying this Unit, you should be able to

- Enumerate the stages of prenatal development and describe the characteristics of each stage
- explain the type of care the mother needs during pregnancy in terms of health, nutrition and emotional support
- describe how the body systems begin to function before birth.

6.2 CONCEPTION

Conception occurs around the middle of the woman's menstrual cycle, when a sperm from the male parent units with the ovum, also called the egg, from the female parent to form a single cell. This cell, called zygote, is the first cell of a new person. The life of a human being thus begins at conception. Prenatal development from conception to birth takes about 266 days or 9 months.
You have read in Block 1 that genes contain all the information necessary for development. They are responsible for the transmission of characteristics from the parents to the child. It is during conception that the genetic material is transmitted. The first cell after conception, i.e., the zygote, contains everything necessary for the development of a person. Let us now read about the development of the baby in the womb.

6.3 INTRA-UTERINE GROWTH

The period of prenatal development is usually divided into three stages - the period of the ovum, the period of the embryo, and the period of the foetus. We will now read about the developments that take place during each of these stages.

6.3.1 Period of the Ovum

This period lasts from conception to two weeks. During this period, the single-celled zygote begins to multiply rapidly and forms several dozen cells. This mass of cells differentiates into an inner and outer layer of cells, separated by a hollow cavity. The group of inner cells will form the baby. The cells of the outer layer will form the placenta, umbilical cord, amniotic sac and other structures. In the earlier Block you read that development proceeds through differentiation. This division of the zygote into an outer and inner layer of cells, which later form different structures, illustrates the process of differentiation.

During this period, small tendrils begin to project from the outer wall of the zygote and burrow into the wall of the uterus. In this manner the zygote attaches itself to the wall of the uterus and begins to get its nourishment from the mother's blood. This process is called implantation. Later these tendrils form the placenta and the umbilical cord. The implantation of the zygote occurs by the end of the second week. This is the end of the period of the ovum.

6.3.2 Period of the Embryo

The term 'embryo' is used to refer to the developing baby from the time of implantation until the beginning of bone formation. In other words, this period begins from the third week after conception and ends in the eighth week. During this period cell division continues and the cells differentiate into various types. Development during this short period of five weeks is very rapid. This period is crucial in prenatal development since it is now that all the major organs, tissues and systems of the body are being formed. The most rapid development of a majority of the organs and systems occurs during this period and in the early part of the foetal period, i.e., up to 12 weeks after conception. You have read in Unit 3 that an organ is most vulnerable to harmful influences at the time when it is developing most rapidly. Thus the period of the embryo and the early foetal period are critical in development. If the mother takes drugs, is exposed to radiation, has an accident or has an infection like rubella during these periods, it can cause most harm to the developing baby.

You would also recall reading in Unit 3 that development follows two directions—head-to-toe and centre-to-ends. These are evident in prenatal development also. In keeping with these principles of development, can you state which organs would be the first to develop and which ones would develop later? Write down your answers and check them from the following description.

By three weeks the head and the posterior region, the front and the back of the embryo can be distinguished easily. The brain and the spinal cord also begin to develop and they develop faster compared to other organs during this period. By this time a rudimentary heart also develops and it begins to beat a few days later. This is an important sign of life in the embryo and indicates that basic functions are beginning. By the end of four weeks the sensory organs (eyes, ears, nose) kidneys, liver and the alimentary canal begin to develop. Small projections begin to appear where the arms and the legs will be formed.
Between five and eight weeks the eyes, nose and ears become more distinct and the baby's face begins to have a human appearance. During the fifth week the reproductive system begins to form. By the seventh week the arms and legs, hands and feet, toes and fingers are formed though all of these are still to develop fully. The internal organs like the intestines, liver, pancreas, lungs and kidneys take a definite shape and some organs begin to function: the liver begins to produce red blood cells, the kidneys start to excrete urine and the circulatory system becomes operative. The respiratory and digestive systems are formed though they do not begin to function yet. By this time the embryo has a skeleton made of soft bony tissue called cartilage. Thus by the end of this period, the main parts of the body are developed in some basic form. The embryo by this time is one and a half inches long.

During this period a sac-like structure forms around the embryo and encloses it totally. This is called the amniotic sac and it contains the fluid within which the developing baby floats. The sac with the fluid serves to protect the developing baby from any injury or shock the mother may have. It also helps to maintain a constant temperature for the foetus.

The placenta and the umbilical cord also form in the period of the embryo. The placenta is a disc-like organ formed from the tissues of the mother and the embryo. It is attached to the wall of the uterus. The placenta has a very important function. It is here that the exchange of oxygen and nutrients from the mother's blood to the embryo's blood takes place. Also, the waste products and carbon dioxide from the baby's blood are passed onto the mother's blood. The placenta is connected to the embryo by the umbilical cord. Thus the umbilical cord carries food substances from the mother's blood to the embryo's and removes the waste products from the embryo's blood into the mother's blood. The placenta and the umbilical cord enable the baby to survive in the womb.

6.3.3 Period of the Foetus

This period extends from the beginning of the ninth week until birth. Its beginning is marked by the development of the bone structure. During this period refinement and development of the various body systems takes place. Now the growth of the head region slows down and the rest of the body grows more rapidly. The major development changes in this period have been summarized in the table that follows.

<table>
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<tr>
<td>Age</td>
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<td>By the end of 4 months</td>
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<td>By the end of 5 months</td>
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<td>By the end of 6 months</td>
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About two weeks before birth, most babies settle with the head towards the lower end of the uterus. Generally babies are born this way — head first — and this is the easiest and safest way of delivery for the mother as well as for the child.

Sometimes the baby does not position itself head downwards in the uterus. It lies in a crosswise manner or lies with its feet towards the lower end of the uterus. If the baby cannot be turned while in the uterus, it will have to be a breech delivery or it will have to be delivered by caesarean section.

### 6.4 BIRTH OF THE CHILD

When the baby positions itself head downwards in the mother's body, the mother feels lightened pressure on the upper abdomen but greater pressure upon the bladder. This lightening which the mother feels because of the shifting of the baby's weight is the first sign that birth may occur within a few days. The onset of labour pains indicate that the birth of the child is imminent. During labour, the amniotic sac ruptures and the fluid comes out. The uterus contracts rhythmically to push the child outward through the birth canal. The structure of the mother's body and the formation of the baby's bones, particularly those of the head, make it possible for the baby to emerge. After the child is born, the umbilical cord and the placenta are expelled from the womb. The umbilical cord is surgically cut and the baby, from being totally dependent on the mother for survival, has to learn to lead an independent existence.

The presence of a trained person during the birth process is important whether the delivery is conducted at home or in the hospital. The health of the mother and the baby depends on how the delivery is conducted. If, for example, the umbilical cord is cut with unclean and unsterilized instruments, the child may get tetanus and die.

A child is born with well developed and functioning sensory capacities of vision, hearing, touch and smell. In fact research has now shown that some of these capacities are functioning even before the child is born. The evidence from these studies indicates that the auditory system is well developed some weeks before birth and the unborn baby is responsive to sounds and voices in the environment. It is now also known that sounds can be heard in the uterus. Through the use of sophisticated technology, researchers have recorded the sound of the mother's heart beat, the rumbling of her intestines, the movement of the lungs, the music from the radio, the conversation between the mother and other people, the sound of a passing train and many other sounds as audible in the mother's womb. That the foetus reacts to these sounds is indicated by many studies. In one study researchers sounded automobile horns and loud buzzers near the mother's abdomen. The foetus responded by increasing its physical activity such as kicking and other body movements.

Research on babies one to two hours old shows that the newborns responded more to the recording of their mother's voice compared to those of other women. This is so because the mother's voice is one which the unborn baby has heard the most. Newborns are also sensitive to the rhythm of their native language. In a study done on French newborns, the babies moved their bodies more to the sound of French than of Russian. In one particular study, pregnant women listened to a particular tune during the last weeks of their pregnancy. After the babies were born, the recordings of this tune as well as other tunes which the pregnant mothers had not heard were played to the newborns. They clearly preferred the familiar tune, i.e. the one they must have heard in the womb.

The above discussion also shows that, contrary to popular belief, the period of prenatal development is not one of passive existence for the child. The child is active and responds to stimulation. It seems that the environment within the womb prepares the child for what lies ahead. Pictures of foetuses show some of them sucking their thumb in the amniotic sac. Thus the child has practised sucking while in the uterus and a normal newborn is able to suck within moments of birth. The foetus does not need to breathe (since it gets oxygen from the mother's blood through the placenta), yet the diaphragm practises breathing movements while the

...
child is in the womb. The unborn child does not need to eat and drink, yet it swallows the amniotic fluid and thus the digestive and excretory systems are put to work and prepare for life outside the womb.

Check Your Progress Exercise 1

In the following puzzle the blank spaces have to be filled with suitable words which you have read in the text. The thirteen sentences written below provide clues for the words which have to be inserted in the puzzle.

The words in the puzzle can be written either horizontally (which means across), or vertically (which means down). Each sentence has a number written before it. The numbers 1 to 13 are written in the squares of the puzzle also. When writing the word for a particular sentence, begin the first letter of the word in the square where that particular number is written. For example, the answer to sentence No. 2 is “Brain” and will be written as indicated in the puzzle.

Sentences for ‘Across’

1) The cord which carries food substances and waste products to and from the embryo.

3) The process of rhythmic contractions of the uterus which cause the baby to be pushed out of the mother’s womb.

5) The process of attachment of the zygote to the wall of the uterus which occurs by the end of the second week of conception.

7) The term that refers to the developing baby from the time of implantation until the beginning of bone growth.

9) The first cell of the human being formed after the sperm from the male parent unites with the ovum from the female parent.

11) These are responsible for the transmission of hereditary characteristics from the parents to the child and contain all the information necessary for development.

13) The period of the foetus which begins from the ninth week is marked by the development of the .............
Sentences for ‘Down’

2) ............... develops fastest during the period of embryo as compared to other parts.

4) A disc-like structure through which the exchange of oxygen and nutrients from the mother's blood to the embryo's blood and the waste products from the embryo's blood to the mother's blood takes place.

6) The mother can feel the movements of the foetus by the end of ............... months.

8) If the child is born prematurely at ............... months, it can survive.

10) The sex of the foetus can be determined by the end of the ............... month.

12) The sac which encloses the foetus totally and protects it from shocks experienced by the mother and helps to maintain a constant temperature.

6.5 CARE OF THE MOTHER DURING PREGNANCY

Pregnancy brings about many changes in the woman's body. The increased activity of her systems and the growing baby make many demands on her body. The mother requires special care during this period so that her health as well as the baby's does not suffer. You will read about the kind of care the mother needs in the following paragraphs. The care the mother gets will influence the growth of the foetus in the prenatal period. If we view the aspects of care of the mother in another manner, we can also refer to them as the environmental factors that influence prenatal development.

6.5.1 Nutrition

You have read that the developing foetus gets nutrition from the mother. Besides, the mother's body is also undergoing changes and she needs extra calories, proteins, vitamins and minerals. Because of both these reasons, the expectant mother needs extra food. Some minerals and vitamins are required in greater quantities as compared to others. These are calcium, iron and B-complex vitamins. The quality of the diet is as important as its quantity. To ensure that the mother gets a nutritive diet, care should be taken to include fruits, green vegetables, pulses, milk and its products. Mothers who have an adequate diet have better health during pregnancy and fewer disorders. If the mother is healthy, the chances of her delivering a premature baby are low. Children born of mothers who have a good diet have better health, a higher resistance to infections and fewer chances of contracting cold, bronchitis, pneumonia and tetanus. Mothers who have a poor diet have infants who have low birth weight and this can have adverse effects on the child's physical and mental development.

Thus the type of food the mother eats has a long term lasting effect on the Child developing within her womb and therefore, the mother should ensure that she eats the right type of food in the right amount.

6.5.2 Health Care

The health of the mother has a direct impact on the health of the growing child. If some disease causing virus, bacteria or harmful chemicals are present in the mother's blood, they pass on to the baby's blood through the placenta. Let us read about the health care which is needed for the mother with reference to the following points.

Diseases and disorders during pregnancy: The organisms that cause rubella, syphilis, diphtheria, influenza, typhoid, hepatitis, tetanus and chicken pox can pass on to the foetus through the placenta if they are present in the mother's blood. The time during which the mother has the infection is critical in determining the degree of effect on the developing foetus. As you know major malformations in the foetus result if these infections occur in the first few months of pregnancy, particularly in
the first twelve weeks, than in the later months. You have read about the effects of rubella on the foetus. Therefore, before the woman conceives she should have been immunized against rubella. The pregnant mother should be immunized against tetanus also as this is a major cause of mortality among mothers and infants.

Another disorder that can occur during pregnancy is toxaemia. In its mild form it is characterized by high blood pressure, rapid and excessive weight gain and retention of fluid in the tissues. If the condition is controlled at this stage there is no danger to the foetus. If it continues to progress, it can lead to convulsions and even coma, which can cause death of the mother and the foetus. If the baby is born, her development in all areas will be seriously affected.

**Smoking and Alcohol Consumption:** Heavy drinking and excessive smoking during pregnancy can lead to low birth weight of the infant. The infant is also likely to be less active in the first few months. Additionally, alcohol also causes deformities of the foetus' eyes, ears and heart, development of extra fingers and toes and abnormally small head. Illnesses are more common among infants of mothers who smoke and consume alcohol.

**Drugs:** A mother who takes strong drugs and narcotics is most likely to have an infant who is irritable, has tremors and convulsions, vomiting, diarrhoea and difficulty in breathing. These symptoms may last as long as six months. Besides these drugs, many medicines can also have a harmful effect on the foetus. Some drugs taken by the mother may affect the child later during infancy. For example, the intake of tetracyclin by the pregnant woman can cause stained teeth in the infant. The effects of many drugs, even the most commonly used such as aspirin, are not yet known. A woman who is pregnant should not take drugs/medicines unless absolutely necessary and then too on the advice of a doctor.

### 6.5.3 Emotional States

The mother's emotions can influence the development of the foetus. This is because emotions such as rage, fear and anxiety lead to release of hormones and other chemical substances in the mother's bloodstream. These substances are transmitted through the placenta to the foetus' bloodstream and may be irritating to it. Whenever the mother is undergoing emotional stress, the bodily movements of the foetus increase. If the mother is upset and unhappy for prolonged periods, the baby is likely to have low birth weight. The infant also tends to be irritable, feeds irregularly, has excessive bowel movements, cries excessively and shows an unusual need to be held. Emotional tension can result in difficult labour and delivery. Therefore, it is important that the mother remains happy and relaxed during pregnancy and has an accepting attitude towards the child to be born.

**Check Your Progress Exercise 2**

Answer the following questions briefly in the space provided below:

1) What are the effects of inadequate diet during pregnancy on the health of the mother and the baby?

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2) In what way does excessive smoking and consumption of alcohol by the pregnant woman harm the baby?

3) List the three environmental factors that affect prenatal development.

4) Why is it important for the mother to remain happy and relaxed during pregnancy?

6.6 SUMMARY

In this Unit you have read about the development of the baby within the mother's womb. Conception occurs when the sperm unites with the egg to form a single cell called the zygote. This is the first cell of a human being. Development from conception till birth takes around nine months. The period of prenatal development is usually divided into three stages—the period of the ovum which lasts from conception to two weeks, the period of the embryo which lasts from the third week after conception to the eighth week and the period of the foetus which begins from the ninth week and lasts till birth. The period of the embryo and the early foetal period, i.e. the period up to 12 weeks after conception, is a critical period since this is the time when the major organs and systems of the body are being formed and are developing at a fast rate. At this time the embryo is vulnerable to harmful influences. If the mother has an illness, takes drugs, ingests some harmful chemicals or has an accident, it may cause irreversible damage to the developing baby.

The foetus derives its food supply and oxygen from the mother's blood via the placenta and the umbilical cord. The umbilical cord also carries the waste products and carbon dioxide from the foetus' blood to the placenta from where it diffuses to the mother's bloodstream. The seventh month of gestation is an important period in prenatal development. By this time all the systems of the body have developed and are functioning so that if the child is born prematurely, she can survive.

It is important to have a trained person during birth whether the delivery is conducted at home or in the hospital, so that the health of the mother and the baby is ensured. The child is born with well developed capacities of hearing, smell, vision and touch. Research has shown that the capacities of hearing and vision are developed even before birth. The excretory, digestive and circulatory systems are also working during the prenatal period.
You have also read that it is important that the mother take care of herself during pregnancy. She must maintain good health, eat enough food to take care of her increasing nutritional needs and remain relaxed and happy. Anger, fear and tension lead to release of hormones and other chemical substances in her body. These may harm the foetus. All these factors of care of the mother are important because they can affect the development of the foetus.

6.7 GLOSSARY

Gestation Period: The duration/period of pregnancy.

Intra-uterine: Within or inside the uterus. In this case, we mean the development of the baby inside the womb.

Vulnerable: Sensitive, open to harmful influences.

6.8 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

ACROSS | DOWN
---|---
1) Umbilical | 2) Brain
3) Labour | 4) Placenta
5) Implantation | 6) Four
7) Embryo | 8) Seven
9) Zygote | 10) Third
11) Genes | 12) Amniotic
13) Bone

Check Your Progress Exercise 2

1) Inadequate diet can adversely affect the mother's health leading to disorders and diseases. It can also cause low birth weight of the infant, which leads to lower resistance to infections and the baby has more chances of contacting colds, bronchitis, tetanus and pneumonia. If the diet was very deficient it can also have adverse effect on the child's physical and mental development.

2) Infants born to mothers who smoke and consume alcohol excessively have low birth weight and are less active in the first few months. Alcohol also causes deformities of the eyes, ears, heart and abnormally small head of the infant.

3) The three environmental factors that affect prenatal development are: the health of the mother, her nutritional and her emotional states.

4) It is important for the mother to be relaxed and happy during pregnancy because emotional stress can lead to release of hormones and chemical substances in the mother's blood which get transmitted to the foetus' bloodstream. These are irritating to it.
UNIT 7 PHYSICAL, MOTOR AND SENSORY DEVELOPMENT

Structure

7.1 Introduction
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  7.2.1 The First Few Hours
  7.2.2 Capabilities of the Newborn
  7.2.3 Care of the Neonate
7.3 The Infant
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  7.3.2 Physical Development
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7.4 Maturational Basis and Environmental Influences on Physical, Sensory and Motor Development
7.5 Care of the Infant
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  7.5.2 Health Care and Immunization
  7.5.3 Growth Monitoring
7.6 Summing Up
7.7 Glossary
7.8 Answers to Check Your Progress Exercises

7.1 INTRODUCTION

In the last Unit you read about the development of the foetus in the womb, the birth process and the care that the mother should take during pregnancy. In this Unit we will focus on the development that takes place during the first year of life in the area of physical, motor and sensory development. You will also read briefly about the care of the newborns and infants.

Objectives

After studying the Unit, you should be able to

- describe the sensory and motor capabilities of neonates
- enumerate the milestones of physical development during the first year of life
- identify the stages of motor development from birth to one year
- describe the sensory development during the first year of life
- explain how maturational and environmental factors interact to influence physical and motor development
- state the type of physical care needed by infants in terms of health and nutrition.

7.2 THE NEONATE

'Neonate' is a term used to refer to the newborn baby in the first month of life. When the child is born, she has to adjust to an environment which is very different from the one in the mother's womb. In the womb the foetus had a comfortable and protected existence— the temperature was controlled and so the foetus did not experience 'hot' or 'cold'; it was cushioned from physical shocks by the amniotic fluid; and it received nutrition from the mother. From this comfortable existence the baby is pushed out into an atmosphere
of relative discomfort. She is surrounded by air which may be cold or hot, dry or humid. She has to now cry to indicate that she is hungry or wet or uncomfortable. The cries of the infant are understood by the mother but this may not always be true. Thus we can see that after birth, the newborn has to make efforts to satisfy her needs and has to depend wholly on adults, usually the mother. But as you will read further you will see that the newborn has many capabilities which help her to adjust to the new surroundings.

7.2.1 The First Few Hours

A full-term baby, on an average, weighs about 2.8 kgs at birth. The skin of the newborn is usually covered with a white wax-like coating. Soon after birth this coating dries and begins to peel off. The skin is grayish or pink in colour and may be covered with fine hair which disappear during the first month. The newborn's head is large in proportion to the rest of the body. It may be slightly elongated due to labour and regains shape in the first few weeks after birth. Genitals in both boys and girls appear to be enlarged.

As soon as the child is born, there is a cry which results in the sudden intake of the life-giving breath of air. Sometimes the newborn may need to be patted on the back to make her cry. Breathing thus begins after the baby comes out from the mother's body. At birth the lungs of the neonate have some amniotic fluid which takes about a day or two to clear out. The baby's breathing in this period is, therefore, irregular and sometimes strained which may alarm an inexperienced mother. However, this is quite normal and does not indicate any illness. Coughing, sneezing and yawning help to clear up the air passages which enable the infant to survive.

After birth the child has to take in food through the mouth. Her lower jaw and cheeks are especially formed to suck. The chin and lower lip are receding, i.e. they slope backwards, and there are fat pads in the cheeks. This enables her to come close to the breast and suck, while still being able to breathe. The neonate's first elimination from the bowels is dark and sticky and is formed from the dead intestinal cells, mucous, fluid and materials swallowed by the baby while still in the uterus. The neonate does not have an efficient system to control body temperature and cannot produce heat to keep her body warm. Her system is equally inefficient at cooling the body. Therefore, one needs to keep the baby warm or cool depending upon the climate.

The neonate should be fed at the breast from the first day itself. This helps to induce and maintain secretion of milk. The milk secreted for the first two or three days is a thick yellowish fluid called colostrum which has a high protein content as well as certain substances that are good for the baby as they build resistance to disease. It is extremely important that the child has this milk.

Many times the mother and the child are separated immediately after birth to allow the mother to gain strength. However, recent research studies have shown that it is important for the baby to be close to the mother as soon as possible after birth. When the mother holds the baby in her arms, feeds her, gazes at her face and touches her, she experiences satisfying feelings and develops an emotional bond with the child. The baby too derives a feeling of security from this initial physical contact and this is important for her socio-emotional development as you will read in later Units.

7.2.2 Capabilities of the Newborn

The newborn is not helpless even though it may seem so. Contrary to belief she has many abilities. She is born with several well developed motor and sensory capabilities that help her to perceive, understand and adjust to the new environment. Let us first read about each of these by turn.
Motor Capabilities

The newborn can turn her head from side-to-side when placed on the back or the abdomen. When placed on the abdomen, she can also raise her head briefly. While on her back she can actively move her arms and legs. These movements help her to save herself from being smothered under blankets or sheets.

At birth babies are also capable of many reflex actions. Reflexes are automatic physical movements in response to a particular event or stimulus. In other words, they are involuntary physical actions. For example, if you stroke the corner of the newborn's mouth, her head turns towards the corner you are stroking, she opens her lips, puts out her tongue and tries to take the object in her mouth to suck it. This reflex is referred to as the rooting reflex. It can be seen before birth and disappears by three months after birth. The reflex is necessary for survival since it allows the newborn to reach for the breast or bottle. The second reflex associated with feeding, and thus important for the baby's health, is the sucking reflex. When something is placed in her mouth, she sucks at it. This reflex disappears some time after birth. In sleep, however, it can be seen till seven months after birth. When we say that the rooting and sucking reflexes disappear after some time it does not mean that the infant does not suck anymore. It means that sucking comes under voluntary control instead of being reflexive (involuntary). All the reflexes help the neonate to adjust to her environment and to survive. Some reflexes can be seen only for a short period. Others remain throughout the lifespan such as the automatic blinking of our eyes when something comes close to them or the automatic moving away of ones hand when it touches a hot object. Table 7(a) lists some reflexes that all healthy newborns have. Absence of any of the reflexes in the ages when they should be seen or their persistence after the age when they should have disappeared, indicate problems of the nervous system. Medical attention is needed in such cases.

Table 7 (a) : Some Reflexes of the Infant

<table>
<thead>
<tr>
<th>Name of the Reflex</th>
<th>Description</th>
<th>Age of onset and disappearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Rooting</td>
<td>described in the text above</td>
<td>Present at birth; later becomes voluntary.</td>
</tr>
<tr>
<td>2) Sucking</td>
<td>described in the text above</td>
<td>A 4-6 month foetus can be seen to exhibit the reflex; it is strong in the foetus at 9 months. It usually disappears by 2-3 months after birth. After this, grasping comes under voluntary control instead of being reflexive.</td>
</tr>
<tr>
<td>3) Swallowing</td>
<td>After sucking the infant swallows</td>
<td>Can be seen in 4-6 months foetus and disappears by 12-18 months after birth.</td>
</tr>
<tr>
<td>4) Grasp</td>
<td>When pressure is applied on the infant's palm by placing something on it, she curls her fingers around the object and grasps it.</td>
<td>Present in 7 month old foetus but not strong. It becomes strong after birth and disappears by the time the infant is 6 months of age.</td>
</tr>
<tr>
<td>5) Babinski</td>
<td>If you stroke the baby on the sole of her foot, she first spreads her toes and then curls them.</td>
<td>It is seen in 2-3 month old infants and disappears by 6-7 months of age.</td>
</tr>
<tr>
<td>6) Moro</td>
<td>On hearing a loud sound or getting any kind of a physical shock such as when the support from the head is suddenly removed, the baby throws out her arms and arches her back.</td>
<td></td>
</tr>
<tr>
<td>7) Tonic Neck</td>
<td>If the infant's head is turned to one side, the arm and leg of that side extend while those on the other side bend.</td>
<td></td>
</tr>
</tbody>
</table>

Sensory Capabilities

The neonate has various sensory capabilities. On the basis of many research studies, it is now known that the eyes, ears and other sense organs function in a remarkable manner from birth onwards. Neonates react to touch, heat and cold and can distinguish certain sounds, tastes and smells. Let us read about these in detail.
Vision: This is the most developed sense at birth. The newborn's eyes are sensitive to light. If placed in a dark room, her eyes search actively for light and if she finds a source of light, she continues to look at it. The light, however, should be bright. This means that she can differentiate between light and dark.

Immediately after birth, the baby can follow a moving object with her eyes. The object should be moderately bright and should move slowly. The newborn is attracted by things that move, produce sound and those which have a light and dark contrast. The human face has all these characteristics and it greatly attracts the newborn. When the caregivers interact with the child, their eyes and mouth move frequently. The eyes, in addition, have a light and dark contrast. In fact, the newborn baby continuously scans her surroundings and when she sees an object she gives it a good deal of attention. The child thus seems predisposed to look around and examine the world. She may not understand all that she sees, but she is building up a store of experience which will help her in learning later.

The neonate can see objects and people clearly when they are at a distance of eight to ten inches from her face. This is usually the distance between the adult's and the baby's face as the baby is held in the arms. Thus during these interactions the baby can clearly see the caregiver's face and gets an opportunity to examine it. This is the way in which the baby learns to recognize the people around her. This mutual gazing also helps to establish an emotional bond between the child and the caregivers.

Hearing: From the time of birth babies respond to sound. This is evident from the fact that they turn their head towards the direction of the sound source. However, they cannot hear as well as, for example, a one year old child. They can hear only moderately loud sounds. Different levels of sounds have different effects on the child. Loud noises distress the babies and they get startled and begin to cry. Soft sounds soothe them. They are most responsive to human voice as compared to any other sound and are said to respond more to high-pitched voices (female) compared to low pitched voices (male). The newborn's preference for human speech is reflected in the fact that they move their arms, legs and body in rhythm to the caregiver's speech as early as twelve hours after birth. If the pace of the adult's speech is fast, the movements of the neonate become fast. If the rhythm of the speech slows down, so do the child's movements.

While it will take the infant another three months to distinguish the mother's face from other people's faces, she can discriminate the mother's voice from other female voices in the very first week of birth. This is probably because the baby has been hearing the mother's voice while in the womb and is already familiar with it.

Taste, Smell and Touch: The senses of taste and smell are also well developed in the newborn. Neonates can distinguish the four basic tastes: sweet, sour, salt and bitter. Research indicates that newborns prefer sweet things as they suck more on a nipple from which they get sweet water than on one from which they get plain water. On being given salty water, they reduce sucking. As regards the sense of smell, the baby turns her head away from any unpleasant odours as early as the first day after birth. Babies who are breast-fed appear to be able to recognize the smell of the mother's breast as early as in the first week. Newborns respond when touched on any part of the body. They are especially sensitive to touch on the mouth, face, soles of the feet and the palms.

The Newborn's Routine

Besides knowing about the motor skills and sensory capabilities of the newborn, it is also important for us to know what she does in a day. Does she sleep all the time or are there periods when she is active and alert? Such understanding will help the caregiver to know what can be expected from the newborn and she will be able to look after the baby better.

The neonate sleeps for about 16-18 hours a day and is alert and active for about 8-9 hours. If you have observed an infant under the age of one month closely, you would have noticed that she has different levels of activity at different times of the
Day. Most neonates move from deep sleep to lighter sleep and then they begin to wake. Crying indicates hunger and on being fed the infant quietens and becomes alert and active. When alert, she looks around her and pays attention to the caregivers if they interact with her. Then she becomes drowsy again and falls asleep. This cycle of activities repeats itself about every two hours. An important implication of this cycle for the caregivers is that the best time for interaction with the infant is just after she has been fed and is active.

Many common behaviours can be observed in neonates. You have read about some of them in the preceding sections: they cry when hungry, suck on a nipple, follow a moving object and show a distinct cycle in the pattern of activity. However, you must remember that there are individual differences in their behaviour. They differ in the rate and pattern of activity, sleep and feeding schedule as well as emotional disposition and social interaction. Some neonates cry more than others and are fussy, requiring more attention on the part of the caregiver to soothe them. Some are quiet and sleep for longer periods compared to others and some are more alert.

7.2.3 Care of the Neonate

All babies are different and need different kind of care from parents. However, certain aspects of care are common to all babies and must be kept in mind. In this section you will read about these aspects.

As far as possible the neonate should be breast-fed. Breast-feeding is an essential part of the mother-child relationship. It provides the child with a secure and pleasant feeling and promotes attachment between her and the mother. You will read in detail about the development of attachment in Unit 10. During the first month of life, the baby can suck only small amounts of milk. Therefore, she should be fed whenever she is hungry and cries. She will need to be fed 6-8 times in a day at intervals of 3-4 hours. For the first three to four months, mother's milk is sufficient for the infant as it meets all the nutritional requirements of the body. Water must also be given to the infant. The quality of breast milk will depend upon the mother's health and the quality of food eaten by her. It is, therefore, important for the lactating mother to eat well. She must keep the child clean, particularly the region of the umbilicus, in order to prevent infection of the area. If the baby is being bottle-fed then certain points have to be kept in mind. These are as follows:

- The quality/consistency of the milk should be checked to ensure that the child is getting enough nutrition. The milk should not be so dilute that it does not meet her nutritional needs. It should also not be too concentrated or else it will be difficult to digest.
- The nipple and bottle should be kept clean and covered to avoid infection.
- The infant should be held while feeding and spoken to, instead of propping the bottle in her mouth and leaving her alone. Holding the child makes her feel loved and secure.

Besides attending to the infant's physical needs, the caregiver must spend time with her. Talking to the baby, gazing and smiling at her and touching her will help her to become familiar with the caregiver. Even though the neonate does not talk or smile back, you know that she attends to the person who interacts with her — she looks at her face and moves her body in response to her attention. Through such experiences her mind develops. Interacting with the child from the time she is born is necessary to foster development in all areas.

Check Your Progress Exercise 1

1) Read the following statements carefully and state whether they are correct or incorrect.

a) 'Neonate' is a term used to refer to the baby between birth and six months of age.
b) The newborn is not helpless. She can see, hear, smell, move her arms and legs and cries to attract attention.

c) Breast milk provides all nutrients the child needs and breast-feeding is important for the mother-child attachment.

d) Neonates can see clearly at a distance of '8-10' inches.

e) Neonates can discriminate the mother's voice and other female voices as early as the first week after birth.

f) Absence of any reflex in the ages when it should be there or its persistence for longer that necessary, indicates problems of the nervous system.

2) Match the statements in column I with those in column II:

<table>
<thead>
<tr>
<th>COLUMN I</th>
<th>COLUMN II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Moro reflex</td>
<td>i) When touched on the cheek, the child turns towards the touch and seeks something to suck on</td>
</tr>
<tr>
<td>b) Grasping reflex</td>
<td>ii) If the infant's head is turned to one side, the arm and leg on that side extend while those on the other side bend.</td>
</tr>
<tr>
<td>c) Tonic neck reflex</td>
<td>iii) On hearing a loud sound or receiving a physical shock, the infant throws out her arms and arches her back.</td>
</tr>
<tr>
<td>d) Rooting reflex</td>
<td>iv) When pressure is applied on the infant's palm, she curls her fingers and grasps the object.</td>
</tr>
</tbody>
</table>

7.3 THE INFANT

During this period growth and development in all areas is rapid. Sensory capacities of hearing, sight, smell, taste and touch develop rapidly. In this section you will read in detail about physical, motor and sensory development of the child till one year of age.

7.3.1 Sensory Capabilities

In the earlier section you read about the sensory capabilities of the newborn. These are the tools which help her to adjust to her immediate surroundings. But she has to do more than this. She has to judge the direction and distance of the sound source. She has to understand that a specific voice and face belong to one person. She has to learn to pay attention to detail and discriminate between two similar looking things. She has to develop the ability to focus on things that are essential. She also has to be able to distinguish sounds and learn speech. She must explore the environment to learn about it. All this depends on the development of the senses. Let us look at what the infant accomplishes in the area of sensory development in the first year.

Vision: By the time the infant is two months, her brain develops further and the ability to focus on objects improves. She is able to see objects, whether they are near or far. This makes it possible for her to observe toys placed near her and to reach for them. Being able to see the objects that are farther away clearly, allows the baby to recognize objects and people when they are at a distance.

By the time infants are two to three months old, they pay attention to the details of objects. This helps them to discriminate among things. They seem to be able to distinguish familiar objects from unfamiliar ones. Infants at three months of age can tell their parents' faces from those of others. They can also see colours.

Research has shown that by 5-6 months of age, most infants can discriminate between different emotional expressions on the mother's face such as sadness, fear, joy, alarm or surprise and they respond accordingly. If, for example, her face shows
alarm, the child also gets scared and may begin to cry. This ability is a remarkable achievement for the infant. It implies that she judges the expression on the person's face and understands its meaning. Being able to discriminate emotions and recognize people helps in social interaction.

Thus we see that the child refines her visual capacities greatly over the first year. Development of the child's visual abilities is necessary for all aspects of functioning.

**Hearing** : You have read that the neonates can orient to the approximate direction of the sound. During the first few months of life, infants attend to different sounds and by six months they are usually able to judge the direction of the sound source correctly. Much before this, when they are a month old, they can discriminate between different sounds such as a bell ringing, the grandmother singing or a knock on the door. Infants are also responsive to rhythm. They are soothed by rhythmic sounds such as music or ticking of the clock. Very loud sounds cause distress and they respond by flailing their arms and legs and crying.

You have read that the neonate is able to distinguish the mother's voice from other voices as early as the first week of life. Gradually, the infant learns to distinguish other people's voices as well. By six months she has understood which face goes with which voice. This is clear from many research studies. For example, when the infant was put in a situation where she could see both her father and mother but hear the tape-recorded voice of only one of them, she would look towards the parent whose voice she heard. The infant also understands that there is a relationship between the movements of the lips and the sounds that emerge. You have seen that infants respond to sounds from the time they are born. This is important for the development of speech. You will later read more about this aspect in Unit 9 on language development.

Smell, Taste and Touch : These three senses are more developed than is commonly believed. As the child grows, these senses become more finely tuned and she is able to detect and respond to more subtle differences in the stimuli.

### 7.3.2 Physical Development

You can see physical changes in the infant from one week to the next, the most obvious being the gain in height and weight. By the time the child is one year old, her weight is three times the weight at birth, i.e. she weighs about 8 to 9 kgs. On an average the baby grows about 10 to 12 inches in length in the first year.

Most of the nerve cells of the brain are present at birth. In the first years the connections between them develop and increase in number. The cells also grow in size. These changes in the brain and nervous system are enormously important though they cannot be seen. The first two years are crucial for the development of brain and nervous system.

The shape and proportion of the body change considerably in the first year. The neonate has a large head, narrow shoulders and short legs. As the legs and the torso grow in the first year, the body looks more proportionate. The bones, which are soft and flexible, harden in the period of infancy and the muscles increase in size.

All these physical changes – increase in height, weight, development of the brain, nervous system and muscle tissues, the hardening of bones and changing proportions of the body – make the development of motor skills possible. Physical development enables the infant to sit, stand, walk, grasp objects, throw them and catch them. Let us now read about the motor skills that infants acquire in the first year of life.

### 7.3.3 Motor Development

If you have observed infants over a period of time, you will have some idea about the sequence of emergence of motor abilities. The development of motor skills can be discussed under the categories of gross and fine motor skills. Gross motor skills are
those which require the coordination of large (gross) muscles of the body such as
those of the shoulder, elbow, hip and back. Running, walking, climbing, throwing,
kicking and catching require the use of large muscles. Fine motor skills are those in
which the small muscles of the body are used such as those of the wrist and fingers.
Picking up or grasping objects, writing and painting are examples of fine motor skills.
The basic accomplishments in the area of motor development are achieved during
the first year and a half of life. Let us read about the development of gross and fine
motor skills in the first year.

During the first three months the baby can move her arms and kick with the legs
while on her back or stomach. She can roll her body a bit from side-to-side. Because
of the tonic neck reflex the infant mostly looks at the side to which her arm is
extended. She cannot look at objects suspended overhead since she cannot hold her
head in the midline as yet.

By the third month, the baby can lift up her head as well as her chest while on her
stomach. She can also hold her head up steadily in one position for some time. Now
she can also hold her head in the midline while lying on her back and is able to look
at objects directly above her. She is able to move her arms and legs more vigorously
and she tries to swipe at objects. Swiping means hitting at objects with the whole
hand but without being able to grasp them. Toys should be placed within reach of the
infant. Sometimes the child while swiping manages to touch the object. To reach
towards an object one needs to coordinate seeing with the movement of the hand, so
that the hand reaches for the object where one sees it. That the infant tries to reach
for an object she is looking at and manages to touch it reflects increasing eye-hand
coordination. The infant cannot as yet grasp an object in her palm. Grasping requires
the use of the muscles of the hand (fine muscles), while reaching and swiping
requires the muscles of the shoulder and elbow (gross muscles). In keeping with the
center-to-end principle of development, the infant only later learns to use the
muscles of her hand to grasp an object.

Can you think of some gross motor skills that the child acquires in the 4-6 month
period? During this period the infant is able to roll over from her stomach to her
back and a little later from back to stomach. At this time the mother must be careful
not to leave the infant unattended as she could fall off the bed. The 5-6 month old
infant when pulled from a sitting to standing position can support her own weight
but needs support to prevent from falling over. By six months she can sit up with
support. In another month she does not need support while sitting. She is also better
able to coordinate the movements of her arms and acquires fine motor skills. Now she
begins to grasp objects. She holds one hand with the other and brings them both
towards the mouth to suck. Any object in the hand is so treated. A little later she
learns to open her palm, drop the object she is holding and take another that is being
offered to her. This also makes for greater interaction between the child and
caregiver. They can play games that involve giving and taking objects. After the
infant has mastered this skill at six months, she learns to transfer an object from one
hand to the other and pick up another object with the first hand. This shows an
increasing control over the muscles of the fingers. She is now also able to shake the
object she is holding and enjoys rattles.

The six-month-old is usually able to sit up from a lying position by herself. She moves
by pivoting on her buttocks while lying down and makes vigorous movements of arms
and legs to reach objects around her. Between seven and nine months the infant
begins to move on her hands and knees with the abdomen raised off the floor, i.e. she
learns to crawl. Once the infant accomplishes this, she begins to pull herself to a
standing position while holding on to something. Sometimes she lets go of the
support and falls to the floor. The eight-month-old can stand steadily for a short
while if there is a person to hold her. After some weeks the infant begins to touch
the floor by bending her knees and waist. The one-year-old can walk if someone
holds her hand. At one year some children can walk by themselves, though most do
so between 13 and 15 months.
Fine motor skills also develop in the seven to twelve months period. The grasp of the infant improves. The seven-month-old can rake at small objects with her fingers but cannot yet pick them up. This requires coordination between the thumb and the forefinger. This ability develops by eight months and she can pick up something to eat from her bowl. She can also turn an object in her hands. By 9-12 months the infant uses one hand to hold an object and brings the other hand to manipulate it. At one year the infant is able to throw things, which reflects increasing muscle coordination. The development of gross and fine motor skills helps her to explore her environment. Things which are harmful and breakable now need to be put out of reach of the infant.

The sequence of emergence of gross and fine motor skills has implications for the play activities that you plan for a child in this age group. You will read about the activities for fostering physical and motor development in Unit 11.

7.3.4 Importance of Physical, Motor and Sensory Development

In what ways do physical, motor and sensory abilities help the child? Firstly, with the increasing motor skills, rapid physical growth and refinement of sense organs, the child's range of activity increases. She has greater freedom of movement and can do more things. She can reach for objects, manipulate them in different ways and go to people instead of waiting for them to come to her. The rapidly developing brain helps her to understand and learn from the events around her. It is a common sight to see a baby pick up a new toy and show it to her mother who may talk to her about it. In this way the infant learns, forms ideas about objects around her and attends to language.

Secondly, as the child begins to master new skills, she also develops positive feelings about herself. She feels she can do many things and control some events. For example, she knows that she can reach for an object at a distance from her, pick it up and play with it. From these small events emerge the feelings of confidence and independence. The foundation of self-concept is being laid now.

Thirdly, the changing physical, motor and sensory skills of the infant also influence the way people respond to her and the nature of interaction between them. Thus it influences the infant's social relationships.
Check Your Progress Exercise 2

1) The following are some gross motor, fine motor and sensory abilities. They are not written in the order that they develop in the infant. Indicate their order of emergence. For example, under the column of gross motor skills, the skill numbered (iii) is the first to develop. So in the bracket beside it, write (1) as indicated.

   a) GROSS MOTOR SKILLS
      i) Sits with support. ( )
      ii) Crawls and pulls herself to a standing position while holding onto something. ( )
      iii) Holds head in midline and can hold her head up steadily in one position for some time. (1)
      iv) Throws things coordinating the arm, wrist and finger. ( )

   b) FINE MOTOR SKILLS
      i) Picks small objects using fingers and thumb. ( )
      ii) Opens palm and drops object in hand and takes another being offered to her. ( )
      iii) Rakes at objects. ( )
      iv) Grasps object and transfers it from one hand to another. ( )

   c) SENSORY ABILITIES
      i) Matches the parents' voice to face. ( )
      ii) Can tell parent's face from strangers. ( )
      iii) Distinguishes the mother's voice from those of others. ( )

2) Briefly state how physical, motor and sensory development affect the infant's development?

7.4 MATURATIONAL BASIS AND ENVIRONMENTAL INFLUENCES ON PHYSICAL, SENSORY AND MOTOR DEVELOPMENT

Do you recall reading about the influences on development in Unit 3? You had read that heredity (or biological) and environmental factors interact to influence
development. Let us briefly recapitulate the discussion here. Physical, motor and sensory development has a strong maturational basis (i.e. biological factor). You know that physical characteristics like height, weight and the child's appearance are to a large extent determined by heredity, though the environmental factors may influence them to some extent. There are innate constitutional differences among children. You know that children cannot acquire a motor skill before they are biologically ready to do so and this accounts for the universal pattern in motor development. The genes control the time of maturation of a particular part of the body. However, you also know that opportunities to practise, the infant's diet and the kind of care (i.e. environmental factors) are equally important in the development of motor skills. As the muscles, bones and nerves develop, the infant practises the movements which in turn foster growth. Unit 11 describes the play activities that will promote sensory and motor development.

### 7.5 CARE OF THE INFANT

You have read in Unit 4 that the needs of love, nurturance and stimulation must be fulfilled for healthy development of the child. Units 10 and 11 of this Block will talk about the emotional relationship between the caregiver and the child and how the caregiver can provide stimulating experiences to her. In this subsection, we will talk about the kind of physical care that the infant needs. This is important as infants are delicate and prone to illnesses and special care must be taken to protect them. They need adequate nutrition. They must be immunized regularly and their growth checked periodically.

#### 7.5.1 Feeding

You have read that the newborn takes in only a small quantity of milk at a time. As the baby grows, she is better able to coordinate swallowing with sucking. She can now take in more milk. She also begins to sleep through the night and feeds 5-6 times a day.

By four months of age the baby requires more nutrients than milk alone can supply. Now she must be given food other than milk. In other words, supplementary feeding should begin. Of course, the breast or the bottle milk continues though the number of feeds will decrease. Supplementary feeding should begin with liquids. The baby can be given fruit juice or vegetable soup. To begin with, the juice should be diluted with boiled water and only a few teaspoons should be given at a time. Vegetable soups can be made by boiling the vegetables in water and adding a little salt and then straining it. If the baby does not accept a particular food, do not force her but try again after some days. Only gradually will she develop a taste for different foods.

By the time the infant is six to eight months of age, she can be given semi-solid foods, i.e. mashed foods. At this time she can digest soft foods like boiled and mashed vegetables and mashed or stewed fruits. She can be given foods like minced meat, mashed fish or soft boiled egg. Cereals and pulses in the form of porridge made in milk can be given. You can add mashed vegetables and fruits to the porridge to make it wholesome. The infant should be given supplementary feeds at least three to four times a day. Breast milk can continue till the child is 12 to 15 months. This is also the period when the infant starts teething. Some crisp foods like biscuits, rusks or carrot slices will be enjoyed by the baby at this time as they will help exercise her gums.

Between eight and twelve months the first two teeth appear. At the age of one year, most children have six to eight teeth. By the time the child is one year old she begins to enjoy nibbling at everything that the family eats. She can also eat larger quantities. Highly spiced or fried foods should be avoided. Some babies accept solid food easily. Others may resist it. Infants differ greatly in their acceptance of supplementary food and the caregiver needs to be sensitive to the child's preferences.

While introducing supplementary foods some cautions have to be kept in mind.

- Foods should be introduced in small quantities since the infant is not used to them. Over the first few days, one or two spoons of the food is enough. After the child's system has adjusted to this, the amount can be increased gradually, over a period of a month, to half a cup at one time.
New foods should be introduced one at a time. When the child has accepted and adjusted to one food, then the other should be introduced.

- The food should neither be too hot nor too cold when given to the baby.
- Foods like fruits and vegetables with skin, whole cereals and pulses should not be given initially because they have too much fibre content and the infant cannot digest them.
- Hands and utensils should be kept clean while cooking the food and feeding the baby.
- Fresh foods like fruits should be washed well.
- A time schedule should be maintained for feeds but the child should not be forced to eat.

Feeding time is also a time when the caregiver interacts with the child. She talks to her and playfully feeds her. This strengthens the emotional bond between them. It is important to make feeding and related activities a happy experience for the infant.

### 7.5.2 Health Care and Immunization

Many children in our country die during the first year of life. The common causes are tetanus and infections of the respiratory and gastrointestinal tract. Most of these can be prevented through immunization. All children must be inoculated against diphtheria, whooping cough, tetanus, poliomyelitis, tuberculosis, measles, and mumps. Table 7(b) gives the ages at which the child must be immunized. This schedule must be followed to prevent infections.

<table>
<thead>
<tr>
<th>Age</th>
<th>Immunization</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Birth</td>
<td>BCG and Poliomyelitis oral drops</td>
</tr>
<tr>
<td>1\frac{1}{2} Months</td>
<td>DPT, Poliomyelitis oral drops</td>
</tr>
<tr>
<td>2\frac{1}{2} Months</td>
<td>DPT, Poliomyelitis oral drops</td>
</tr>
<tr>
<td>3\frac{1}{2} Months</td>
<td>DPT, Poliomyelitis oral drops</td>
</tr>
<tr>
<td>9-12 Months</td>
<td>Vaccine for measles</td>
</tr>
</tbody>
</table>

During illness the child's diet needs attention. As far as possible the quantity of food the child takes should not be reduced or stopped. If the infant is young and on breast milk only, then breast feeding should continue. If the older infant is being given supplementary foods she should be given soft and mashed foods which are easily digested. The feeding pattern should be close to normal.

One illness which is very common, and can be fatal if the child is not given proper care, is diarrhoea. A little care at home can ensure survival. In this illness the child has loose motions and as a result there is loss of water, salt and minerals from the body. This causes dehydration which may be fatal. This can be prevented by giving the child a rehydration solution which can be prepared at home, it can be made by adding a pinch of salt and one large spoon of sugar to one glass of boiled water. This should be given to the child at regular intervals in small quantities.

### 7.5.3 Growth Monitoring

To ensure that the child is growing according to the norms for her age, her growth has to be checked from time to time. Monitoring the growth pattern of children helps to detect growth failure at an early age. Growth monitoring is necessary since a large majority of children in the country do not get adequate food and fall ill frequently. One out of three children suffer from some degree of growth retardation. In most programmes for young children, the growth of children is monitored to assess their health.
Fig. 7.1 Growth Chart

Watch the direction of the line showing the child's growth. For Example

- The child is growing well.
- Suggests feeding the child at least 5 times each day.
- May be ill, needs special care.
There are several ways of monitoring growth. One of the best indicators is the child's weight. A healthy infant gains weight steadily. With age the child's weight must increase. Based on observations of several children, experts have specified how much a child should weigh every month from the time she is born. A weight lower than normal makes the child weak and prone to infections. Being overweight may also be detrimental for the child's health. Taking the weight-for-age as the basis, experts have prepared a growth chart. By checking the infant's weight against this chart, one can find out whether or not her growth is according to norms.

To understand how a growth chart is to be used, refer to the growth chart given in Figure 7.1. In a growth chart the age is plotted on the X-axis and the weight on the Y-axis. To find out the health status of any child take her exact age and mark it on the X-axis. Suppose the child is nine months old. Then weigh the child and mark this weight on the Y-axis. Suppose the child's weight is 7.5 kgs. Then from the point where you have marked the child's age, draw a line parallel to the Y-axis and from the point where the child's weight is marked, draw a line parallel to the X-axis. Extend these lines until they meet. Call this point 'Z'. This has been marked on the growth chart on the preceding page. You will notice that there are two lines on the growth chart. The area between these lines is called the 'road to safety'. If the point 'Z' falls in this area, the child is healthy. If the point 'Z' lies below the lower line, the child is not healthy and needs to gain weight.

As you will plot the child's weight every month, you will get a series of points. Join these points and see the direction of the line. If the line moves upwards (↑) this means that the child is gaining weight each month and her growth is normal. If the line is straight (→) it means that the child has not gained weight. The child in such a situation must be given nutritious meals 5-6 times a day. If the line moves downwards (↓) it means that the child is losing weight. This is dangerous and the child needs special care and the attention of a doctor.

Check Your Progress Exercise 3

1) In the space provided below, write how heredity and environment influence physical and motor development.

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2) Read the following statements carefully. Write whether they are ‘correct’ or ‘incorrect’ in the brackets.

a) The infant should be breast-fed till 1 – 1½ years of age. (  )

b) Supplementary food should be given when the infant is 4-5 months old. (  )

c) First dose of DPT, BCG and poliomyelitis drops should be given at five months of age. (  )

d) To prevent dehydration during diarrhoea, the child should be given a sugar and salt solution in boiled water. (  )
Below are given the weights of three children over the period of the first year. Plot their weight on the growth chart (figure 7.1) and comment on the health status of each child in the space provided.

<table>
<thead>
<tr>
<th></th>
<th>CHILD A</th>
<th>CHILD B</th>
<th>CHILD C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>3.0 kg</td>
<td>2.8 kg</td>
<td>2.5 kg</td>
</tr>
<tr>
<td>2 months</td>
<td>4.5 kg</td>
<td>3.5 kg</td>
<td>3.0 kg</td>
</tr>
<tr>
<td>4 months</td>
<td>6.0 kg</td>
<td>5.0 kg</td>
<td>4.0 kg</td>
</tr>
<tr>
<td>6 months</td>
<td>7.5 kg</td>
<td>6.0 kg</td>
<td>4.5 kg</td>
</tr>
<tr>
<td>8 months</td>
<td>9.0 kg</td>
<td>7.5 kg</td>
<td>4.5 kg</td>
</tr>
<tr>
<td>10 months</td>
<td>9.5 kg</td>
<td>8.5 kg</td>
<td>5.0 kg</td>
</tr>
<tr>
<td>12 months</td>
<td>10.5 kg</td>
<td>9.0 kg</td>
<td>5.5 kg</td>
</tr>
</tbody>
</table>

7.6 SUMMING UP

In this Unit you read about physical, motor and sensory development in the first year of life. You learnt how the neonate adapts and adjusts to her environment. The newborn is not helpless. She has fairly well developed sensory capabilities – she can see, hear, smell, taste and feel touch. Her cheeks and jaws are also specially formed to suck. The infant is born with a collection of involuntary responses to stimuli, referred to as reflexes, and these help her to survive.

The neonate can see objects clearly when they are at a distance of 8-10 inches from her face. She can recognize the mother’s voice in the very first week after birth.

The baby should be fed on breast milk from the first day of life, not only because it meets her nutritional requirements but also because it helps in the development of an emotional bond between the mother and the child. The diet of the lactating mother should also be given due attention.

By the time the child is one month old, she has adapted to her environment and rapid development takes place in all areas. The infant gains in height and weight. At the end of one year the child weighs 8-9 kgs and gains 10-12 inches in height. The development of the brain is rapid and this period is crucial for development of the nervous system. At birth, the baby's head is big in proportion to the rest of her body. Over the first year this proportion also changes. The legs and torso grow in size, the bones harden and the muscles develop. These developments help the infant to acquire motor skills.

During the first year the infant learns to control the movements of her head, arms, legs and acquires various motor skills. She learns to roll over on her back, sit, crawl, stand and then walk. She also learns to coordinate the movement of her head and eyes and thus grasps things, carries them to her mouth, transfers them from one hand to another and gradually learns to pick and manipulate small objects.
The infant's sensory abilities also develop. She is able to differentiate between various objects and identify emotions on the mother's face. The ability to judge the direction of sound also improves. She learns to discriminate between various sounds which will help her to learn language. The development of physical, motor and sensory abilities is crucial for development in other areas.

Physical growth is, to a large extent, determined by maturation. At the same time, opportunities to practise motor skills are also important. The caregiver has an important role in that she must plan and conduct activities to promote sensory and motor development.

Infants should be immunized regularly and their growth should be periodically checked using growth charts. Supplementary food should begin when the child is around four months old. Breast-feeding should preferably continue till the child is 12 to 18 months.

7.7 GLOSSARY

Dehydration: the loss of water from the body to an extreme extent.

Detrimental: Harmful, damaging, destructive.

Distress: to cause discomfort; upset badly.

Emotional Disposition: a person's temperament or nature.

Ingest: to take food or liquid into the body.

Perceive: to be aware of any outside stimulus, like the sound of traffic on the road. When the neonate hears a sound and reacts to it, we say that she is able to perceive that sound.

Pitch: is related to the auditory property of sound tone.

Pivoting: to turn on one point or in one place. As used in the text it means that the infant tries to move by turning on her buttocks.

Sensory Capabilities: sensory refers to anything related to the senses. In the text, sensory capabilities means the ability to see, hear, feel, smell and taste.

Smothered: suffocate; to be covered in such a way that it is difficult to breathe; choke.

Swipe at: to hit hard with a sweeping blow. In the text the term refers to the infant's attempt to reach out for objects. Since she is unable to coordinate eye-hand movements to pick up objects, she swings her arms randomly while trying to pick the objects. In other words, she swipes at them.

To rake at: a rake is a fork-like tool used for gardening. When we say that the infant can rake at small objects we mean that she tries to scrape or gather or collect small objects by curling her fingers stiffly like a rake.

Voluntary: the term 'voluntary' is used when someone performs an action or does something willingly. We have talked about the rooting reflex in a neonate, i.e., she will suck on anything that is placed near her mouth or cheek. After a while the infant will suck only when she wants. When this happens we say that sucking has become voluntary.
Check Your Progress Exercise 1

1) a) False. 'Neonate' is a term used to refer to the baby between birth and one month of age.
   b) True, c) True, d) True, e) True, f) True

2) a) (iii), b) (iv), c) (ii), d) (i)

Check Your Progress Exercise 2

1) a) GROSS MOTOR SKILLS
   i) (2) around six months
   ii) (3) by 7-9 months
   iii) (1) by three months
   iv) (4) by 13-15 months

   b) FINE MOTOR SKILLS
   i) (4) 8 months
   ii) (2) 5-6 months
   iii) (3) 3 months
   iv) (1) 4 months

   c) SENSORY ABILITIES
   i) (3) by six months
   ii) (2) by three months
   iii) (1) in the first week

2) Physical, motor and sensory development influence development in all other areas. The child’s range of activity increases, she explores more and learns more. This cognitive development is fostered. She is able to interact with people and forms relationships with them. As her skills increase and she does more things, she develops positive feelings about herself. Thus social and emotional development is fostered.

Check Your Progress Exercise 3

1) Physical and motor development are, to a large extent, determined by maturation. Maturation determines the pattern of development. Environment influences development by providing opportunities to practise motor skills. We can thus say that heredity and environment interact to influence development of physical and motor skills.

2) a) True,
   b) True,
   c) False. The first dose of DPT, BCG and poliomyelitis drops should be given when the infant is about 3 months of age.
   d) True

3) CHILD (A): The child is overweight and needs to lose weight as she does not fall in the area called Road-to-Safety.
   CHILD (B): This child is healthy child as the line tracing her weight gain falls in the area called Road-to-Safety.
   CHILD (C): In this case the child needs to gain weight and is in danger as she is not gaining weight evenly and does not fall in the area called Road-to-Safety.
8.1 Introduction

At birth the child does not know about the people and the world around her. She is not aware of what she can do. In this Unit we will read how the infant develops an understanding about herself, people and things. We will also read how her thinking capacities evolve during the first year of life.

Objectives

After studying this Unit, you should be able to

- explain the meaning of the term ‘cognition’ and understand that learning, memory, reasoning, symbolizing and concept formation are aspects of cognition
- understand that the child’s mind is active from birth onwards
- explain the meaning of the term ‘sensori-motor period’
- describe the stages in the development of thought in the first year
- state how heredity and environment influence cognitive development
- understand the importance of the caregiver’s role in the infant’s mental development.

8.2 WHAT IS COGNITION

As a newborn, Ramesh would suck on anything that was brought to his mouth—the pacifier, the finger, the mother’s breast. His mother would often give him a pacifier to suck when he cried. By one month of age, Ramesh would not suck on the pacifier if it was given to him when he was hungry; instead he would spit it out. He would, however, take the breast. This showed that he had learned what provided food and what did not. In other words, the child had learned to discriminate between the mother’s breast and its substitute, the pacifier.

Nine month old Tina is very attached to her father and is possessive about his belongings, particularly his sandals. If she sees anyone else wearing his sandals, she pulls at them to take them away. The child has learnt to associate the sandals with the father, i.e. she remembers that they are his. When she was around 18 months old, she would often take her father’s lunch box from the kitchen and would say: “Tata, Tata.” The child had seen her father doing this and was enacting the same. In her imitation of his behaviour memory is involved.

At eleven months Mansur is able to crawl and can pull himself to standing position. One day he spotted a box lying on a table nearby. He crawled to the table, pulled himself upright and tried to reach for the box. But the table was high and he could not get to it. He gave up after some time and crawled to his mother who had been watching him. She
picked him up, went to the table and gave him the toy. Mansur was delighted. Two months later he began to walk. Now when he wanted the toy from the table, he would go up to the table and get it. In both instances, the child solved the problem. In the first case he got his mother to help him. In the second instance he had worked out how he could get the toy and carried out his plan effectively.

Ela is an active fifteen-month-old infant. She and her father were lying on the bed one day when Ela bit him quite fiercely on the arm. Ela’s father pretended to be hurt, turned his face away from Ela and cried out: “Ooh! Oooh! . . . . . .” Ela’s mother said in mock anger: “You have hurt papa!” The child looked at her father for a while, then went over to him and started kissing him on his face and arms and calling out to him. It is clear that the child thought that her father was hurt and reasoned that she could placate him by kissing him. Clearly, she is imitating the consoling she gets when she is hurt.

These examples show that from the earliest months, infants understand what is happening around them. You will be able to think of similar incidents from your observations. The mental activities that have been illustrated in the examples—learning through association and discrimination, remembering, problem solving, imitating, reasoning, understanding what is expected of one—are all aspects of cognition or intelligence. Besides these mental processes, cognition also involves concept formation and symbolizing. What do we mean by these terms?

Concepts are ways of organizing information. They help us to group or categorize information. A concept develops out of characteristics that are common to a set of objects, actions or thoughts. For example, we have a concept of edible and inedible things. We may further categorize edible things as fruits, vegetables, cereals, bread, nuts and so forth. In the same way, we have concepts of living and non-living things, shapes, colours, seasons, work, play and so on. Researchers have tried to determine how early in life children begin to form concepts.

Symbolizing means representing an event, object, action, quality or concept by something else, i.e. the symbol. This symbol then stands for that particular event or object. For example, the symbol # on the road signifies that there is a railway track ahead. The red cross symbolizes hospitals. Words are symbols that stand for actual objects and events. When the preschooler pretends that the wooden block is a bus and plays with it, she is symbolizing. When Bala was two years old, her grandmother (Nani) came to visit her in the village. When she was leaving, the entire family, including Bala, went to see her off at the bus stop. From then on, whenever Bala would see the bus coming into the village she would say: “Nani come!” For Bala the bus symbolized her grandmother’s visit.

You have probably grasped by now that cognition is concerned with how we come to know the world around us. Each one of us has our own ideas about people and events. How do we form these ideas and beliefs? How does knowledge develop? Cognition deals with the development of thought and knowledge. Thinking or cognition has to do with how we receive and interpret information and how we use it to guide further actions. One may ask why the development of cognitive abilities must be studied. The development of cognition enables the individual to adapt to surroundings and situations. With the development of thought, the person is able to understand and handle situations with greater effectiveness. Therefore, it is important to know about the stage in cognitive development and understand how we can stimulate the child’s thinking.

Check Your Progress Exercise 1

Answer the following questions briefly in the space provided below.

1) From your observation of an infant, write an anecdote which illustrates any one cognitive process.
2) What do you understand by the term "Cognition"?

3) Read the following statements carefully. Each of the statements stands for one aspect of cognition. Write in the space provided below each statement, the cognitive process it describes.

a) Representing an event, object, action, quality or concept by something else

b) A set of characteristics that are common to a group of objects, actions, or thoughts; ways of organizing information.

c) Storing information and recalling it when necessary.

8.3 THOUGHT IN THE FIRST YEAR

Let us read how thought develops from the time the child is born. When we talk about cognitive development we must remember the name of Swiss psychologist, Jean Piaget. He studied how children come to understand people and events. Can young infants learn? In what way do infants and children show their intelligence? Does the child's thinking change over time? Piaget's research focused on such issues. He stated that children view the world and understand events in a way which is different from that of adults. Their logic is different from that of adults. The nature of children's thinking changes from one age to the next. Piaget in his theory of cognitive development describes these changes. As the child grows not only does her store of information increase, but the manner in which she thinks also changes. At successive ages, her thought is qualitatively different from the earlier ages.

Piaget stated that the development of thinking proceeds through four stages. The first stage lasts till two years of age and is the sensori-motor period of development. The second stage, from 2-6 years, is the pre-operational stage. The third stage, from 7-11 years, is the concrete-operational stage and from 12 years onwards, the child enters the stage of formal operations. Since at each of the these stages the child has a different way of understanding events, it is not correct to say that a two year old is less intelligent than a six year old.

One of the major sources of data for Piaget, as he was formulating his theory of cognitive development, was his observations of this three children. While discussing cognitive development in this Unit and others, we shall draw upon Piaget's recordings of his children's activities as well as those of other children to describe the changes in thinking that occur with age.
Let us now read about the development of thinking during the first year, i.e., the sensori-motor period.

8.3.1 The Sensori-motor Stage

As the term suggests, in this stage the child understands the world using her senses and motor capacities. She comes to know about things in terms of what her senses convey and what she can do with them (motor capacities). Thus the infant knows a wooden block, for example, in terms of how it feels to her touch and appears to her eyes (i.e., sensory information), and that she can throw it, kick it, push it, and bang it (i.e., motor capacities). She cannot think of its properties (such as solid, wooden, colour) in adult terms because she does not yet have these concepts. In other words, the infant at this stage cannot think conceptually (i.e., in terms of concepts). To find out about things, the infant has to act upon them (i.e., feel them, explore them, do something with them). Even adults first look at a new object and then feel it. But adults and older children do not rely merely upon the information from the senses to understand events or objects. They also categorize information into concepts, think in abstract terms and reason. The infant begins to develop concepts towards the end of the second year.

During the sensori-motor period, thinking develops gradually and by the end of this stage, the infant understands that her actions can have an effect on people and objects. She can plan her actions and solve simple problems, as Mansur did in obtaining the toy. This period is divided into six substages. In this Unit we will talk about the first four substages that emerge in the first year. The remaining two substages will be discussed in the next Block.

The first substage lasts from birth to one month. During this stage, the newborn adapts to her surroundings through her reflexes. For example, when the baby feels hungry, she cries and when her mouth touches the nipple, she begins to suck. Sucking is a reflex at this stage. You have read about other reflexes in Unit 7. The foundations of later learning are laid now as the baby modifies and adapts her reflexes. Let us take the example of sucking to understand this. One of the first things that the baby sucks on is the mother’s breast. Later she sucks at other objects as well—the finger, the pacifier or the corner of her sheet. This is the beginning of generalization. Generalizing is an important part of cognitive development. It helps the child to form concepts. For example, by sucking on different things (i.e., by generalizing sucking to various objects) the child will develop an idea of things that give nourishment on sucking and those that do not (i.e., develop a concept of food and non-food). From a few exposures to a sound, the infant gradually develops a concept of that sound. The jingling of bangles will quieten a crying child who has learnt to associate the sound of the bangles with the mother’s presence. Concepts are
thus developed as the baby generalizes information. In the above example, the baby generalizes that the sound of bangles signifies the presence of the mother.

By sucking the infant also learns to discriminate. Discrimination in a mental activity which is basic to development. To discriminate is to see the difference between two objects or experiences. When sucking at the breast the baby learns whether to suck slowly or with force, depending upon how hungry she is and how much milk she gets. She discriminates between objects that provide nourishment and those that do not and thus may refuse a pacifier when hungry, just as Ramesh did in the anecdote described earlier. In fact, infants find out about objects by mouthing them. They find out how they feel and taste. This is a major way of learning about objects during the first year of life.

The second substage lasts from the beginning of the second month to four months. During this period babies begin to show interest in their surroundings, which leads them to explore. Since at this time the infant is not able to move about physically, the process of knowing about the surroundings is in the form of visual exploration. They now spend less time sleeping and when alert they scan their environment. How do we know that infants attend to objects? When the infant is attracted towards an object she will look at it attentively for some time as if she wants to learn all she can about it. She may also smile at it.

You know that infants look longer at objects that have a light and dark contrast and those that move. They show more interest in unfamiliar objects compared to familiar ones. That the infant is able to make out that a particular object/person/picture is unfamiliar indicates that she is using her memory. It shows that she remembers a face, recalls it, compares it with the new face and concludes that the latter is unfamiliar. This is a remarkable feat.

You have just read that infants find out about objects by mouthing them. Another way they learn about objects is by touching them. Touch delights them from the moment they swipe at objects and hold their legs. In fact, one of the first things that the baby explores are her own hands. She notices her hands, plays with and stares at them for long periods. This activity interests the baby as her fist is not clenched all the time. The fingers and the thumb provide interesting variety in movement. You can see how all the senses help the child to learn about her surroundings.

While the infant recognizes familiar people and voices, she does not yet recognize her own name when called out. If it seems that the baby is looking around when her name is called, it is so because she recognizes the intonation. If any word in the same intonation is called out, she will still respond by looking at the person.

At this age the child is also able to anticipate an event based on the actions of others. You may have seen that a three month old infant is able to make out from the actions and speech of the mother that she is about to be fed, and begins to make sucking movements and to adjust her posture to the mother's body. This shows that the infant remembers that certain actions of the mother will lead to feeding—another evidence of her growing memory.

The infant begins to coo at this age and if the adult utters a similar sound, she responds and often continues it. This is an example of imitation. Through imitation children and adults acquire many skills throughout the life span and the beginnings of imitation can be seen now.

By the time the infant enters the third substage (4–8 months), she is able to grasp objects, push them, kick them and manipulate them. She is able to make things happen and acquires new actions that produce interesting results on the objects. Let us understand this through an example. While lying in the crib, the infant kicks and moves her arms. One such movement accidentally moves the doll hanging by a string from her crib. Delighted at this movement, the infant looks intently at the doll for sometime. She moves her arms again which in turn moves the doll. She begins to perceive some connection between her action and its consequence. Fascinated with the result of her action, the baby continues the kicking and looks at the doll every time it moves. In the earlier stages too the doll may have moved when the child moved her arms, but she had not perceived the link between her movement and that of the doll. Her delight, her intent expression and her repetition of the action show that she has now made the connection. Once the infant realizes that her actions have an effect on
objects, her actions become intentional, i.e., purposeful. Intention means that the child has a wish to do something before she does it, i.e., the child knows what she wants to do. Not only does the infant swing her arms to move the doll, but she varies the force with which she moves them—she begins by swinging her arms gently and then continues more strongly, delighting as the doll moves with greater force. This new-found interest in objects and the consequences of her actions will grow during the subsequent years and form the basis of her learning.

Let us take another situation to show that now the infant performs actions with an intention. You may have often been involved in an activity with the child in which she drops her toy on the floor, you give it back to her only to have her drop it again! And she continues doing so as long as you keep handing it back to her. You may lose patience but the child enjoys herself immensely. The activity of dropping the toy got an interesting result the first time and the infant repeats it. Many actions of the child have a consequence and she gradually perceives the connection between her own activity and its result. In other words, she begins to understand cause and effect relationships.

The emergence of intention in the infant’s actions is an important landmark from the point of view of cognitive development. Most of our actions have an intention—they are performed with a purpose. Once the child begins to act intentionally, her actions tend to be under her control. This gives her confidence that she can control some aspects of her environment.

Being able to perform actions intentionally leads to goal-directed behaviour. What is meant by goal-directed behaviour? This means being able to use one’s actions to reach an end or a goal, i.e., to use one’s actions as a means to an end. In performing goal-directed behaviour, one needs to plan a strategy and then carry it out. Goal-directed behaviour marks the beginning of the fourth substage which lasts from 8–12 months. From the point of view of problem-solving this stage is an important landmark. Let us see the origin of goal-directed behaviour in the infant through the following example.

The child tries to reach for a box lying some distance from her. As she reaches for it, her mother places a cushion between her and the box so that the child is prevented from reaching the box. To get the box, the child must set aside the cushion. The child at once strikes the cushion down, lowers it and clears her way. When her mother holds the cushion firmly in place, the child pushes it harder to remove it. In the earlier stages when such an obstacle had intervened between the child and the object she wanted, the child had simply ignored the obstacle or tried to pass through the side, but she did not try to displace it. The hallmark of the fourth substage is that the infant is now able to combine two or more actions to reach a goal. In the above example, the infant combined the actions of pushing aside something with grasping to attain her goal, i.e., the box. The intention in actions which could be seen in the third substage is stronger now. Other situations that bring out the infant’s goal-directed behaviour are—putting objects into containers and taking them out; using the help of adults to get something, as Mansur did. In another instance, an infant wanted to move a doll but she was not able to get it swinging herself. The child grasped her father’s hand, placed it against the doll and exerted pressure on his fingers to make him swing it. Development of physical skills like sitting, rolling over, standing, crawling and holding objects help the infant in goal-directed behaviour.

At this time the infant also begins to understand that objects occupy some position in space and that they can be moved around. When an obstacle, such as a small wooden plank, comes between her and the toy, the infant knows that the obstacle will have to be moved or that she will have to move around the obstacle to reach the toy.

You know that the child is aware that her actions can affect objects and people. During this stage she also realizes that actions of others can also have an effect on things. Therefore, she now approaches the adult to help her get the object which she cannot reach and begins to seek out adults to solve situational problems.

You may have observed a ten month old baby staring at small pieces lying on the floor such as crumbs, threads and even particles of sand! What is more astonishing is that she manages to pick up these objects as well. This shows the infant’s ability to see details.
The child's memory also grows. She can now remember more events and can recall them quite clearly. Therefore, she is able to anticipate that an event is going to happen again based upon the cues. This is a more developed version of anticipation of events discussed in the earlier part of the Unit through Ambika's example. Ambika had often seen that after the sound of the scooter in the verandah, the father appears at the door. Now when she hears the scooter, she looks towards the door eagerly anticipating her father's appearance.

What does this discussion tell us about the infant? From her first experience the infant understands, remembers and organizes information and acts upon the environment to achieve a goal. The infant is intelligent. By acting upon the objects in the environment she learns the reasons for everyday events. For example, objects can be moved by pushes and kicks. By touching, feeling, seeing, smelling and hearing, she learns about the properties of various objects and forms a concept of them. She also begins to understand the meaning of commonly used words such as milk, bottle and ball. She recognizes her mother, father and people with whom she interacts daily and can distinguish between familiar and unfamiliar people. Similarly, she distinguishes known from unknown objects. By acting upon things, she also develops an idea of what she is capable of doing. She is as yet not able to think in terms of concepts and cannot represent objects and people in the form of symbols in her mind. This will come later.

How can we guage the infant's intelligence? As far as adults and older children are concerned, we can generally assess their intelligence by how they handle problems and complex situations. But what do we look for in an infant? To guage the infant's intelligence, we have to look at the development of her senses and motor skills. Her intelligence can be seen in everything she does—focusing, following a moving object, reaching for objects, kicking, banging, squeezing and thumping play objects. How well she anticipates events is also an aspect of intelligent functioning. The achievements of the one-year-old, such as being able to move a rattle, grasp a bowl or imitate a sound may seem rather simple when compared with the three-year-old who knows names of people, talks with them and understands a great deal. However, the abilities of the one-year-old are important accomplishments and the bases of all later development.
Check Your Progress Exercise 2

Answer the following questions briefly in the space provided below.

1) Describe the salient characteristics of each of the four substages of the sensori-motor period.

   a) First substage

   ..............................................................................................................................................

   b) Second substage

   ..............................................................................................................................................

   c) Third substage

   ..............................................................................................................................................

   d) Fourth substage

   ..............................................................................................................................................

2) With reference to cognitive development, what is the child able to do by the first year?

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8.4 THE ROLE OF THE CAREGIVER

In Unit 3 you read that heredity determines one's potential for intelligence while the opportunities provide the setting for the achievement of this potential. In other words, how much of the inborn traits are developed depends upon environmental factors. Thus the development of intelligence depends upon the interaction between heredity and environment. What the child inherits in terms of intelligence cannot be changed but we can certainly influence the type of experiences that a child will have. Therefore, in this section, we will concentrate upon a major aspect in the infant's environment, i.e. the caregiver. Providing stimulating experiences to the child is normally the responsibility of the family. You have already read about the role of the caregiver in Unit 5. Let us discuss it here with reference to the child under the age of one.

Since the infant is not mobile, she is able to explore only those things that are within her immediate reach and range of vision. Those who are looking after the infant must be sensitive towards this aspect and give her a variety of things to play with. Just as the infant needs to handle objects to learn about them, she also needs to interact with people. The family members must spend time with the child and play...
with her and talk freely to her. By interacting with people, she understands concepts and gathers information. This will also help her to understand her experiences. When the infant becomes 8 to 9 months old, parents delight in showing her new objects and directing her attention towards them. This also helps her to learn about things. To summarize, the role of caregivers lies in providing the infant stimulating experiences in keeping with her abilities.

While we have spoken about how adults can foster development, we must not forget the child’s own role in her development. The child is not a passive person who just takes in her experiences. If this were so, all children who have similar experiences would turn out to be alike. There are innate constitutional differences among children which makes them different even in the same situation. The child is an active being who responds to events around her. How the child interprets a particular experience will depend upon her past experiences and a variety of individual factors.

Check Your Progress Exercise 3

1) In what ways can caregivers promote cognitive development?

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8.5 SUMMING UP

In this Unit you have read how the child’s thinking capabilities develop during the first year of life. Cognitive development is concerned with how the child comes to know about her surroundings and how her thinking becomes more complex with time. Cognitive development refers to the development of thinking capacities. Cognition involves many mental processes—learning, memory, symbolizing, concept formation, reasoning, discrimination, association, imitation and problem solving.

Piaget was concerned with how the child develops knowledge of ordinary things and everyday situations and he propounded a theory of cognitive development. As the infant grows her thinking changes, so that at each age level the nature of the child’s thought is different. At each stage the child deals with situations in keeping with her
The first stage in cognitive development, according to Piaget, is the sensori-motor period, which lasts till two years of age. During this period, the infant understands events and experiences using her senses and motor capacities. She is not able to think in terms of concepts. By the end of this period, the infant develops a fairly good understanding of her surroundings—she recognizes many people, understands that her actions can have an effect and develops an idea of what she is capable of doing. Memory grows, language develops and the infant is able to plan her actions. She learns why things happen the way they do and forms an idea about the world around her.

The sensori-motor period is divided into six substages, four of which have been discussed in this Unit. During the first substage (from birth to one month) the infant is able to use her reflexes and an elementary form of learning begins through generalization and discrimination. During the second substage (from one to four months) the infant begins to show curiosity and visually explores the surroundings. She begins to discriminate between familiar and unfamiliar people. She also imitates some actions. During the third substage (4–8 months) the infant seems to realize that her actions can have an effect on people and things. Her actions become intentional and she understands cause and effect relationships. The fourth substage (8–12 months) is characterized by the infant's ability to perform goal-directed behaviour. She now combines two or more actions purposefully to achieve a goal.

Heredity and environment interact to influence cognitive development. Heredity determines one's potential for intelligent functioning while how much of the potential is achieved will depend on the experiences of the child. Therefore, the role of the caregiver is of importance since she provides stimulating and meaningful experiences.

8.6 GLOSSARY

Coo: The vowel like sound ‘ooo....’ which the infant begins to produce around one month of age.

Discriminate: To recognize or understand the difference between; distinguish, differentiate

Pacifier: A baby's teething ring

Predisposed: Susceptible, inclined towards

8.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) Write any one anecdote which shows any one of the cognitive processes—reasoning, memory, problem-solving, discrimination, generalization, imitation.

2) Cognition deals with the development of thought. It is concerned with how children and adults understand the world around them.

3) a) symbolizing, b) concepts, c) memory
Check Your Progress Exercise 2

1) a) The newborn adapts to the surroundings through her reflexes. While doing so, she learns through generalization and discrimination.

b) The infant explores the surroundings visually. Her memory grows as indicated by her being able to differentiate familiar from unfamiliar people. She is also able to anticipate events. She is able to imitate some behaviours of people.

c) The infant performs actions that produce interesting results on objects. Her actions become purposeful and intentional and she understands cause and effect relationships.

d) The child is able to use her actions in new situations to reach a goal. This means that the child is able to handle more situations. She also understands that objects occupy some position in space. The child’s memory also grows so that she remembers more events and recalls them quite clearly.

2) By the end of the first year the child understands that her actions can have an effect on the things, i.e. becomes aware of cause and effect relationships; plans her actions to achieve a goal; is able to handle simple situations; discriminates among people and objects; recognizes familiar people; begins to acquire language and understands the meaning of commonly used words; imitates actions and behaviours of others; realizes that objects occupy some position in space.

Check Your Progress Exercise 3

1) The caregiver can help in cognitive development by providing the infant stimulating experiences in keeping with the infant’s level of understanding. The caregiver must provide her with a variety of play materials. Playing and talking to the infant and directing her attention towards people and things will help her to learn.
UNIT 9 LANGUAGE DEVELOPMENT: LEARNING TO SPEAK

Structure
9.1 Introduction
9.2 What is Language
9.3 Development of Language
   9.3.1 Discriminating Speech Sounds
   9.3.2 Beginnings of Speech
9.4 Influences on Language Development
   9.4.1 Biological Factors
   9.4.2 Environmental Factors
9.5 Summing Up
9.6 Answers to Check Your Progress Exercises

9.1 INTRODUCTION

Imagine how it would be if we did not have language to communicate our feelings and thoughts. We could use gestures of course, but that would be difficult and not as expressive. Imagine using gestures to discuss the political situation in the country! How would scientists and historians have recorded their findings?

In this Unit we will read about the functions of language. We will learn how the child acquires language in the first year of life. How do the biological and environmental factors influence the acquisition of language? How can parents help children learn language?

Objectives
After studying this Unit, you should be able to
- define the term 'language' and explain the uses of language
- describe the abilities of the newborn which help in language learning
- describe the stages in the acquisition of language from birth to one year of age
- discuss how biological and environmental factors interact to influence the development of language
- explain the role of the caregiver in helping children learn language.

9.2 WHAT IS LANGUAGE

Language is a system that consists of symbols (i.e. words) that stand for particular objects, relationships, actions and feelings and through which we can transmit and understand a large variety of messages.

The ability to communicate with each other using a language system is unique to human beings. Of course animals and birds also communicate with each other. Each species has its own calls and cries which constitute their language. Bird sounds are different when they are signaling the approach of a predator as compared to when they give their calls for mating. But animals and birds can make only a limited number of calls and cries. By contrast, the speech of humans is very diverse. We can make an infinite number of sentences. We are creative in our speech as well, i.e. we can combine words differently to produce sentences never uttered before. We can talk about events in the distant past or about imaginary situations. The languages of all human communities have a set of rules which each child learns during the course of growing up.
The ability to talk involves three basic processes: the ability to produce sounds the way we do, the ability of the ears to pick up these sounds and the ability of the brain to understand the meaning of these utterances. Human beings are very well equipped as regards these three processes. The mouth and the nasal cavity consisting of the lips, teeth, tongue, palate, nasal passage, the larynx, the wind pipe and the vocal cords help in regulation of air and are designed for production of sound. Our ears are particularly sensitive in picking up sounds. Our brain is specially developed to help us in acquiring language. There are two areas in the brain which are concerned with speech—one specialised for speech production and the other for speech comprehension. We know from research studies that from birth itself, the child is more responsive to human language as compared to any other sound. It is, therefore, not difficult to understand that every normal child will learn the basics of her native language within the first three or four years of life, without being especially taught to do so.

Functions of Language

How is language helpful to us? We use language for communication. Through language we express our thoughts, needs, feelings and ideas. Using language we relate our present as well as our past experiences and learn about those of others. Besides language, there are other ways of communicating with people such as using signs and gestures. Children who are hard of hearing learn to use sign language. Body movements and facial expressions also convey what one is thinking and feeling. But using speech, i.e. language, is the quickest and most effective way of communication. By enabling us to communicate, language helps us to interact with people and form relationships, i.e. it helps us to relate socially.

Language plays an important role in the development of thinking. It helps in organizing our thoughts because it gives labels (i.e. a name) to things, objects and ideas. You may have noticed that while busy in an activity, a child often speaks out aloud about what she is doing. While making a house from sand she may say, “Now I will make walls..... Oh! This break again......Put flag on top.” This speaking out aloud helps her to direct her actions.

Our memory and perception are also influenced by language. If we have a name for something, we are more likely to focus on it, i.e. perceive it and recall it. Language also helps in concept formation since it gives a label for a set of objects. This does not mean that all thought, perception or memory takes place only because we have language. Language certainly aids in thought, but thinking is present even when there is no language. You will understand this if you recollect what you have learnt in the last Unit. The infant does not begin to speak till she is about one year of age but she certainly has had thoughts before that, as you have read in the earlier Unit. The intentional and goal-directed behaviour of the nine-month-old child shows that she is thinking, even though she is not able to speak as yet.

It is not that only language influences thought. The development of thinking also influences language development. As the child’s thinking matures, so does her language. Thus there is a cyclical relationship between language and thought—language influences thinking, which, in turn, influences language.

9.3 DEVELOPMENT OF LANGUAGE

To learn language, the child must hear people speak and be able to discriminate between the different speech sounds and words. She must also be able to produce sounds and gradually learn to combine these sounds to produce words, i.e. acquire language. Let us read about the infant’s skill in discriminating words before we go on to reading the stages in the acquisition of language.
9.3.1 Discriminating Speech Sounds

You know that the infant is able to hear at birth and can localise the sound source, i.e. she can make out from which direction the sound is coming. Her ability to hear and perceive the direction of sound improves with age. Newborns can discriminate the mother’s voice from other voices as early as the first week of life. Newborns move their body in rhythm with adult speech as early as 12 hours after birth. If the pace of the adults speech is fast, the movements of the newborn became fast. If the rhythm of the speech slows down, so do the child’s movements. They react in this manner to speech in any language, but do not move in rhythm to tapping sounds or to repetitive vowel sounds that do not resemble human speech. It has been found that neonates prefer to hear vocal music over instrumental music. This means that the human infant is more responsive to human speech as compared to any other sound.

Infants have a remarkable ability to discriminate sounds. You know that by three months of age, the infant has understood that speech sounds are matched by the speaker’s lip movements and can also associate a particular voice with a particular face. You would know from your experience that the six-month-old is able to understand a few words and respond to simple questions like: “Where is the ball?”, “No, don’t do that!”, even though she cannot speak. All this shows that the infant is born with a sensitivity to human speech. This helps her to interpret the speech of others and learn the skills needed to acquire language.

Most of us believe that language development starts only when the child utters the first word, which is usually around the first birthday. But this is not true. In the first year the infant is learning to discriminate speech sounds—an ability that helps in learning to speak later. She also makes sounds in response to the adult’s talk and these sounds lead to words. It has been found that when parents speak to the child and respond to the sounds that she produces in the early months, her language development is fostered. Therefore, it is important to talk to babies right from the time they are born.

9.3.2 Beginnings of Speech

While the infant seems to perceive language from birth onwards, she does not produce words so early in life. Language development of all children follows a certain sequence. This means that there are stages in the learning of language that are universal. This means that all children go through the same stages while acquiring language and they do so at approximately the same ages, irrespective of the language they speak. Before we read about the stages in acquisition of language in the first year, there is one important aspect of communication we must consider and that is—turn-taking.

Turn-taking is critical for social interaction. In a dialogue between two or more people, one partner speaks while the other person listens. Then the first one pauses and waits for the other person to reply. Thus the partners in conversation take turns to speak and listen. It is very difficult to have any kind of social encounter with someone who does not take turns. The beginnings of turn-taking can be seen in very young infants, about a month old, in their feeding patterns. The neonate while feeding sucks for a while at the breast, then pauses, then sucks for a while, pauses and so on. When the infant stops sucking, the mother jiggles her. She does so because she believes that this will cause the infant to suck again. When the mother stops jiggling, the infant begins to suck. The mother and the baby thus “enter into a conversation” which looks like this: suck-pause-jiggle-pause-suck-pause-jiggle-pause. They take turns—when the infant sucks, the mother pauses; when the infant pauses, the mother jiggles. This is the first non-verbal communication in which the infant participates and is the basis for all future interactions.

Such two-way communication and turn-taking can be seen in other interactions as well. When the infant’s brother speaks to her, she is quiet and is busy looking at his face. Then the brother keeps quiet and waits for the infant to respond. This the infant does by moving her body, producing some sounds and gurgling. Then the
infant pauses and looks at her brother, who begins to talk and play again with her. Such interactions indicate that the infant has an inborn ability to take turns which helps in her language development.

Let us now read about the stages in language acquisition.

Crying: The earliest form of communication that a child uses is crying. From birth to one month of age, this is about the only sound the baby produces to communicate her distress and discomfort. Most mothers are able to make out what the baby’s cry indicates—whether she is hungry, wet or just irritable.

Cooing: Around one month of age babies begin to make cooing sounds in addition to crying. This stage lasts till 4-5 months after birth. Cooing is a vowel-like sound, particularly like '0000 •••••'. Babies make cooing sounds when they are content and satisfied. They seem to get pleasure out of it. When the infant coos, the people talk back to her by repeating the sound she produced and by making some new sounds. In turn, the infant responds with more cooing. Such ‘dialogues’ become more frequent with each passing day. Such interactions also promote the development of an emotional bond between the caregiver and the infant.

As the child grows, she spends more time awake and practises sounds. She delights in producing new sounds and repeats them. She experiments by varying the pitch and loudness of sounds. The infant seems to be exploring the possibilities of combining sounds. This experimentation is a very important stage in acquiring language since it gives the infant an opportunity to perfect sounds. The child first produces and practises the vowel sounds, (i.e. a, i, e, o, u) so that you can hear sound like, “aaa...”, “iii...”. Then she practises consonant sounds like p, t, b, m, d by combining them with vowels, so that you hear sounds like “beeee...”, “maaaaa...”.

Babbling: Between six and ten months, the infant begins to babble. She repeats syllables like ‘ma’, ‘da’, ‘ki’, and ‘ne’ over and over again so that we can hear sounds like “dada...”, “kikikiki...”, “mamama...”. This is referred to as babbling. As in the earlier stage, the infant continues to produce new sounds and experimenting with them. In the early stages of babbling, the infant may produce sounds like those in adult speech and it seems as if the baby has learnt some words. For example, when the baby babbles “mamama...” or “bababa...”, the parents feel that the child is saying “mama” to mean the mother and “baba” to mean the father. But these are not really words because the child does not use them to refer only to parents. She makes these utterances in many different contexts and sometimes when the parents are not even present! The infant’s utterances will become words only when she begins to use them consistently to refer to a particular object/person.

In the later stages of babbling, the infant combines babbling sounds into a ‘sentence’. This sentence has the intonation and rhythm of adult speech. Sometimes the pitch of the sentence rises towards the end as if the child was asking a question and desires a response. Sometimes the babbling has a falling intonation which does not seem to require a response but seems as if the infant is trying to say something. Babbling may also have an emotional tone and may reveal the baby’s anger, fear, pleasure or surprise. You may have observed this. The intonation in babbling helps the adult to guess what the child is trying to communicate. Thus the infant learns the rhythm or the tone of speech before she learns the specific words. She has comprehended that a rising pitch towards the end of sentences conveys a question.

About this time the infant begins to use gestures to ask for things she wants and points at objects. When babbling is accompanied with gestures, it helps to clarify the child’s intention. Of course, the child still uses crying to make her wants known.

The First Words: Some time between ten and twelve months, often around the first birthday, the infant says the first word. This word may not match the words adults use but it is a word that the child uses consistently to refer to some thing, action or quality. One particular child used the word “mimi” to refer to the liquids that she was drinking, like milk and water. A twelve-month-old may have a vocabulary of
about three to eight words. The first words to be learnt are the ones that refer to familiar objects and people, everyday events and actions. These words are the ones which people around the child have been using consistently in their speech with her and have been encouraging her to speak. Some common first words are mama, ball, come, bye-bye.

The infant's single word utterances do the work of an entire sentence. When she says "bottle" and points to the bottle, she conveys a whole meaning. Depending upon the context, the infant's manner of saying the word and her gestures, the adult understands whether the child means: "Give me the bottle", "I want milk" or something else. When the infant points to the mother's saree and says: "Mummy", she is conveying: "This is mummy's saree." Thus while only one word is used, a sentence-like meaning is conveyed.

As you read this Unit, it is important to remember one thing. While the stages of language acquisition are universal (i.e., each child must go through these stages in a particular sequence), the age ranges which we have specified for the stages of language development are not rigid. It is not as if once the child begins to babble, she stops cooing. There is an overlap between the stages so that the child babbles as well as coos at the same age. Similarly, when the child begins to say her first words, she still continues to babble for some time. Besides, the ages specified for particular stages are only average ages. You know that there are individual differences among children in the rate of development. Therefore, while the average age of saying the first word is around the first birthday, some children may do so at ten months and others at fourteen months.

Check Your Progress Exercise 1

1) Answer the following questions briefly in the space provided below.

a) Define what we mean by the term 'language'. How does language help us?
b) What evidence is there to show that the child has an inborn sensitivity to human speech and can discriminate speech sounds?

c) Explain the terms ‘cooing’ and ‘babbling’.

2) State whether the following statements are ‘correct’ or ‘incorrect’ in the brackets.
   a) It is important to talk to babies during the first year of life because it gives them practice to discriminate speech sounds and this helps in their language development. ( )
   b) Language helps in thought but thinking is present even when the child has no language. ( )
   c) The speech of humans is not diverse. ( )
   d) Turn-taking is crucial for social interactions and the child shows this ability very early in life. ( )
   e) The child’s ability to take turns develops only after the second year. ( )
   f) Babbling is the earliest form of communication used by the child. ( )
   g) While cooing and babbling the child experiments with sounds by varying their pitch and loudness and produces new sounds. ( )
   h) The child’s utterance will be considered a word only when she uses it consistently to refer to an object, action or quality. ( )
   i) The gestures used by the child, the emotional tone and the rhythm of her babble and words help us to understand their meaning. ( )
   j) The words that the infant learns first are those that refer to everyday objects, events, people and actions. ( )
   k) The infant’s single words do the work of an entire sentence. ( )

3) List the stages in language acquisition in the first year of life and state at which age does each stage begin.

9.4 INFLUENCES ON LANGUAGE DEVELOPMENT

As in any other area of development, biological and environmental factors continuously interact to shape of the child’s acquisition of language.
9.4.1 Biological Factors

The biological factors include the genetic make-up of the child and the maturational timetable. Basic to learning language is the ability to listen and to produce sounds. The following three facts point that we are biologically predisposed to acquire language. Firstly, the human body, as you have read, is equipped for the purpose of speaking, hearing and understanding language. Secondly, all newborns are most responsive to the sound of the human voice which shows that we have an inborn ability to learn language. Thirdly, all children go through the same stages while acquiring language and they do so at approximately the same ages, irrespective of the language they speak. This universal sequence implies that no matter how hard you may try to teach a child of one year, she cannot be taught to speak sentences. She has to be maturationally ready to learn to speak. These facts emphasize the biological basis of language development.

9.4.2 Environmental Factors

Even though we have the sensory organs and the tendency to speak, no child can learn language until she hears it being spoken and practises speech. Each child learns the language of her group—the way she speaks, the words she uses and the accent of her speech. You have read in Unit 3 about the child who grew up without contact with people. She could not speak normally and it was difficult to teach her later. You also know that children who are hard of hearing or deaf, begin to babble at the same time as other children but after some time the amount of babbling decreases, since they do not get a feedback. If not provided a hearing aid, the child will grow up without learning to speak. This brings out the importance of environmental factors in language acquisition.

Research studies have shown that when parents are sensitive to the child’s speech and respond to her utterances, the child’s language develops. A rich language environment leads to better speech development. You know that children living in institutions generally show lower levels of language development compared to children in families. A positive emotional relationship with the parents helps the child to feel secure and lays the foundation for language acquisition.

From this discussion it is clear that the child must be maturationally ready to learn to speak and must get opportunities for hearing and practising speech. Let us now read how adults and older children help the infant in acquiring language, especially during the first year of the child’s life.

Role of the Caregivers: Caregivers, whether adults or children, keep their language simple when they are talking to infants, especially those only a few months old. They use short and simple sentences, speak in an exaggerated manner and do not use pronouns like ‘I’ or ‘you’ since these are difficult for the infant to understand. Adults call out the child’s name rather than saying ‘you’ and call themselves ‘mummy’, ‘daddy’ or ‘aunty’ rather than ‘I’. They also produce nonsense sounds, i.e. those which have no meaning, but which the child delights to hear. They respond to the child’s cooing and babbling by talking to her, imitating her and encouraging her. Most of this modification in the way of talking is instinctive. Caregivers also see what type of speech the infant responds to most and then use that in their interactions.

When the infant is around 4-5 months of age, the caregivers begin to show them toys and household objects. While showing these they refer to them by their names and describe them a little. Siblings delight in such activities with the baby and are untried in their efforts to attract her attention to an object. By 6-7 months the infant also begins to point at objects, picks them up and shows them to people. This increases the interaction between caregivers and the child. By the time the infant is 7-8 months old, the family members also begin to talk about what is going on around the child. They refer to their own actions and the actions of the child. While walking with the infant on the road the father, on seeing a fruit seller, is likely to say: “Banto look! Bananas! See, there! Banto, eats banana everyday, don’t you? It tastes good, mm......?” While bathing the infant, her sister is likely to talk to her: “Now Meena will have her bath......Oh! Hol. The water is too hot! Didi will mix cold water in it.”
Thus in a normal environment, the child is continuously surrounded by people who talk to each other and her. The infant picks up new words from the context in which they are spoken and in this manner her language develops.

Lullabies and songs are a delightful part of the caregiver-child relationship. There is hardly any one of us who grew up without hearing them. Some of the songs refer to everyday events like eating, bathing and sleeping. Some of them are about myths and stories. Infants enjoy the rhythm of the lullabies greatly. In addition, they also learn new words.

In this way, by 6-7 months the infant begins to recognize the sound and meaning of commonly used words. The infant is able to understand language not because she understands all the words that we use. She may understand one or two words but she relies on the gestures used, the tone of the voice and the context in which they are spoken. When the father says: “No, don’t touch that!” the child is able to understand because he points to the forbidden object, shakes his head and raises his voice to convey anger or anxiety. This brings us to another aspect of language development that we must keep in mind. At any age the child is able to comprehend more than she is able to speak.

When children are around 9-10 months of age, parents and relatives begin to play language games with them. They say a word like “bye-bye” and encourage the child to reproduce it. They also teach her to wave by showing her the gesture.

Increasing competency in language helps the baby to interact with more people and form relationships with them and this helps in her social and emotional development. You have seen that language helps her to learn about people and objects. Thus we see that language influences development of cognition and social relationships. This shows how development in one area influences development in other areas as well.

Check Your Progress Exercise 2

Answer the following questions briefly in the space provided below.

1) What are the aspects that establish a biological basis for language acquisition?
2) How can we say that the development of language is influenced by environmental factors?

3) List four ways in which caregivers help the infant to understand and acquire language.

9.5 SUMMING UP

Language is a system that consists of symbols (i.e., words) that stand for particular objects, relationships, actions and feelings. Through language we can transmit and understand an infinite variety of messages. Language helps us to communicate with each other and relate socially to people. It aids in the development of thought and plays an important role in perception and memory.

Every normal human child learns her native language during the course of growing up. To learn a language, the infant must be able to discriminate between various speech sounds and she is skilled in doing so from the time she is born. We have an inborn tendency to learn the sounds of human language. The stages of language acquisition are universal. However, there are individual differences in the ages at which each child reaches a particular stage. Initially the baby communicates through crying. By one month of age she begins to make cooing sounds. Babbling is common between six and ten months and the infant utters her first word around her first birthday. She is, however, able to understand quite a few words before this period. The infant relies on the gestures of the adults, their expressions and the context of the situation to understand what they are saying. The infant is skilled in turn-taking—a prerequisite for any dialogue between people.

As in any other aspect of development, the biological and environmental factors continuously interact to influence the development of language. Caregivers play an important role in helping the infant acquire language. They keep their language simple while talking to her and use an exaggerated tone while speaking. When the infant is around 4-5 months old, they show objects to her. When she is around 7-8 months old the adults begin to comment about what is going on around her. A little later they encourage the infant to pronounce words. In this way, the infant learns to recognize the sound and the meaning of words and acquires language.
9.6 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) a) Language is a system that consists of symbols that stand for particular objects, relationships, actions and feelings and through which we can transmit and understand a large variety of messages. Language enables us to communicate with each other, relate socially to people and also helps in the development of thought, memory and perception.

b) Newborns are most responsive to the sound of human voice. They like to hear speech sounds over non-speech sounds. By three months of age, the child has understood that speech sounds are related to the speaker's lip movements. They can also associate a particular voice with a particular face. This shows that the child has an inborn sensitivity to human speech.

c) Cooing is a vowel-like sound, particularly like “ooo...” which babies produce around one month of age. When infants combine vowel and consonant sounds like “ma”, “da”, “ki” and repeat them over and over again to produce “mamama”, “dididi”, it is called babbling.

2) a) Correct
b) Correct
c) Incorrect. The speech of humans is varied and creative.
d) Correct
e) Incorrect. Turn-taking can be seen soon after the baby is born, during the time she feeds.
f) Incorrect. Crying is the earliest form of communication used by the infant.
g) Correct
h) Correct
i) Correct
j) Correct
k) Correct

3) The stages in language acquisition during the first year are:

- crying — from birth onwards
- cooing — one month of age
- babbling — from 6 to 12 months
- first words — around the first birthday

Check Your Progress Exercise 2

1) The three aspects that point towards the biological basis for language acquisition are: the human body is equipped for the purpose of speaking, hearing and understanding language; newborns are most responsive to the sound of the human voice; there is a universal sequence in language development.

2) The role of environment in language acquisition becomes clear when we consider the following facts. No child can learn language till she hears it being spoken. Each child learns the language she hears and she speaks it the way she hears it. Children living in institutions tend to show lower levels of language development. When caregivers stimulate the child, her language development is fostered.

3) i) The caregivers keep their language simple when talking to infants.
   ii) They show and describe objects,
   iii) They comment about what is going on around the child.
   iv) They also play language games with the infant and encourage her to speak.
UNIT 10 SOCIO-EMOTIONAL DEVELOPMENT: THE EARLY RELATIONSHIPS

Structure

10.1 Introduction
10.2 The Early Interactions
   10.2.1 Behaviours of the Caregivers
   10.2.2 Abilities and Behaviours of the Infant
10.3 Development of Attachment
10.4 Learning to Trust
10.5 Emotional Expressions
   10.5.1 Stranger Anxiety
   10.5.2 Separation Anxiety
10.6 Day Care for Children
10.7 Role of Heredity and Environment
10.8 Interrelationship among Various Areas of Development
10.9 Summing Up
10.10 Answers to Check Your Progress Exercises

10.1 INTRODUCTION

In Unit 7 we had briefly touched upon the socio-emotional aspects of the infant's development where there was a mention of love and nurturance as essentials of care. You are aware that the term 'social' refers to that aspect of development concerned with human interactions. In early social relationships, emotions such as love, delight and distress come into play. These two aspects of development, social and emotional, generally occur together and are studied under the head of 'socio-emotional development'.

In this Unit we will read about the social and emotional experiences of the child up to one year of age. How does the infant form a relationship with the parents? Why is a supportive and well-adapted relationship between the child and parents important? When does the infant show an interest in other children? How does the baby learn to trust others and communicate her affection towards them? You will read about such aspects in this Unit.

Objectives

After studying this Unit, you will be able to

• describe those behaviours of the caregiver and infant that promote social interaction and attachment
• Explain how the attachment bond forms between the caregiver and the infant
• understand the importance of developing trust in the caregivers
• state the meaning of terms 'stranger anxiety' and 'separation anxiety'
• describe the emotional expressions of the infant
• describe how heredity and environment influence social and emotional development.
10.2 THE EARLY INTERACTIONS

The newborn needs consistent care and nurturance from a person if she is to survive. She communicates her feelings and needs to the people who look after her and, in turn, reacts to their responses. It may seem surprising that an infant who does not talk and may not even smile in the first few weeks has social skills to interact with people. The adults too must be able to attract the baby's attention and they do so effectively. **Thus the caregiver and the infant have behaviours that will help them in interaction with each other and enable them to develop a bond with each other.** Let us read about these behaviours in detail.

10.2.1 Behaviours of the Caregivers

Most of us display specific kinds of behaviour while interacting with infants. These behaviours usually bring forth a response from the baby. Even children as young as four years of age seem to know how to attract a baby's attention.

**Physical Contact:** Infants and older children have an inborn need for physical contact. In fact, touch is crucial in the development of the emotional bond between the caregiver and the child. Babies must be held not only in the course of routine feeding, bathing and changing clothes, but also be picked up and cuddled for sheer pleasure. When the mother holds the infant in her arms, the baby feels secure. This can be seen clearly from the infant's behaviour. She may get frightened by a loud noise when alone, but remains undisturbed by a similar noise when in the arms of the mother.

**Speech:** When we talk with the infant, we tend to use 'baby talk'. This is a very specific form of speech not used with an older child, say a two-year-old. Baby talk has very short sentences, simple words, certain modulations of voice and nonsense sounds such as clucking noises. You must have observed that even children as young as four and five years old use baby talk with the infant. This type of utterance delights the infant and she usually responds by cooing or babbling. As you know, such an interaction helps to build an emotional bond between the infant and the caregiver.

**Smiling:** A smile initiates a social relationship. We smile when we wish to communicate warmth, acceptance and recognition. Most people smile when communicating with the infant, even if she does not smile in return. Gradually, the smile of the caregiver becomes a signal for the infant to smile back, to express delight and to begin cooing and babbling.
Facial Expressions: Almost all adults and children while interacting with the baby exaggerate their facial expressions. Sometimes they show mock-surprise by raising the eyebrows, wrinkling the forehead, opening the mouth and smiling widely. The baby usually smiles at this expression. At other times, the adults show mock-anger or pleasure. When not wanting to communicate with the infant, they keep their expression neutral. The child learns to discriminate the various emotional expressions and to understand when the adult is intending to maintain, end or avoid a social interaction.

Gazing: While talking to a person we normally look at him or her. Looking away from the person may be a signal that we wish to terminate the contact. This eye-to-eye contact is the basis of all direct communication. Caregivers normally gaze at the infant while interacting with her and while taking care of her routine needs. Initially the infant may look at the mother only occasionally and is able to hold her gaze for only a few seconds. Gradually, she is able to look at her for longer periods. This mutual gazing is most important in establishing a link between the two and is one of the first forms of socio-emotional interaction.

You know that the newborn sees things most clearly when they are at distance of eight to ten inches from her face. The distance between the infant's eyes and the mother's face during feeding is usually about eight inches. Most of us while playing with the baby maintain this distance. Thus it seems that our natural posture and body movements help in developing an emotional bond with the baby.

Movements and Rhythms: When we play with an infant we nod, shake our head from side-to-side or bring it forward. These head movements serve to maintain the attention of the infant. During a game of 'peek-a-boo' with the baby, the mother hides her face behind her hands and then uncovers it again. This is one of the all-time favourite infant games played by caregivers across cultures.

Some sounds and movements that caregivers make are soothing to babies, probably because they are like the movements they experienced in the womb. You may have noticed that people in most cultures usually hold the baby on the left side. In this position the baby can feel the beat of the heart—a rhythm which she has heard in the womb—and usually calms down if she is crying. Rocking, swaying and similar rhythmic motions are also soothing to her. When the baby is soothed, it is gratifying for the mother. She feels that she is handling the infant well. This strengthens her affectionate feelings towards the child.

Thus you see how the behaviours of the adults contribute towards developing a social relationship and an emotional bond with the infant.

Check Your Progress Exercise 1

1) List in the space provided below the six behaviours of caregivers that help in attracting the infant's attention and serve to maintain social interaction.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

2) Read the following statements carefully and indicate in the brackets whether they are correct or incorrect.

a) We do not exaggerate our facial expressions while talking to the infant. (   )

b) Rhythmic motions are not soothing to the baby. (   )

c) Adults as well as children tend to use 'baby talk' when talking with infants. (   )

d) Looking at the different expressions on the caregiver's face, the infant learns to discriminate various emotions and to understand when the adult is intending to maintain, end or avoid a social interaction. (   )

e) The mutual gazing of mother and child is one of the most powerful means of establishing contact. (   )
10.2.2 Abilities and Behaviours of the Infant

We have just discussed how caregivers devise ways of communicating with infants. Infants also initiate behaviour to make social contact. These are gazing, crying, smiling, babbling and imitation. Besides these, the infant's sensory abilities also help in interaction. Let us read about the abilities and behaviours of the infant that help her to develop a relationship with people around her.

Sensory Abilities

You have read about the sensory capacities of the newborn and the infant in Units 7 and 9. Let us see how they help in social relationships. You know that the newborn is responsive to the human voice and can tell her mother's voice from other female voices as early as the first week of life. A crying baby often becomes calm at the sound of the parent's voice, particularly the mother's, without even being picked up. Because of this ability of the infant to attend to speech, adults use speech as a means of attracting the infant's attention successfully.

The infant's visual skills also help her in social interaction. You know that babies like to look at the faces of people. Gazing, as you know, promotes social interaction. Gradually, the infant learns to discriminate the mother from others on the basis of her face, smell and sound and reacts differently to her than to other people. The infant's ability to recognize the parents is very important from their perspective. It makes them feel that the infant is responding to them specifically. They feel loving towards the child and this, in turn, strengthens their nurturing and caregiving activities. Gradually the infant begins to recognize her grandparents, brothers and sisters and other people in the house. There is an increase in the number of people she knows.

You know that by six months of age, most infants are able to discriminate the different emotional expressions such as delight, anger or fear. This emerging ability of the infant is important for two reasons. Firstly, by looking at the parent's face she is able to make out their reaction to an object, event or person and this helps her to judge its value, importance and desirability. You would have seen, for example, when the infant is offered a new toy, she usually looks at the mother. If her expression conveys fear, the infant will leave the toy and move towards her. Secondly, by learning to understand facial expressions, the baby is beginning to interpret movements and expressions. One of the first tasks in social interaction is to understand what people are thinking and feeling. By discriminating the different expressions of the face, the infant is acquiring the important skill of 'reading' people. Through her interactions in the early months, she strengthens and develops this skill further and is able to respond to subtle cues.

Behaviours

Let us now read about the infant's behaviours which also play a very important role in attracting adult attention and prolonging it.

i) Gazing and Smiling: You have read that when the newborn begins to fix her gaze on the face of the caregiver, a relationship develops between the two. The infant practises eye-to-eye contact from the first week of life.

We are all familiar with the sight of a newborn smiling in her sleep. This type of smile is in response to the brain's internal activity. During the first month the infant also smiles if she hears high pitched sounds. These smiles are not directed at people and are not necessarily indicators of warmth or social awareness.

It is between two and a half to three months of age that the infant begins to smile at people. Smiling, like crying, is an early means of communication. Now the smile becomes social, i.e. a human face accompanied by human voice causes the infant to smile. In the beginning, babies smile readily at the sight of all human faces—familiar or unfamiliar. Then they smile more at familiar than at strange faces. The baby's social smile accompanied by gazing is pleasing to the
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caregivers. They feel contented and proud and increase their protective behaviours towards her. They smile back, talk to and cuddle the infant. In fact a serious, irritable baby may not evoke the same attention from adults. When the adults smile and gaze in return to the infant’s smile, it tells her that she can have an effect on people. Thus long before the baby can talk, she has discovered a means to communicate. She has learnt that a smile can get her many things—cuddles, talk, play or a toy.

ii) Crying: Crying is the main way by which the infant attracts help and care. Crying brings the adult to her side more quickly than any other behaviour. Depending upon what the caregiver thinks the child needs, she may feed her, change her dress or pick her up.

Early in life babies cry mainly when they are hungry or wet or in pain. Later, by about six months of age, the infant uses crying as a means of directing the adults’ attention to her even when she is not in distress. She cries because she is bored and wants to be picked up or talked to. Thus she uses crying to elicit a social response from the caregivers. By one year, the total amount of crying decreases by almost fifty per cent of what it was at three months. This gives the infant and parents more time for positive social behaviours such as gazing, smiling, babbling and imitation.

Responding to the infant’s cry is important because it helps to foster a feeling of trust in her. The child feels sure that if she is in distress somebody will come to her. This helps her to develop a sense of trust. Parents who are sensitive and responsive to the child’s crying have children who cry less. You will read more about the development of trust in the latter part of this Unit.

iii) Cooing and Babbling: Once the infant begins to coo and babble, the interaction between her and the people increases dramatically. When the baby imitates sounds, it makes adults around her want to play with her and their ‘dialogues’ become more varied.

iv) Imitation: Around one year of age, infants also imitate certain other behaviours. They may copy blinking of the eyes, certain rocking movements of the body or other gestures. When the infant mimics or copies an action, the adult produces more behaviours that the infant can imitate, thus prolonging the social interaction. Such social interactions are natural as well as healthy for the infant’s socio-emotional development. The infant is likely to imitate those with whom she has formed an emotional attachment.

The above discussion indicates that the child is prepared from birth onwards for relating to people. Communicating with people gives the infant a chance to practise and refine social skills she already has and to develop new ones. After having read this section can you identify the social skills the infant displays? They are—turn-taking, smiling, recognizing people and understanding the meaning of facial expressions and body movements.

Check Your Progress Exercise 2

1) Answer the following questions briefly in the space provided below.

a) How do the infant’s sensory abilities aid in social interaction and help her to form a bond with caregivers?

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b) List the social skills that the infant acquires and refines during the first year of life.


c) How does being able to discriminate the different emotional expressions on the caregiver's face help the child?


2) Read the following statements carefully and write in the brackets whether they are correct or incorrect:

a) When the infant gazes at the mother, the latter feels strongly affectionate towards the child and this strengthens the emotional bond between them. ( )

b) It is not important to respond to the child's cry. ( )

c) The social smile emerges at one month of age. ( )

d) The infant's smile accompanied with her gazing is very effective in maintaining contact with adults and in promoting social interaction. ( )

e) The infant's babbling and her ability to imitate usually bring forth a response from adults. ( )

10.3 DEVELOPMENT OF ATTACHMENT

In the earlier section we have spoken about the behaviours and the abilities of the infant and the caregivers that help them in interacting with each other. But how does a relationship between the infant and the caregiver actually develop from day to day? Let us read about this aspect now.

From the first time the mother holds the baby and gazes at her, a communication begins between the two. In fact, it is believed that an initial bond may be formed between them in the first few hours after birth, since many newborns are alert and can make eye contact in this period. This also gives a sense of well-being to the newborn. It is generally recommended that the baby be given to the mother immediately after birth. Subsequently, during the caregiving activities of feeding, bathing and putting the baby to sleep, their relationship strengthens. But what is it about these caregiving activities that promotes attachment? Let us look at the interaction during a typical feeding situation to understand this.

When the baby is hungry, the mother picks her up and feeds her. The infant feels the touch of the mother's body and hears her voice. Before and after feeding, the mother talks to the baby, plays with her and tickles her. Thus along with satisfying the infant's hunger, the mother also provides physical contact and social stimulation (by smiling, talking and playing) which is the basis for developing mutual affection. Through similar interactions every day, an affectional bond, called attachment, forms between them. Attachment is an emotional bond between two people and, in this case, refers to the bond between the mother and the infant. Infants become attached to people who take care of them. In most cases it is the mother who primarily looks after the baby and the infant usually becomes attached to her. This is the infant's first social relationship.
If the feeding situation is not warm and pleasant, attachment to the caregiver may not occur. If the mother is tense, holds the baby awkwardly or handles her roughly, the baby will associate discomfort with the mother's presence. When such painful experiences occur often, the infant may become anxious during feeding time. If other experiences of the baby with the mother are also not happy, she will become irritable. You have read about children living in institutions. Their physical needs are generally fulfilled but emotional interaction with adults is missing. You know that in such cases children are not able to form attachments. Thus we see that attachment is a two-way process and the behaviour of the infant and the caregivers contribute towards it.

At this juncture it is important to restate one point. The infant does not form an attachment with the mother simply because physical needs are met. More important than this is the close contact with the mother and the social stimulation that creates an emotional bond. Parents who consistently respond in a loving and nurturing manner to the child seem to make the child feel emotionally secure. Such parents are warm in handling babies—they smile more often, touch the infant lovingly and use their voices in expressive ways. In contrast, when caregivers avoid the baby, do not initiate physical contact and are inconsistent in their responses (at times loving and at times avoidant), the child does not form a secure attachment.

How do we know that an attachment exists between the infant and the adult? Infants show their attachment to people by seeking their attention and by trying to gain their approval and affection. They become upset when separated from those they love. They approach these adults for comfort when distressed and are soothed by them. Infants also look to these people for encouragement, smile more at them and explore their surroundings confidently when these people are present. In a new situation or when confronted with a new object, the child first looks at the adult, with whom she has developed attachment, to see how she is reacting, i.e. she uses this person for clues about a new situation. A secure infant smiles more, cries less, is ready to explore and does not cling to the mother fearfully all the time.

Attachment to the Father: In the Unit while describing the emotional relationships, we have spoken mostly about the mother. In general, the mother is the most important person in the infant's life. But what about the father? The father has an equally important role to play. He is just as capable of caring for the baby as the mother—he can be just as nurturing, responsive and sensitive. If the father interacts with the baby right from birth and spends time playing with her and looking after her, the baby develops strong emotional bonds with the father as well.
Forming More Relationships: After this first strong bond with one or two persons, the baby gradually forms more relationships. By the end of the first year, she forms emotional bonds with other people in the family such as grandparents, sisters, brothers, aunts and uncles—all those persons who play an important role in caring for her. If there are children around, those a few years older than the infant will get along with her much better than those close to her age. The older ones will be tolerant of her, while her agemates would be unable to play cooperatively. Older children play with the infant readily and delight in doing simple caregiving activities.

When the infant receives nurturant care from several caregivers apart from the parents, she also learns to trust other people early in life. Socially she has a wider sphere of familiar individuals and this has a beneficial influence on her social development.

10.4 LEARNING TO TRUST

The reason why we have spoken about attachment in detail is that it is important for the infant to form a secure attachment with the primary caregiver. When the child experiences affection consistently, she develops a feeling of trust. Developing trust and a sense of security is important since it influences later behaviour to a considerable extent. Let us see how.

Firstly, an infant who has experienced a warm relationship with her caregiver in the first year of life, is likely to view other adults she comes in contact with later as safe and friendly. Such a child finds it pleasurable to interact with people and forms emotional ties with them. Research has shown that securely attached infants are more social during preschool years and are more popular with peers. In contrast, an infant who is unable to form a secure attachment with the mother in the first year of life begins to mistrust people. Since her first relationship has not been a rewarding one, she may feel that other adults will also cause her distress. The feeling of mistrust in the primary caregiver generalizes to other adults. Research has shown that when children did not experience normal love and affection in the first few years, particularly in the first year of life, they withdrew from social interactions, found it difficult to relate to people and sometimes were unable to form emotional ties at all. Of course, a person needs to form close relationships throughout life, but the relationship with the primary caregiver is particularly important. It has a lasting effect on one's social and personality development.
There is a link between early experiences and later behaviour, but there are individual differences in how children are affected by early experiences. Some children may be more affected than others by the lack of love in early years. However, human beings are resilient, i.e. they can recover from unpleasant experiences or deprivations. It may happen that an infant abandoned early in life may be recompensed by consistent warmth and care later on. In such a case, there may be no permanent damage to the personality.

**Secondly, developing trust influences the child’s exploratory behaviour and the quality of play.** We are all familiar with the sight of an infant moving towards an unfamiliar object. She picks it up, examines it and takes it back to show it to her mother. But this exploration requires considerable courage. The infant has to move some distance away from the mother and it is possible that the new object can cause harm. She is aware of this but she still moves towards it because she trusts the mother and uses her as a ‘safe base’ from where to explore the world. Infants who feel secure will play away from the mother, glancing at her once in a while to make sure she is still there. Later, they will go into another room or into the open, away from her physical presence.

By contrast, the infant who has not developed trust feels insecure and is fearful of new situations and events. When the mother is not consistent in her care of the child, the child is not sure whether she will come to her help. She does not venture or try out new things; instead she clings to the mother. It has also been observed that infants with secure attachment have higher self-esteem and show less aggressive behaviour during the preschool years. They also show more empathy towards other adults and children. Secure or insecure attachment thus has long-term impact on the child’s personality.

Once the infant begins to move around, she is often into places that are dangerous and picks things that are harmful for her. She has to understand that some things are forbidden. She may get into a rage when you prevent her from doing something she wants to do. It is better to discipline the baby gently through mock-anger and verbal explanation. Hitting or slapping her is harmful. For example, if the infant insists on going out of the door, you could say “no” first, shut the door and try to distract her. As a last resort you could look angry. The baby is likely to get the cue.

**Check Your Progress Exercise 3**

1) Read the following statements carefully. Each of them is incomplete. Along with each statement two or three choices have been given, of which one is most appropriate. Tick (✔️) the appropriate answer to each statement.

i) Attachment between the mother and the infant is a consequence of
   a) feeding the baby, bathing her and looking after her other physical needs.
   b) talking, smiling, gazing, playing and holding the baby as well as fulfilling her physical needs.

ii) If the mother is tense while feeding the baby, holds her awkwardly or handles her roughly
   a) the infant will connect comfort with the mother’s presence and form an attachment to her.
   b) the infant would connect discomfort with the mother’s presence and would become anxious and irritable.

iii) When the infant becomes attached to a caregiver she
   a) becomes happy when she is separated from the caregiver.
   b) explores the surroundings confidently when the caregiver is around.
   c) does not smile at the caregiver and does not seek her affection.
iv) Receiving nurturant care from several caregivers apart from the parents may have
   a) a harmful influence on the infant's social development.
   b) no influence on the infant's social development.
   c) a beneficial influence on the infant's social development.

v) An infant who does not form a secure attachment with the primary caregiver
   a) finds it pleasurable to interact with people.
   b) learns to trust people.
   c) may feel that all adults are to be avoided and withdraws from social interaction.

2) What do you understand by the term 'attachment'?

3) Why is it important for the infant to develop a feeling of trust in the primary caregiver?

10.5 EMOTIONAL EXPRESSIONS

While adults have a variety of emotional expressions, this is not so in the case of infants. In fact, the newborn does not have clearly differentiated emotions. In the first year of life the infant primarily shows two emotional states—delight and distress. She expresses delight by smiling or laughing. Talking to the baby, tickling, cuddling and playing with the baby are likely to delight her.

Distress is expressed mostly through crying. Unexpected loud noise or a strange object causes fear in the infant. Stranger anxiety and separation anxiety, about which you will read further, also cause distress. The baby also shows extreme anger or rage by crying out loudly, kicking her legs and flapping her arms. Anger at this age is usually expressed in response to physical discomfort. Towards the end of the year when the infant seems to be acquiring a will of her own, rage may also be expressed as you take away a toy or separate her forcibly from her mother.

10.5.1 Stranger Anxiety

Have you ever tried approaching infants between five and twelve months of age who are not familiar with you? If you have, the chances are that most would have shown fear at your approach. The typical behaviour of the infant in such situations is as follows: she studies the stranger's face for some time, then her face tightens and she begins to cry. If the stranger leaves, the child becomes quiet. The infant is showing stranger anxiety. This is a direct result of her attachment with the parents. Once attached, infants become upset on seeing an unfamiliar adult. Such anxiety shows its beginning around six months and reaches its peak between eight and twelve months, gradually disappearing between fifteen and eighteen months.
The infant is less likely to show fear of the stranger if she is with the mother. Of course, there are variations in the fear response of infants—some being very fearful, some only slightly so and others not fearful at all.

### 10.5.2 Separation Anxiety

A little after infants become aware of strangers, they begin to develop anxiety about being separated from those to whom they are attached. You would have seen that around 10 or 11 months of age many infants spend a considerable time following parents from room to room, making sure they are available when needed. As long as the parents are within sight, the infants will play and explore even in unfamiliar situations. But when separated from the parents, they get distressed. This fear is referred to as separation anxiety. It is at its peak around 12 to 18 months of age and disappears between 20 and 24 months of age.

Researchers have found certain trends in studies of infants separated from their parents. When separated for several days the infants at first cry and search for their parents. When they do not find them, they become irritable or lethargic. Later they may begin to behave like younger infants so that they start creeping even though they had learned to walk or begin to soil clothes even though they had learned bowel control. Parents who leave their 8 to 24 month-old infants with others and return, after several days or weeks may find the infants indifferent towards them. The infants appear withdrawn and may not recognise their parents. If the parents are loving, the baby once again approaches them with warmth but may be unusually demanding of their attention. Fortunately, these behaviours gradually change. The parents should handle the child with understanding and not with guilt or anger.

### 10.6 DAY CARE FOR CHILDREN

Research on day care has revealed that attending a day care centre is not harmful for the child's overall development, provided the quality of care is good. Since the foundations for later development are laid in the first few years, the creche has to provide a congenial environment. This depends on the caregivers at the centre and on the physical environment. In some creches infants are looked after by two or more caregivers, who may come to the creche in shifts. This may cause some problems. Since babies prefer known faces to unknown ones, there must not be a frequent change of caregivers in a day care centre.

Parents often have a fear that if they leave the child in a day care centre she will become more attached to the person who looks after her. But this is not true. Research has shown that infants and toddlers who go to creches are as strongly attached to their parents as those who stay at home. They always prefer their mother to any day care worker, however loving the latter may be.

### 10.7 ROLE OF HEREDITY AND ENVIRONMENT

You know that there are no genes for anger, fear, jealousy or dislike, for being friendly or unfriendly, an extrovert or an introvert. Genes affect social development indirectly. There are some temperamental differences among children which are inborn. Some infants are more irritable than others, become upset or distressed easily and are difficult to soothe. Some show a lot of bodily movement and activity and seem restless. Some children are more social than others preferring to be with people. Some cry frequently and others are calm. There seems to be some hereditary basis for this. You have read that the infant seems to be innately prepared to respond to people. Her developing sensory capacities also contribute greatly to her social and emotional development as you have read in this Unit. But it is largely her experiences (i.e., the environment) that will determine the type of person she eventually becomes. For example, if the infant does not receive love she will not be able to develop trust. Attachment develops because of interactions between the baby and caregivers.
10.8 INTERRELATIONSHIP AMONG VARIOUS AREAS OF DEVELOPMENT

In this Block we have talked about the infant's accomplishments in each area of development—physical, motor, cognitive, language, social and emotional. You know from your reading of Block 1 that each area of development influences the others and this must have become clear to you as you read the Units of this Block. Let us briefly review this.

The maturation of the sensory organs and other parts of the body (i.e., physical development) helps the child to acquire motor skills. Motor skills enable the infant to explore her surroundings and thus promote cognitive development. She is also able to do many things and to act upon the objects around her. This helps her to develop feelings of confidence, independence and positive self-esteem. Thus physical development also helps in social and emotional development. The maturation of the organs for hearing and speech enables the infant to acquire language.

The development of cognition directly influences functioning in other areas. As the baby’s thought matures, she is able to handle more and more situations by herself, which helps her to develop a positive self-concept. The acquisition of language is very closely related to cognitive development.

The influence of social development is also visible in other areas. A positive social relationship helps the infant to feel secure. Only when a child feels secure is she able to direct her attention towards other aspects of the environment. A secure infant explores, which helps her to learn and thus fosters cognitive development. A positive relationship with the caregiver is conducive for language development.

As the infant acquires language, she is able to communicate with more people and is able to do so more effectively. Her social sphere widens and she forms relationships and attachments with more people. Using language the child is able to express her thoughts, ask questions about things she does not understand and plan her actions. This helps her to learn. Language also aids in perception and memory.

Check Your Progress Exercise 4

1) Fill in the blanks in the following sentences.
   a) Stranger anxiety appears around ........ months and gradually disappears between .......... months.
   b) Separation anxiety is at the peak around ........ months and disappears around .......... months.
   c) The two emotional states that the newborn shows are .......... and .......... 

10.9 SUMMING UP

In this Unit you have read how the infant forms relationships with people in the first year of life. The infant needs care and nurturance if she is to survive. She effectively elicits care from adults. She is able to communicate and interact with them. It may be a little difficult to believe but the infant has a collection of behaviours that helps her to attract the attention of adults. She gazes, smiles, babbles, imitates and cries—all of which evoke adult response. Her perceptual skills are also adapted for social interaction.

Just as infants devise ways of communication, the adults also have behaviours that facilitate their interaction with her. The speech of the adults, their facial expressions, head movements, smiling and gazing draw the infant's attention.
Through daily interactions during feeding, bathing, playing and talking an emotional bond forms between the mother and the child. This attachment of the infant to her primary caregiver is her first emotional relationship and it has an important role to play in the child’s personality development. An infant who forms a secure attachment with the mother trusts people and forms other attachments. An infant who does not have a loving relationship with the caregiver in the first year of life learns to distrust people and avoids social contact. Another reason why it is important for the infant to develop trust is that it influences her exploratory behaviour.

An infant who is attached to a person approaches her in distress, smiles and gazes more at her, seeks her attention and becomes upset when separated from her. Towards the end of the first year, the child begins to form attachments with other people who interact daily with her such as brothers and sisters, grandparents, uncles and aunts.

In this Unit you have also read about the emotions of the infant. The newborn has two emotional expressions—delight and distress. Other emotions like fear and anger emerge during the first year. The infant shows stranger anxiety and separation anxiety.

10.10 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) The six behaviours are: speech, smiling, gazing, facial expressions, movements and rhythms, physical contact.

2) a) Incorrect. We do exaggerate our facial expressions while talking with the infant.
   b) Incorrect. Rhythmic motions are very soothing to the baby.
   c) Correct
   d) Correct
   e) Correct

Check Your Progress Exercise 2

1) a) The following aspects show that the infant’s sensory capacities help her in social interaction. Infants are responsive to human voice. They prefer to hear speech over any other sound. They prefer to look at faces of people and gaze at them. Gradually infants recognize caregivers which strengthens the emotional bond between them. They are able to discriminate facial expressions and can take turns—skills important for social interaction.

   b) The social skills are: gazing, smiling, imitating, recognizing people, understanding the meaning of facial expressions and body movements, turn-taking.

   c) Firstly, this enables the infant to check how the adults are reacting to a new object, event or a person and helps her to judge its value and importance. Secondly, she learns that body movements and expressions convey what the person is feeling.

2) a) Correct
   b) Incorrect. It is important to respond to the child’s cry.
   c) Incorrect. The social smile emerges around three months of age.
Check Your Progress Exercise 3

1) i) (b)  
   ii) (b)  
   iii) (b)  
   iv) (c)  
   v) (c)  

2) Attachment refers to the emotional bond between two people, and in this case, between the caregiver and the child.

3) Developing trust is important for two reasons. Firstly, an infant who feels secure is willing to explore. Secondly, she feels that other adults can be trusted and is willing to form relationships with them.

Check Your Progress Exercise 4

1) a) 6 months, 15 to 18 months  
   b) 12 to 18 months, 20 to 24 months  
   c) distress, delight
UNIT 11  PLAY ACTIVITIES FOR FOSTERING DEVELOPMENT

Structure
11.1 Introduction
11.2 Attitudes of the Caregiver
   11.2.1 Sensitivity
   11.2.2 Self-confidence
   11.2.3 Flexibility
   11.2.4 Child-centredness
11.3 Interacting with Parents
11.4 Skills of the Caregiver
11.5 Play Activities for Infants
   11.5.1 Activities for Infants upto Six Months
   11.5.2 Activities for Infants between Seven Months and One Year
11.6 Things to Make
11.7 Summing Up
11.8 Answers to Check Your Progress Exercises

11.1 INTRODUCTION

All of us interact with children and observe others relating to them. One learns how to pick up infants, play with them and talk to them. We usually change our style of talking when conversing with children. We bring ourselves to their eye level and speak in simple sentences. However, caregiving is a complex task and one must have the appropriate knowledge and skills to be able to foster the child's development. One must know the milestones of development and the abilities of children at different ages, so that one can plan age-appropriate play activities for them. Such knowledge is helpful for the parents as well as for the worker in a preschool or a creche. For the latter, such an understanding is particularly important because she is substituting home care for a large part during the day and has a responsibility towards the children and the parents. If some aspects of care, such as stimulating experiences or immunization, are neglected at home, then the worker must compensate for them. If the worker is a sensitive person, the parents will feel confident about leaving their child with her.

The first part of this Unit describes the skills and the attitudes that a person working with children of any age group must have. It will help you to identify the attitudes and skills you have and will also make you aware of the ones you need to develop. The discussion in this section holds true for caregiving to children of all age groups and is not specific for infants only.

The second part of the Unit focuses on the play activities for children up to one year of age. The type of play activities will vary with the age of the infants.

Objectives

After studying this Unit, you should be able to

- describe the attitudes which will enable the caregivers to take proper care of children
- state the skills that caregivers need to have
- select play material for infants
- plan and conduct play activities for infants
- make some simple play material for infants.
11.2 ATTITUDES OF THE CAREGIVER

A well-rounded personality is essential for proper caregiving. One needs to be sensitive and confident as well as flexible and child-centred. Let us read how these attitudes help in caregiving.

11.2.1 Sensitivity

A sensitive caregiver is aware of the needs of children and understands why a child is behaving in a particular way. She realizes, for example, that the child is irritable, hungry, in pain or feeling neglected. She understands that if the usually active four-year-old is listless, there is a reason for it. In other words, she is responsive to the child's feelings and the cues they give. By attuning to the child, the caregiver can take advantage of those moments when the child is alert, responsive and sociable and provide learning experiences. This leads us to the next point.

A sensitive caregiver knows that each child is unique and has a distinct personality and must not be compared with others. She accepts children as they are and gives equal attention to all. When the worker is looking after many children, it is possible that she may like some more than others. But these preferences must not affect her behaviour. She should not neglect the more difficult children. Each child must get an equal opportunity for learning and interacting with her.

A sensitivity towards children enables the caregiver to feel with the children and understand their pain and pleasure. In other words, she has empathy. This is especially important because it makes the children feel that the caregiver understands them and likes them. Children can sense feelings of warmth by the way the caregiver holds them, responds to and communicates with them. The caregiver's actions and behaviour should communicate her acceptance of children. If they do not feel secure with her, she will not be able to help in their development effectively.

Individual differences in development lead to different skills among children. This has implications for organizing play activities. Ideally, the caregiver has to plan activities that are suitable for each child. This may become difficult in a large group of children, but with imagination and forethought, the caregiver can so devise play activities that each child's needs are met. We will come back to this aspect in Block 7.

11.2.2 Self-confidence

Imagine a person who does not have confidence in herself and panics in a crisis. How well do you think she will be able to look after children? Only if the person is relaxed and free of anxieties will she be able to devote attention to her work and to children. She will be able to handle problems effectively and take appropriate decisions. A confident caregiver interacts with children in a relaxed manner, hugs them spontaneously and spends time with them. Her confidence in handling situations and her sense of security is communicated to the children through her behaviour. In such a setting, children eagerly explore their surroundings.

11.2.3 Flexibility

Flexibility means being open to suggestions, spontaneous, and willing to change one's plan of work and style of care to suit children's interests and needs.

Children have their preferences, likes and dislikes. It is possible that they do not like the play activity that the worker has planned for them and want to do something else. She must not be upset by this, but rather try to find out what interests the children. The preschoolers will enthusiastically voice what they want to do. The worker must be open to their suggestions.

In other words, while there should be a structure to what a caregiver will do with children, within this structure there must be openness. The main aim should be to
allow freedom to children to explore their environment and express themselves. It requires careful planning to keep a structure to one's plan of the day and yet be flexible. We will discuss this principle of planning in greater detail in Block 7.

11.2.4 Child-centredness

A caregiver must become child-centred. This means that her plans and activities should be centered around children's abilities, interests and needs. Being child-centered also means that the play activities planned are appropriate for children. A person who is child-centred is sensitive and flexible as well.

The caregiver should not feel hostility or depression while interacting with children. She needs to have patience. She must display positive feelings and have a cheerful outlook towards her own role. She must share children's joy in their accomplishments and listen to them, thus providing emotional and physical closeness. By respecting the children she will make them feel comfortable, confident and important.

Toys and play materials should be given to children without undue concern about breakage. You may have noticed that many parents buy expensive play material for their child but do not allow her to touch them. It would be better to buy inexpensive toys or make play material at home. During play and exploration children are bound to make the place untidy or spoil their clothes, but the caregiver must not stop their play just to avoid cleaning up later. The fun that children derive from such play should be valued more. While playing in the garden, the child is likely to want to dig with her hands. In the process she will definitely get dirty. But she will also derive pleasure out of this as well as learn from it. In other words, children should not be kept tidy at the cost of their need for exploration. They should be allowed to play as they like, as long as they do not harm themselves. Any cleaning up should be done at the end of the activity. Of course, one can ask the children to help in this task.

11.3 INTERACTING WITH PARENTS

The day care worker or preschool worker must maintain contact with the child's parents. If there is good communication between the workers and parents, they can work together as a team for the child's benefit. By learning about the child's behaviour at home the worker will be able to understand the child better. The parents are able to take better care of the child by knowing the activities of the centre.

To interact successfully with parents, the worker needs to be a good listener. The parents may want to share information about the child and discuss their parenting. The worker at such times should not give directions to parents but rather make suggestions to them. As a worker one must remember that one is only supplementing the role of the parents and not competing with them for the child's affection. Becoming possessive of the child will harm the relationship between the parents and the caregiver. You will read more about this aspect in Block 7.

The worker must also have a good relationship with other workers in the centre. Unpleasant relations among the adults disturb the child as well.

11.4 SKILLS OF THE CAREGIVER

In addition to having the right attitudes, the caregiver must also have the skills to do her tasks efficiently. Let us see the tasks that the caregiver has to perform and the skills that are needed for these. Table 11(a) helps to identify them.
<table>
<thead>
<tr>
<th>Essential Tasks</th>
<th>Knowledge</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Keeping the</td>
<td>1) How to keep the environment safe and clean</td>
<td>1) Identifying unsafe objects and materials in the environment such as sharp things, furniture, etc.</td>
</tr>
<tr>
<td>surroundings safe and healthy</td>
<td>2) First-aid</td>
<td>2) Selecting safe material and places for children's activities</td>
</tr>
<tr>
<td></td>
<td>3) Preservation and storage of food and water</td>
<td>3) Ensuring sanitary conditions in use of food and water</td>
</tr>
<tr>
<td></td>
<td>4) Basic rules of health and hygiene</td>
<td></td>
</tr>
<tr>
<td>2) Physical care of children</td>
<td>1) Health and nutritional needs of children in different age group</td>
<td>1) Bathing and dressing babies</td>
</tr>
<tr>
<td></td>
<td>2) Feeding and weaning practices</td>
<td>2) Bottle feeding infants as per their individual needs</td>
</tr>
<tr>
<td></td>
<td>3) Bathing and toilet practices</td>
<td>3) Preparing weaning foods and feeding infants</td>
</tr>
<tr>
<td></td>
<td>4) Sleep patterns and habits of children</td>
<td>4) Measuring children's growth using growth charts</td>
</tr>
<tr>
<td></td>
<td>5) Appropriate clothing for children</td>
<td>5) Attending to toilet needs, responding to cues for elimination</td>
</tr>
<tr>
<td></td>
<td>6) Medical referral services</td>
<td>6) Identifying sick or under nourished children.</td>
</tr>
<tr>
<td></td>
<td>7) Care required during diarrhoea and fevers</td>
<td>7) Selecting appropriate food for children</td>
</tr>
<tr>
<td></td>
<td>8) Immunization schedule</td>
<td></td>
</tr>
<tr>
<td>3) Meeting the</td>
<td>1) Principles of growth and development</td>
<td>1) Planning a day's programme to meet needs of children</td>
</tr>
<tr>
<td>stimulation and emotional needs of children</td>
<td>2) Milestones/norms in development</td>
<td>2) Organizing activities for motor, social, emotional language and cognitive development of children</td>
</tr>
<tr>
<td></td>
<td>3) Appropriate play and interaction activities for promoting development of children in all areas</td>
<td>3) Utilizing local resources—material and human—to enrich the programme</td>
</tr>
<tr>
<td></td>
<td>4) Parent guidance</td>
<td>4) Identifying children with special needs using simple criteria based on development norms/milestones</td>
</tr>
<tr>
<td>4) Maintaining Records</td>
<td>1) Significance of attendance</td>
<td>1) Keeping attendance records</td>
</tr>
<tr>
<td></td>
<td>2) Significance of health/growth records</td>
<td>2) Entering health and immunization information in records</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Maintaining growth charts</td>
</tr>
</tbody>
</table>

### 11.5 PLAY ACTIVITIES FOR INFANTS

Before we describe play activities, let us read about selecting play materials for children. The toys and other play material do not have to be expensive. Bottle caps, boxes, twigs, shells, pieces of paper—things considered waste—are equally interesting for children. Using material that is easily available in the house, we can make attractive play objects. Dolls, rattles, masks or puppets can be made from such material with little effort.
It is important that the play material is appropriate to the age of the child. If this is done, the play activity becomes meaningful for the child as it suits her abilities.

The usefulness of the play material increases if it can be used with children of different ages. To illustrate, bottle caps of different colours can initially be used for the one-year-old as material to pick up, hold and manipulate. Four-year-olds would enjoy sorting these caps into groups based on colour and shape. Similarly, wooden blocks can be used to make a tower, build a house or be arranged as a railway track. They can also be used to impart concepts of shape, size, number and colour. Other play materials which can be used are beads, stones, ropes, tyres and balls.

The toys should be attractive. They should be bright and should have contrast. They should be easy to manipulate and handle. Toys that can be inflated with air, balls made of cloth and paper or wooden toys with strings so that they can be pulled, puppets and dolls made from colourful rags are examples of things children find attractive.

While buying or making play material one must ensure that they are safe for children. The following criteria must be given special attention while selecting the play material.

- The toys should be big enough so that the child does not swallow them or put them in her nose or ears.
- The play objects should have rounded and smooth edges instead of being sharp.
- Since infants tend to mouth objects, the material used for making the toys should not be poisonous. The paints used for colouring the toys should be non-toxic. In case of cloth toys, the colour of the cloth should be fast. Toys made of metal should not be given to younger children.
- The toys should not break easily. They should be sturdy to stand banging, chewing and squeezing.
Let us now read about the play activities for infants below one year of age. These are based on their abilities, which increase and become more complex as they grow. The play activities described in this Unit, therefore, progress from simple to complex. The period of one year has been divided into further age groups and suitable activities for each age group have been described.

The play activities about which you will read in this Unit are simply examples of what can be organised for infants. Using these activities as guidelines, you can plan other activities. These play activities are not intended to test the infant's abilities. They will be fun for the infant only when the caregiver also enjoys them. When the caregiver is tense, she is not a good playmate.

The activities described in the sub-section that follows will help the infant to develop basic skills like coordinating the movement of the eyes and the hands, focusing the eyes and differentiating between objects. Through these activities the infant will gradually find out about the objects around her and know what she can do. The playful interactions with the caregiver during the activities will help her to form relationships. In other words, the activities will give the infant opportunities to practise the abilities she has and acquire new ones.

**Check Your Progress Exercise 1**

1) Write briefly in the space provided below what you understand by the following terms.

   a) Sensitivity

   b) Self-confidence

   c) Flexibility

   d) Child-centredness
2) What are the criteria that you will keep in mind while selecting play material for children?

11.5.1 Activities for Infants upto Six Months

The first year is a period of rapid development. Being with others and seeing and hearing them around her help the infant to learn. The play activities in this period must focus on development of sensory capacities and strengthening of motor skills.

After birth, the neonate has to adjust and adapt to her new environment and she sleeps most of the time. Hunger, pain and being wet are uncomfortable to her. The most important need of the neonate is comfort and the response to the baby's cries must be prompt so that she develops a sense of trust in the surroundings and people. Cradling, patting, cuddling, swaying and gently rocking and bouncing the baby give her pleasure and comfort. Talking and singing softly to the baby soothe her. When we hold the baby, gaze and smile at her, she receives a message of warmth and caring.

If possible ensure that the baby is nearby when you are doing some work, so that you can respond to her promptly. Many mothers tie a string to the baby's cradle and pull it from time to time as they work.

In the first month, the infant does not need toys and games. After the first month or two, she spends more time awake and is active. You can now plan some play activities for her. You know that infants track the source of sound. Try the following activity with the infant. Use objects like a spoon and a bowl, a rattle or bangles to attract her attention. You can also clap or call out to her. The baby will turn towards the sound and look at you attentively. Then move to a different position and produce the sound again. The child will turn again in the direction of the sound. Infants also track the path of an object that moves slowly in their line of vision. If you move an object slowly in front of her, she will follow it with her eyes. These activities delight the infant and she responds by smiling and gurgling. They help in developing sensory skills.

'Looking' is one of the interests of this age. Her hands become one of first objects that the baby explores. She stares at her hands, first for short periods and then for longer. By three months she may be gazing at her hands for five to ten minutes at a time. If you hang mobiles from her cradle, she will look at them as they move. Mobiles that make pleasant sounds attract the baby's attention. In fact, any brightly coloured and safe object can be placed where the child can see it. You know that in the early months toys are best placed at a distance of one foot from the infant's face because this is the distance where the child can see objects most clearly. Mobiles should not be hung directly over the baby's cradle since she cannot hold her head in the midline yet. Lying on her back, the baby tends to look to her right or left for most of the time and the mobiles should be placed accordingly.

Massaging the infants with oil is a traditional practice in almost all parts of our country. This promotes physical development and provides an opportunity for interaction. While massaging the mother sings to the infant and bounces her gently. The child responds by expressing delight at her attention. Gradually, the infant looks forward to her daily bath and massage.

You know the infant reaches for objects by three months of age. She grasps the pillow or her brother's shirt as he holds her or her mother’s hair and then releases them. She reaches for the toy hanging from the crib and may pull it hard. Toys should be suspended within reach of the infant using a semi-rigid material so that she can pull them easily. They should be strongly tied so that they do not come off in her grasp and should be made of soft material so that they do not hurt her. As the infant
grasps objects, her eye-hand coordination improves. By this age, she can also balance her head and hold it in the midline. Letting the baby lie on her stomach for five to ten minutes fosters head control. Since she can now look overhead, the mobiles must be moved to the centre of the crib.

Around four months the infant will try to turn on her side to reach for the toys. An interesting development around four months is the baby's response to tickling. It brings forth chuckles from the baby and delights the caregiver as well.

Around five months the child begins to kick. Her leg muscles are stronger now. If you hold her legs together and prevent them from moving, the baby will protest and kick hard to release them. A simple game for the five month old infant can be played this way. Put a soft toy near her feet. When she feels the toy she will kick it again and again, enjoying herself. This activity can be repeated and becomes a game. Between five and six months of age, the infant can also turn from her back to the stomach. Since the baby can now turn over easily, watch out as she lies on the cot. She may fall. When leaving the baby alone for a while, leave her in the cradle or on the floor.

Let the infant be with others and see and hear them. Talk, laugh, play and sing with her as much as possible. It is also important to respond to the sounds that she makes. These would be in the form of gurgling and cooing. You will find that when you imitate these sounds, the baby produces more of them. If you make a funny face or an unusual sound while looking at her, she will smile back and gurgle.

The six-month-old is interested in objects. Provide her a variety of things that she can squeeze, pick up, press and hold. The child explores objects with her hands, feet, mouth and body. It is important to hold the baby in a vertical position next to your shoulder for some part of the day. She will be able to see many more things in this way. When you go out to see the neighbours, take the baby with you—the infant will also like the social experience.

Around six months the infant is able to sit with support and balance herself better. Help her to sit, supporting her with pillows and cushions. Play activities that allow
movement can now be planned. One common game is seating the child on your knees and bouncing her as you hold her in a sitting position. You could also support the baby on your feet as you sit on the chair and play gently. All of us have played such games with infants. Can you think of some more?

The infant enjoys soothing music. There is a variety of lullabies and rhymes that are sung to children. Are you aware of some of the rhymes and songs sung in your part of the country? Lullabies help the infant to perceive sounds and rhythms and help in developing language.

Check Your Progress Exercise 2

1) List the activities that you would plan for infants in each of the following age groups.
   i) newborn baby
   ii) 1-3 months old infant
   iii) 3-6 months old infant

2) State the reasons for the following:
   i) Holding the baby up vertically for some part of the day.
   ii) An infant of around five months of age should be placed on floor level rather than on a bed when alone.
11.5.2 Activities for Infants between Seven Months and One Year

In these six months, the infant becomes better at using her hands, i.e., she can now manipulate (move) objects using her hands. She also understands some words and can follow simple instructions. Since the infant is more active, you can add variety and range to the play activities. Now the infant wants special attention from the mother with whom she has formed an attachment.

By six months the child is able to sit by herself. You would have seen that the mother lets the baby play on her own while she does her housework. Between her chores she will come and take a look at the baby, talking to her during these reassuring 'peeks'.

Give the infant toys and objects to manipulate. Things that make a sound as the infant plays with them, interest her. You may have been involved in a game where the baby repeatedly drops a toy as you give it back to her. This activity interests her greatly.

You do not have to buy expensive play material for the infant. Provide a collection of used household things like reels, plastic containers and cardboard boxes. Rubber balls are good and can be rolled without much effort by the infant. Stuffed toys can be made at home from material considered waste.

The nine-month-old infant is able to follow simple instructions. You can involve her in some of your activities as you are working. For example, while you are chopping vegetables the infant will enjoy handing them to you. You can play games of giving and taking objects. She will reach for the toy you offer her and hold it in her hand. As you take it away, she will again try to take it from you. As the infant manipulates play material, she sees the relationship between cause and effect—between her actions and the effect they have on objects.

Once the infant begins to crawl, she enjoys moving from one place to another. Allow crawling, standing and chasing activities. Do not enclose her in a chair or a crib for the sake of safety as that would come in the way of activity and satisfaction of curiosity. If you sit at a distance and call her, she will move towards you. Delighted, the infant will continue the game tirelessly. Look at the pleasure on her face as she does so! She enjoys chasing an older sibling around the house. Playing 'peek-a-boo' and other games of hide and seek during the later years, follow from such activities.

The baby begins to participate in hide-and-seek games towards the end of the first year. As you hide behind something and call out to the child, she will look for you and gurgle and laugh as she finds you. These games promote social interaction as well as help in her mental development.
Crawling increases the infant’s range of physical exploration dramatically. Support the infant’s need for exploration by greater exposure to the outside world. Take her along to the nearby market, to the neighbours house or to the park. Let her watch people and things. She will respond to your simple questions using gestures. In a market there are many new things but there is noise and confusion as well. The baby may become fearful and begin to cry and may need to be reassured.

Around nine months, the baby begins to pull herself up to a standing position while holding on to something. Help her to stand and take a few steps. You know the infant begins to babble in this period; If you imitate her she will repeat that sound again and continue with this game enthusiastically. You can name different parts of the body and play games with the infant’s toes, fingers, hands and feet. When you tickle the baby during such games, she wriggles and laughs. Repeat some actions and games every day so that the child can link up words with actions. There is a rich variety of such infant games in our country. Are you aware of any?

Once the infant begins to crawl, and then walk, you will have to make sure that dangerous things are out of her reach. Glass bottles, medicines, knives and sharp objects must be kept away. This does not mean that there should be no materials for the child to play with. The play objects should be unbreakable, preferably made of cloth, wood or rubber and be safe for the infant.

Lullabies and rhymes are more interesting to the infant than earlier as she can understand a few words now. She participates by imitating your actions. The baby also enjoys a simple story. She does not understand it totally but she shows delight at changes in facial expressions and modulation of voice during the narration. Repeating a story or a lullaby daily will familiarise her with words and help in language development.

The activities mentioned here would promote development of sensory and motor abilities and language. They would also help her in forming an idea about what she can do. The interaction with caregivers during these activities will develop in the child a sense of security and trust. By twelve to thirteen months of age, an active infant would be able to walk, indicate her simple needs, say a few words and recognize familiar people. The infant grows and develops best in a warm, tolerant and supportive environment. Along with providing activities and material for play, the caregiver has to keep in mind the fact that the child needs peace and quiet as well and should not be over-stimulated with a flood of activities and materials.

### 11.6 THINGS TO MAKE

Let us explore the possibilities of making play objects at home. What kind of materials are likely to be available in the house? They would be newspapers, paper bags, pieces of cloth, used wool, used diaries, notebooks, containers like soap cases, tooth-paste boxes, plastic bottles, etc.

Add other things to this list that you think you will be able to use. For the infant under one year of age you will need mobiles, toys that make a sound and toys that are soft and easy to hold.

**Mobiles**

Take old magazines, books or newspapers, greeting cards and cut out colourful pictures from them. Paste the pictures on a thick piece of paper such as cardboard or a greeting card. Pierce one end and attach a string to it. You have a mobile ready to be hung.
An assortment of articles that make tinkling sounds like bangles, shells, small bells and bottle caps can be strung together. When you hang these, they will move with the breeze and attract the infant’s attention.

Paper chains made from coloured paper are attractive. Cut out many small strips of paper. Take one and paste its two ends together to make a ring. Pass the second strip through this ring and then paste the two ends. Do the same with other strips. In this way you will have a long colourful chain. You can hang toys from a wooden rod or an old coat hanger.

**Toys that make a sound**

Take any container—a cardboard or a plastic box, small plastic bottle, matchbox, a small polythene or cloth bag—and fill some pebbles, seeds or buttons in them. Seal the box tightly so that it does not open when in the infant’s hands. To make a rattle, pierce a hole and put a stick through the box. Fix the stick well so that it does not come out.

Let us make a drum for the infant. Take a small tin and pierce the lid and the base. Pass a thick thread through it and tie knot at either end so that it does not come through. Put two or three beads on the outer end of the thread. When you shake the tin from side to side, the beads will hit the tin and make a sound.

**Toys to hold**

Stuffed toys can be made thus: take some cloth and cut out two pieces—square or round in shape. Stitch the two together leaving a small opening to stuff cotton, rags or seeds. Then close this opening. Paste buttons, beads or pieces of cloth to make faces of animals, birds or people. You can also paint or embroider the cloth.
Check Your Progress Exercise 3

1) List three toys or play materials that you would use with an infant between 8 and 12 months of age and state why you chose them.

i) .................................................................................................................................

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ii) .................................................................................................................................

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iii) .................................................................................................................................

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11.7 SUMMING UP

In this Unit you read that the caregiver’s personality determines how successful she will be in interacting with children. It is important to have the appropriate knowledge, attitudes and skills for proper caregiving. The caregiver must be sensitive, aware of the needs of children and responsive to their moods. She must realize that each child is unique. This would help her to plan appropriate play activities for children. She must be confident and must be able to take effective and appropriate decisions. A flexible approach and receptivity to suggestions goes a long way in making the play activities successful. The caregiver must have a child-centred approach. In addition, the creche or the preschool worker also needs to develop and maintain a good rapport with the parents. The caregiver also needs to know the essential aspects of health care and the milestones of development.

This Unit also describes the kind of play material and activities appropriate for infants. The play material must be attractive, safe, appropriate for the age of the child and economical. The activities described in this Unit are based on the abilities of the infant at a particular age. The neonate needs to be held, comforted and soothed as she is adjusting to the new environment. Gradually, the caregiver can plan activities to help in sensory and motor development. As the infant begins to crawl, a wide variety of material and experiences can be provided to her. The aim of these play activities should be to foster the overall development of the child.
11.8 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) a) The term ‘sensitivity’ means that caregiver is aware of the needs of children and responds to their moods and feelings. She has empathy. She knows that each child is unique and has her own preferences, likes and dislikes.

b) A confident caregiver is relaxed, free of anxieties and able to devote attention to children. She will also be able to handle problems effectively and take appropriate decisions. Her confidence and sense of security will be communicated to the children through her behaviour.

c) Flexibility means being open to suggestions, spontaneous and willing to change one’s plan and style of care to suit the needs and interests of children. The caregiver need not always go by a fixed rule. She should respond to children spontaneously. There should be a structure to what the caregiver will do, but within this structure there should be flexibility.

d) Being child-centred means planning activities to suit the child’s needs. A person who is child-centred is sensitive and flexible.

2) The toys and other play material need not be expensive. Material easily available in the house can be used. Play material should be selected according to the abilities of the child. Safety of toys should be ensured. The toys should be attractive to children.

Check Your Progress Exercise 2

1) a) The neonate does not need toys and games. Cradling, patting, cuddling, swaying and gently rocking and bouncing her, gives her pleasure and comfort. The caregiver needs to give her prompt attention.

b) Activities for 1 to 3 month old infants

- tracking sound source
- tracking a moving object
- massaging the infant
- singing and talking to the infant

c) Activities for 3 to 6 month old infants

- keeping an object at a distance so that the infant reaches for it
- letting the baby lie on the stomach for 5-10 minutes
- activities that motivate her to turn on her side
- respond to and imitate the sounds the infant makes
- giving her a variety of toys and objects to play with and explore

2) i) because this will enable her to view the surroundings from an upright position

-ii) because she may fall from the bed as she turns over

Check Your Progress Exercise 3

1) You can choose any of the following objects:

i) Objects to drop, lift, shake, bang, throw and hold, as the infant engages in all these activities.

ii) Stuffed toys as they are easy to hold and attractive.

iii) Rubber balls as they can be rolled by the baby easily.
PLAY TODAY?

You say you love your children,
And are concerned they learn today?
So am I — that’s why I’m providing
A variety of kinds of play.

You’re asking me the value
Of blocks and other such play?
Your children are solving problems.
They will use that skill everyday.

You’re asking what’s the value
Of having your children play?
Your daughter’s creating a tower;
She may be a builder someday.

You’re saying you don’t want your son
To play in that “sissy” way?
He’s learning to cuddle a doll;
He may be father someday.

You’re questioning the [activity] centers;
They just look like useless play?
Your children are making choices;
They’ll be on their own someday.

You’re worried your children aren’t learning;
And later they’ll have to pay?
They’re learning a pattern of learning;
For they’ll be learners alway.

—Leila P. Fagg