**NIOS lesson adaptation project**

**By EMBRACE Volunteers**

(A community initiative of Harchan Foundation Trust)

**Chapter 18**

# Concept Of Development

(Printable Version)

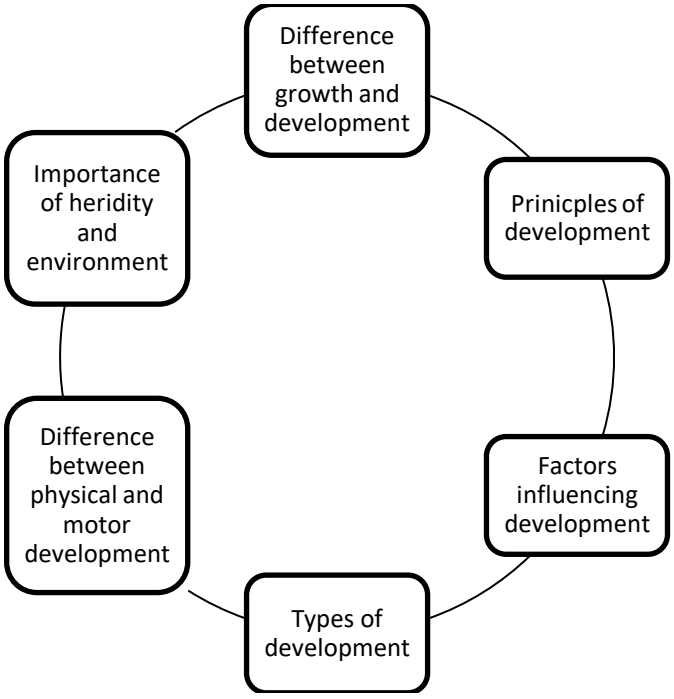
- **Simplified Lesson**
- **Previous Year Questions with Answers**
- **Terminal Questions**

This project is aimed at supporting children with different needs. Information provided is adapted to the best of knowledge by the volunteers. For complete information please refer to the NIOS resources in https://www.nios.ac.in/online-course-material/secondary-courses.aspx.

# LESSON 1

## Concept Of Development

**Concept of growth:**




**Growth and Development:**

| Growth | Development |
|---|---|
| Is quantitative in nature | Is qualitative in nature |
| Refers to physical aspect | Refers to all aspects of physical , cognitive, language , social, emotion etc. |
| Limited to height and weight | Refers to all changes leading towards maturity |
| Stops at a certain period of time | Continues throughout life |

**Maturation and Learning:**

| Maturation | Learning |
|---|---|
| Growing to full potential | Acquiring new skills due to environmental stimulation and training |
| Occurs at appropriate time( internal organs mature with time and nourishment) | Happens at correct time with training and practice |
| Shift is from inability to ability | Shift is from ability to perfection |

**Heredity and Environment:**

| **Heredity** | **Environment** |
|---|---|
| Traits acquired from parents and grandparents | Includes all aspects of the surroundings which influence development of an individual |
| Basis for the development of human personality | It could be friends, workplace, neighborhood etc. |
| From a specific combination of genes | Chance has to be given to explore their potential. |
| The individual capabilities/potential are determined by heredity | Depends on opportunities in the environment |

**Principles of Development:**

- Development involvechanges: The human being is never static. From the moment of conception to the time of death, the person is undergoing changes
- Development follows a fixed pattern/sequence: Each child may have a different rate of development. Sequential pattern of development can be seen in two directions:
  **i) <u>Cephalo-caudal sequence</u>**: The development spreads over the body from head to foot i.e. individual begins to grow from head region down wards.
  **<u>ii) Proxi modistal sequence:</u>** The development proceeds from central part of the body towards peripheries.
- Development proceeds from general to specific: In all the phases of pre-natal (before birth) development and post-natal (after birth) life, thechild'sresponsesare from general to specific. General activity proceeds to specific activity.

- Development is correlated: All types of developments, i.e. physical, mental, social and emotional, are related to each other e.g. a child, who is physically healthy is likely to have superior sociability and emotional stability.

- Development is predictable: Because the rate of development is constant for a child, so it is possible to predict certain development outcomes at an earlyage.

- Development occurs at different rates for different parts of the body: The development of different physical and mental traits is continuous but, all parts of the body do not grow at the same rate. In some areas of the body, growth may be rapid while in others, growth will be slow.

- Development proceeds stage by stage: The development of the child occurs in different stages.

- Early development is more important than later development: Early childhood experiences have more impact on the development of a child.

- Development is continuous: From the moment of conception till death the individual is continuously changing.

- Interaction between heredity and environmental influences leads to individual differences in the developmental pattern.

- Development is the product of maturation and learning.

**Factors Influencing Development:**

Both heredity and environment are powerful factors that influence an individual.

A few of the environmental factors affecting development are nutrition, early stimulation and child rearing practices.

Nutrition –Proper nutrition is essential for the healthy development of children in terms of physical and mental attributes (traits)

A stimulating environment: Encourages good physical and mental development.

Child rearing practices:

Types of Development

- Physical development: Physical development includes the gross motor skills, such as walking, jumping, running, catching and the fine motor skills for painting, drawing, doing up buttons, using aspoon andwriting.Thisdevelopmentislargelydependentuponthechild's health and nutritional status.

- Cognitive development Cognitive development focuses on how children learn and process information. As the children grow in age they can understand their environment by using their senses (seeing listening, touching, smelling and tasting), registering information in their minds and efficiently retrieving it from their memory.

- Social and Emotional development Children feel very secure and show a sense of concern for people around them.. Emotional development is the ability to control and manage one's emotions.

- Language development Language is an important medium of communication. It is a form of communication that uses words and symbols to express thoughts, desires and feelings.

Physical Development

| | Infancy | Early Childhood |
|---|---|---|
| **Height** | • Till First year the height is measured by infantometer<br>• At birth height is 17-21inches<br>• At 1 year 28-30inches<br>• At 2 year 32 -34inches | Growth of height is slow<br>Grows at 2.5 inches to 3 inches in a year |
| **Weight** | • At birth height is 2.5 kg to 3.25kg<br>• At 1 year doubles its birth weight<br>• At 2 year triples its birth weight | Gains weight at about 2 -2.5 kg in a year |
| **Development of Teeth** | • Teeth start developing in the baby's jaws during the third or fourth month<br>• At 5–6 months they start appearing at a rate of one a month till the age of 2to 2 ½years<br><br>The order of primary teeth eruption (teething age) is as follows:<br>(i) Central incisors (6-12months)<br>(ii) Lateral incisors (9-16months)<br>(iii) Canines (16-23months)<br>(iv) First molars (13-19months)<br>(v) Second molars(22-33 months) | At the age of 5- 6 year permanent teeth starts replacing milk teeth |

| | Infancy | Early childhood |
|---|---|---|
| **Development of bones** | • Bone development consists of growth in bone size and the change in their composition.<br>• Ossification or hardening of the bones mainly<br>• Takes place during infancy. Bones of the babies can be easily deformed because they are soft | • The bones ossify at different rates in different parts of the body<br>• The muscles become larger, stronger and heavier with a result that children look thinner , even though they Weigh more |

**Motor Development** (The word motor refers to muscular movements)
Gross motor development -Control over large muscles Ex – running, jumping
Fine motor development – Control over small muscles Ex- Cutting, pasting.

## Infancy

**Gross Motor Development**

3 months - Neck holding
5 months - Sitting withsupport 8 months - Sitting without support
9 months - Standingwith support
11 months -Crawling/creeping 12 months - Standing without support
12 months - Walking with support
13 months - Walking without support
18 months - Running
24 months - Climbing staircase 36 months - Riding tricycle

**Fine motor Development**

4 months - Grasping a rattle/ring when placed in hand

5 months - Reaching out to an object and holding it with bothhands

7 months - Holding objects with crude grasp from palm 9 months - Holding small objects between index finger and thumb

# Early Child hood

| Gross Motor | Fine Motor |
|---|---|
| Running: By the age of 5 or 6 years.<br>• Jumping: By age of 4.<br>• Skippingand hopping: At the age of 6years<br>• Climbing: By age of 4 year,<br>• Tri-cycling: Between 3 and 4 years,<br>• Ball throwing and catching: By 6 years | Self-feeding, dressing and grooming: By 5 years, children can feed themselves, dress completely and comb their hair.<br>• Handwriting: At five years, a child can write his/her name in capital letters. At six years, he/she can write the entire English alphabet(if taught)<br>• Copying:Betweentheages of 2 ½ and 5 years, most children show ability to copy simple geometric figures |

There are three types of body structure:

- Endomorphic i.e. children who have a flabby, fat body build.
- Mesomorphici.e.childrenwithasturdymuscularbodybuild.Theyhaveat endencytobe heavy, hard and rectangular.
- Ectomorphic i.e. children who have a long and slender body build.

Both heredity and environment are powerful factors that influence an individual.

- While we can do very little about the heredity of an individual, the environment can be controlled to make it more favorable for an individual's growth.
- Inherited factors interact with environmental influences to determine
- Children's personality and individual differences in them.

## PREVIOUS YEARS QUESTIONS

1. **Growth in children is**

(A) Qualitative (B) Quantitative

(C) Increase in understanding ( D) maturity

2**) Which is the correct order of primary teeth eruption in a child?**

A) First molars, Lateral incisors, Canines, Central incisors

B) Central incisors, Lateral incisors, Canines, First Molars

C) Second Molars, First Molars, Canines, Lateral incisors

D) None of the above

3) **Which of the following statement is not true?**
A) Development continues till death
B) Development is quantitative in nature
C) Development is correlated
D) Development is predictable

4) **Which of the following is a fine motor skill?**
A) Writing with pencil
B) Jumping rope
C) Walking independently
D) Catching ball

**3. A newborns weight at birth was 3kg. What would be her approximate weight at one year?**
Ans) A baby triples its birth weight by the completion of one year. So the approximate weight would be around 9kg.

4. **What is the average height and weight of an Indian child at the time of birth and at one year ?**
Ans) The average height of an Indian child is **17 to 21 inches** and weight of an Indian baby at the time of birth is 2.5 kg to 3.25 kg.
The average height of an Indian child is **28 to 30 inches** and weight of an Indian baby at one year is 10 kg to 13 kg

**5. Explain the 'Cephalo- Caudal sequence' of development.**
Ans) Cephalo-caudal sequence means that development spreads over the body from head to foot i.e. individual begins to grow from head region downwards.

**6. Explain the basic difference between cephalon – Caudal Sequence and proximodistal sequence of development with the help of an example.**
Ans) Cephalo-caudal sequence means that development spreads over the body from head to foot i.e. individual begins to grow from head region down wards. For example a baby first gains control on her head, then she could catch hold of objects, sit, crawl and later she could stand and walk.
Proximodistal sequence means that the development proceeds from central part of the body towards sides. . For example, babies cut their front teeth before they cut their side ones.

**3. Differentiate between 'heredity' and 'environment'.**
Ans) Heredity is the traits and abilities with which an individual is born with while environment refers to the external surroundings like school family friends etc. which aid in the development of the abilities of an individual.

**4) Explain how 'early stimulation 'influences the development of a child?**
Ans) Early stimulation refers to enriching experiences a baby gets which helps in the proper development of physical and mental abilities and helps the child to develop to its potential.

5**) List any four fine motor activities a five-year-old child can undertake?**
Ans) Four fine motor activities a five-year-old can do are
a) Tearing paper
b) Cutting paper with scissors
c) Pick small beads with two fingers
d) Hold pencil and write

6) **Development follows a fixed pattern or sequence. Explain giving examples.**
Ans) The development of all human beings follows a similar pattern, similar sequence or direction. Sequential pattern of development can be seen in two directions:
(i) Cephalo-caudal sequence: means that development spreads over the body from head to foot i.e. individual begins to grow from head region down wards. Baby first gains control on her head, then she could catch hold of objects, sit, crawl and later she could stand and walk.
(ii) Proximodistal sequence: means that the development proceeds from central part of the body towards peripheries. Babies first cut their front teeth before they cut their side ones.

## 4 Marks Questions

**1**) **Briefly explain any four factors which would influence the development of a child?**
Ans) The four factors which influences the development of a child are
a) Heredity and environment: Heredity refers to the traits an individual is born with while environment provides opportunities to develop the individual's traits.
b) Nutrition: A child must be provided with balanced diet on a regular basis to promote proper growth and development.
c) Early stimulation: It refers to enriching experiences baby gets to develop its mental abilities and physical growth

d) Child rearing practices parenting plays an important role in shaping a baby's development.

**2) How does heredity and environment affect the development of a child with examples?**

Heredity is a specific combination of genes we inherit and is shown in characteristics like height certain habits and innate talents. For example a baby may have the same kind of eyes as its mother.

Environment refers to the external factors which aid in the development of a baby's abilities. For example baby may have innate talent for music so to develop the talent the child needs proper coaching to develop the musical talent.

**3) Discuss the changes in body sizes, height and weight during infancy.**

Ans)

Body Size:

Body size during infancy is measured in terms of height and weight. During the first year of life, a baby goes through more changes in his/her body size than at any other time.

Height: Children of the same age vary greatly in height, but the pattern of growth is similar for all. An average Indian child at birth measures between 17 to 21inches; at one year 28 to 30 inches, at two years the child is 32 to 34 inches tall (almost double his birth length). For the first year in the baby's life the length is recorded in lying down position using an instrument known as infant meter.

Weight: An average Indian newborn weighs 2.5 to 3.25 kg (5-8 pounds). At 4 month they doubled their birth weight and at the end of the first year, triple it. During the second and third year, the gain from 1.25 to 2 kg annually.

## TERMINAL QUESTIONS

1) **Define the following terms and give at least two differences between them:**

(a) Growth and development:

Ans: Growth: Takes place in physical aspects only. It refers to qualitative changes.

For example, it is possible to measure how tall a child has grown over a specific period of time.

Development: takes place in all aspects such as physical, cognitive, language, social and emotional.

It refers to quantitative changes such as change in personality.

Difference between growth and development:

| Growth | Development |
|---|---|
| quantitative | qualitative |
| Limited to height and weight | All changes leading towards maturity |
| Stops at certain period of time | Continues till death. |

(b) Heredity and environment:

Heredity: It is what a person is born with. It means the traits which one has acquired from his or her parents and grandparents.

It is a specific combination of genes we inherit.

Environment: It includes all the aspects of the surroundings such as parents, family, friends, school, neighbourhood etc.

Difference between heredity and environment:

| Heredity | Environment |
|---|---|
| Physical make up, that a child inherits from parents | Everything that surrounds and influence child. |
| We have no control on what we inherit. | Can be controlled to make it more favorable. |

**2) Give four reasons for individual differences amongst children.**

Ans:

- Heredity: It is one of the most powerful factors that influence an individual which is inherited from parents.
- Nutrition: Proper nutrition plays an essential role in the healthy development of children. A child must be provided with balanced diet for proper development. Non fulfillment of nutritional needs may lead to several kinds of disorders.
- Early stimulation: A stimulating environment encourages good physical and mental development, an unstimulating environment causes the child's development to fall below its potential.
- Child rearing practices: Children brought up by permissive parents tend to lack a sense of responsibility, have poor emotional control and become under achievers.
  Children brought up by firm parents are likely to make better personal and social adjustment.

**3) Good emotional development helps in establishing cordial relationships. Justify the statement.**

Ans: Emotional development is the ability to control and manage one's emotions. Children rear under good parent control helps in stable development of emotions.

The children get love and care from parents and parents teach them how to behave with others. it also helps children exhibit positive social behavior.
The emotions like anger, hatred, and revenge should be controlled.
This helps in establishment of cordial relationships with others.

**4) Distinguish between physical and motor development.**
Ans: Physical development means development of the body. It includes development of body size, height, weight, bones teeth etc.
Motor refers to muscular movements. Motor development refers to the voluntary movement of the body or parts of the body. This includes control over gross motor and fine motor development.

**5) Your friend had bad handwriting. Name the aspect of development he is lagging behind suggest two activities which can help to improve his handwriting.**
Ans: Bad handwriting shows that the friend is lagging behind in fine motor skills.

- Pen control exercise, holding the pen correctly.
- Practicing alphabets and numbers in sand.