Kingdom of Cambodia
Nation Religion King

Ministry of Education, Youth and Sport

National Manual on Teaching Children with Intellectual Disabilities, Learning Disabilities and Autism Spectrum Disorder

2018

Developed with technical support from:
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Foreword

To respond to the *Sustainable Development Goal (SDG) 4: Ensure inclusive and quality education for all and promote lifelong learning*, the Ministry of Education, Youth and Sport (MoEYS) has been paying attention to enhance quality of education, particularly to increase promotion rate and reduce dropout rate using child rights-based approach to achieving equitable access to education for all children.

In collaboration with national and international stakeholders in Cambodia, the MoEYS has developed a national teacher's manual on *educating children with intellectual disabilities* in order to strengthen capacity and quality of teachers. This Manual offers theory-to-practice knowledge to teachers with appropriate content and methodology for responding to learning needs of children with intellectual disabilities. This manual contributes to enhancing quality of learning and teaching at both public and private education institutions.

I would like to take this opportunity to thank development partners and non-governmental organizations, including Save the Children, Rabbit School, Hands of Hope Community, for committing into this manual development to ensure rights to education for learners with special education needs.

I strongly encourage all stakeholders to use this manual as a foundation for supporting all children with intellectual disabilities in order to achieve the SDG4.

Phnom Penh, 31 May 2018

Dr. HANG CHUON NARON

Minister of Education, Youth and Sport

Preface

The Manual on Teaching Children with Intellectual Disabilities, Learning Disabilities and Autism Spectrum Disorder has been developed by the Ministry of Education, Youth and Sport, through Department of Special Education, Department of Teacher Training and Department of Curriculum Development, in collaboration with Development Partners, non-government organizations, and technical advisors.

This Manual has been developed with an aim to develop teachers' knowledge, skills and experience in identifying and screening for children with special needs, developing personal development plans, and using simple techniques, materials and games to help children with intellectual disabilities, learning disabilities and autism spectrum disorder to learn effectively and develop further.

The documents developed consists of the Manual, composted of 12 chapters, facilitator's guide for training of the topics, and tool kits for teaching Khmer language in grade one which are rich in techniques and materials for teaching all types of children in inclusive classrooms. The Manual consists of 12 chapters, while the facilitator's guide and tool kits do not yet cover all the 12 chapters. Based on the main Manual, the Document Development Team will produce more tool kits for teachers, which will be available for use soon.

The Document Development Team is looking forward to receiving comments and feedbacks from all users, especially teachers, for further improvement and development of the documents.

Document Development Team

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Chapter 1:

Child Developmental Milestones, Developmental Age and Social Age

Objectives:

The objective of this chapter is to understand and learn about definitions of child developmental milestones, developmental age and social age.

1.1. Introduction:

Understanding how typical children develop can help us to identify the area in which a child might be having problems. It also helps us to target appropriate skills that the child can learn at a particular age. We use developmental milestones to learn about typical development.

1.2. Definition and Purpose of Developmental Milestones:

Developmental milestones are physical or behavioral signs of development or growing up of infants and children. They provide important information regarding the child's development because the milestones are different for each age range. For instance, rolling over, crawling, walking, and talking are often considered as important developmental milestones in many countries to determine if the baby is growing or developing like normal children.

There are three important points to remember about developmental milestones:

- Because most babies roll over when they are about three months old or start walking at about 12 months old, many countries or cultures identify these behaviors as developmental milestones. This does not mean that a baby will roll over the day they are three months old or start walking on their first birthday. These are just rough estimates of the time when the child starts the behavior.

- Developmental milestones can be different in different cultures. For instance, some traditional cultures in the U.S. believe the baby's first smile is an important developmental milestone. Cambodians believe that a baby completing the first month is an important developmental milestone and have a ceremony (បើកភ្នែក bak p'neak) to mark it.

- Developmental milestones can happen at different ages in children, depending on different cultural practices in bringing up children. For instance, in many western countries, children learn to know when they have to go to the toilet between 2 or 3 years of age, while in some Asian cultures, children learn this at an earlier age, like 1 year or even 6 months. This is because many Asian mothers teach their children how to control their bladder at an earlier age than many mothers in western countries who may use waterproof diapers in the meantime.

Knowledge of developmental milestones gives teachers and parents capacity to:

- Understand if the child is reaching the milestones and developing normally
- Anticipate what the child will be able to do or learn next
- Stimulate the child's development according to their age

Exercise 1: Which Developmental Milestones are Important in Your Culture?
Think about the babies and children in your family and community. What behavior in a baby makes you excited and happy? What physical development in a child do you notice to tell you they are growing up like other children in your family or community? Do you have ceremonies or rituals to mark specific stages in the life of young boys and girls?

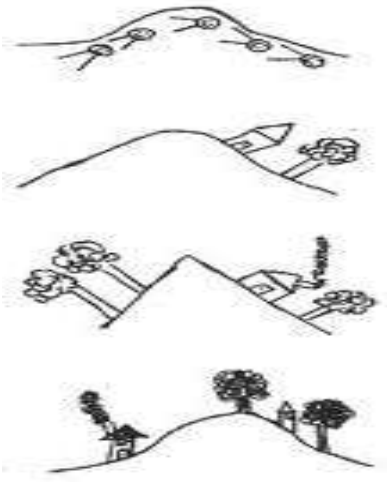
1.3. Areas of Development in a Child:

Developmental milestones can be classified into domains or broad areas - physical, cognitive, emotional and social development.

1. **Physical Development**. This includes growth in weight and height, changes in physical appearance, and the development of motor skills. There are two types of motor skills: fine motor skills, which relate to movements of the hand, such as being able to hold a spoon or pencil, and gross motor skills, which relate to movements of the whole body, such as jumping or climbing.

2. **Cognitive Development**. This includes intellectual and language development, increase in memory capacity and reasoning ability. School-age children learn how to read, write and do mathematics.

3. **Emotional and Social Development**. This includes the development of personality and self-esteem, the ability to make friends, and an understanding of moral issues, such as knowing what it means to tell a lie.



These drawings show how a child's understanding of the world improves as they grow.

1.4. Typical Developmental Milestones in Primary School Age Children:

In the beginning, the infant is completely dependent on others for all their needs. As they grow, they learn more and more skills that help them to become more independent and do things for themselves. By 6 years of age, children can do many things by themselves. Children can dress themselves, catch a ball more easily with only their hands, and can greet a visitor. When they start school, they also begin to make friends outside of their extended family and village or community. Physical, social, and mental skills develop rapidly

at this time. The table below describes some skills and behaviors that children entering school should show in the main areas of social and emotional, cognitive, and physical development.

Picture shows the developmental milestones in Primary School Age Children.

Some social and emotional, cognitive, and physical development skills of Children entering School:

Social and emotional:

- Greets the older persons appropriately
- Plays cooperatively with other children (e.g, keeps the rules of the game)
- Able to calm themselves when they are unhappy or upset
- Apologizes when they have done something wrong. e.g disobey rules
- Understand when they are telling a lie
- Asks permission before taking others' things
- Identifies their own feelings
- Identifies others' feelings

Cognitive:

- Speaks in complete sentences
- Follows at least three-step directions
- Puts at least 3 pictures cards in order to tell a story
- Recite the alphabet
- Holds a story book the right way up
- Identifies same and different (e.g., small and big, thick and thin)
- Understands position or spatial orientation (e.g., on, under, in, out, left,
- right)
- recites numbers from 1 to 10
- Recognizes colors when shown (e.g. red, white, black, blue)
- Recognizes shapes (e.g. circle, square, triangle, star, heart shape)
- Understand time of day (e.g., morning, evening, today, yesterday)
- Can tell the day of the week (e.g., today is ___)

Physical:

Gross motor:

- Can eat, dress, go to toilet on their own
- Walks and runs easily

- Throws and catches a ball
- climbs up and down steps one foot at a time
- Jumps, hops on one leg,
- Can kick and bounce a ball

Fine motor:

- Holds a pencil correctly (tripod grasp)
- Holds chopsticks correctly (pincer grasp)
- Can open cap of water bottle
- Uses scissors
- Tears paper

Delay in Reaching Developmental Milestones:

Some children may take much longer than most children to reach some of these developmental milestones, or they may not reach them at all. That means they are showing delay in cognitive, physical or social development or even in all three domains. For example, Roeurn Sayana is an 8-year-old student in an inclusive classroom at Chrey Primary School in Thmorkol district, Battambang, supported by Handicap International.

Sayana has Down's syndrome, and has some delays in cognitive development that make it difficult for him to learn as quickly as his classmates. He does not have any delays in physical development and can

participate in games with his classmates, although he does have some difficulty following the rules of games and taking turns. So his teacher, Ms. Has Sinem, has made some changes in her teaching to help him.

- She allows him to wear his jacket in the classroom because he feels comfortable with it.
- Sayana sits at the back of the class, so his teacher can work with him separately when she can, but she plans to move him to the front of the class so that she can monitor his progress on a regular basis. She also plans to seat him near a good student who can help him from time to time.
- She gives him simpler tasks like counting till 10 when his classmates are counting till 100.
- Just like with the other students, she calls him to the board to write the answer, using a part of the board for his work. When he completes the task, she asks his classmates to clap so that Sayana feels proud about his success.
- When Sayana's classmates tease or laugh at him because he makes a mistake, his teacher knows that she must stop them and tell them that it is not nice to laugh.

Sayana's teacher says: "Having a student with Down's syndrome is not easy because he cannot learn with the other students all the time. But I realize it is my duty to teach all children. So I have made a few changes in my teaching that can help him. I received training from Handicap International to learn about these teaching strategies. These changes are simple and can help all students."

1.5. Developmental Age (DA):

Developmental Age is a measure of an achievement expressed in terms of the chronologic age of a normal child showing the same degree of attainment.

It is an expression of a child's maturational progress stated in age and determined by standardized measurements, as of body size and dimensions; by social and psychological functioning; by motor skills; and by mental and aptitude tests.

1.6. Developmental Quotient (DQ):

Developmental Quotient is the numeric expression of a child's developmental level as measured by dividing the developmental age by the chronological age and multiplying by 100.

1.7. Social Age (SA):

Social Age is an estimate of a person's capabilities in social situations that are relative to normal standards. In clinical situations with young children, social age often is assigned by interviewing parents and other adults to produce scores. Social age is determined by the adaptive behaviour scales.

1.8. Social Quotient (SQ):

Social Quotient is the numeric expression of a child's social developmental level as measured by dividing the social age by the chronological age and multiplying by 100.

Chapter 2:

Introduction to disability

Objective:

The objective of this chapter is to understand and learn about definition and classifications of Disabilities, and concept of Child Functioning Modules.

2.1. Definition:

A disability is defined as a condition or function judged to be significantly impaired relative to the usual standard of an individual or group. The term is used to refer to individual functioning, including physical impairment, sensory impairment, cognitive impairment, intellectual impairment mental illness, and various types of chronic disease. Some children may also only have physical needs because they for example use a wheelchair, but they have no "special educational needs".

Disability is conceptualized as being multidimensional experience for the person involved. There may be effects on organs or body parts and there may be effects on a person's participation in areas of life. Correspondingly, three dimensions of disability are recognized in International Classification of Functioning, Disability and Health (ICF): body structure and function (and impairment thereof), activity (and activity restrictions) and participation (and participation restrictions). The classification also recognizes the role of physical and social environmental factors in affecting disability outcomes.

2.2. Classifications of Disabilities:

Types of disabilities include various physical and mental impairments that can hamper or reduce a person's ability to carry out his day to day activities. These impairments can be termed as disability of the person to do his or her day to day activities.

"Disability" can be broken down into a number of broad sub-categories, which include the following:

Category	Type	Comments
1. Physical and/or mobility disabilities	• Cerebral Palsy (CP) • Deformed limbs • Loss of limbs (e.g. due to accident)	-Children with physical and/or mobility disabilities usually have no specific or specialized learning needs – they just need to have access to schools and classrooms (and may need assistive devices to help them write or read or move around). -A child with CP *may* additionally have a speech impairment or epilepsy or a sensory impairment, but this should be properly assessed first.
2. Visual (sensory) impairments	• Low vision • Blind	-Children with mild or moderate visual impairments are often helped adequately when receiving glasses, by better positioning (seating) the child in the classroom and/or by

		providing materials in bigger print
3. Speech and Hearing (sensory) impairments	• Mild hearing impairment (HI) • Moderate HI • Deaf and/or mute • Speech/communication	-Mild hearing loss is much more common in school populations than severe hearing loss. Like above sometimes better positioning can help as well as the use of more visual/action cues.
4. Social-emotional disabilities	• Anxiety disorder • Behavior disorder	-the child's learning is negatively affected by feelings of anxiety/fears (associated with personal or school problems) -the child <u>frequently</u> demonstrates inappropriate behaviors or feelings under normal circumstances (e.g. get out of their seat, disturb peers, hit others, ignore the teacher, destroy property, do not respond to teacher corrections, on task 60% or less of the time)
5. Intellectual or developmental disabilities	• Down Syndrome • Developmental delays	-An intellectual disability affects all aspects of a child's development. The children are slower to develop physically, acquire language, learn to look after themselves and in mastering academic skills. They tend to have a below average IQ, but they are NOT mentally ill.[1] With support children with development delays often 'catch up' and achieve at typical IQ levels comparative to their peers. -85% of children with intellectual disabilities have a <u>mild</u> intellectual disability! <u>Mild</u>: IQ 50 to 70, slower than typical in all developmental areas, no unusual physical characteristics, able to learn practical life skills, attains reading & math skills up to grade levels 3 to 6, able to blend in socially, functions in daily life <u>Moderate</u>: IQ 35 to 49, noticeable developmental delay (e.g. speech, motor skills), can communicate in basic, simple ways, able to learn basic health and safety skills, can complete self-care activities, can travel alone to nearby, familiar places
6. Other neurodevelopment disorders	• Attention Deficit & Hyperactivity Disorder (ADHD) • Autism Spectrum Disorder (ASD)	-Keep in mind that many children are unable to sit still, finish tasks or plan ahead; it does not mean they have a disability -Children with Autism Spectrum Disorder (ASD) appear remote, isolated in their own world and find it difficult to connect emotionally with other people. Unexpected disruptions to routine often have a negative

		impact on their social/emotional wellbeing and behaviour. Some children with ASD have a high IQ, especially in specific areas.
7. Learning disability	• Dyslexia, • Dyscalculia	-A learning disability is a weakness in certain academic skills e.g. reading, writing or math while an intellectual disability affects all areas of learning
8. Other health impairments	• Epilepsy • Cleft palate • Club foot	-Epilepsy is not caused by religious, cultural or social spirits and can be controlled with medication -A cleft palate or club foot can be repaired with surgery

Important NOTES to remember:

1. Never assume that children have (additional) disabilities. Only a proper assessment by a trained professional can tell.
2. Children may experience socio-emotional and/or behavioral problems as the result of a traumatic event (e.g. victim of violence, death in the family). This is NOT a disability.
3. 90% of all disabilities are NOT visible and most disabilities are mild or moderate (and not severe).
4. Children with the same type of disability do not experience the disability the same way and often have different support needs.
5. Children who received the assistive devices to help them learn like their peers, should no longer be labeled as having "special needs"
6. Children may have additional needs primarily of one type/category, which then impacts other categories to some degree. Some needs are interlinked and it is helpful to view the child's needs as a whole.
7. The term 'mentally ill" is used when healthy people develop an illness that affects their moods, emotions and behaviors. With appropriate treatment, they can be cured.

The Washington Group/UNICEF Module on Child Functioning:

Research and data on child disability are scarce, hindering the development of effective policies and programmes.

The 2006 UN Convention on the Rights of Persons with Disabilities establishes that children with "long-term physical, mental, intellectual or sensory impairments" should enjoy the same human rights and freedoms as other children. The Convention goes on to say: "In all actions concerning children with disabilities, the best interests of the child shall be a primary consideration," and "…children with disabilities have the right to express their views freely on all matters affecting them."

Discrimination against children with disabilities often leads to reduced access to basic social services, especially education, and general lack of recognition. Addressing discrimination and promoting inclusion is an issue of concern in all sectors, and can be accomplished through information and advocacy, strengthening policy and facilitating access to services, and listening to children with disabilities and considering their views. The development of relevant policies and programmes, however, has been constrained by a lack of reliable data on children with disabilities. This is due mainly to inadequate data collection and research on the subject, especially in developing countries, and it is probably more because of definitions that differ per country. No reliable global estimates on child disability are therefore currently available, although efforts to remedy the situation are well under way - amongst others by using internationally agreed definitions, classification and screening methods.

In recognizing the need for a set of questions that would produce internationally comparable data on children, the Washington Group formed a subgroup in 2009 that is chaired by the National Statistical Office of Italy (ISTAT). The United Nations International Children's Emergency Fund (UNICEF) joined the subgroup in 2011.

The first main activity of the subgroup was the development of a short set of questions to reflect current thinking on child functioning for inclusion in censuses and surveys. The new module uses the International Classification of Functioning, Disability and Health-Children & Youth (ICF-CY) Version, which is a World Health Organization (WHO) framework, as the conceptual framework and relies on a functional approach to measuring disability.
Global child disability data are generally non-comparable, comprising different tools, methodologies and disability definitions. UNICEF and The Washington Group on Disability Statistics have developed a new tool on child functioning and disability to make data comparable across countries.

The International Classification of Functioning, Disability and Health (ICF) is a classification of the health components of functioning and disability. The ICF received approval from all 191 WHO member states on May 22, 2001, during the 54th World Health Assembly. Its approval followed nine years of international revision efforts coordinated by WHO. WHO's initial classification for the effects of diseases, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), was created in 1980.

The ICF classification complements WHO's International Classification of Diseases-10th Revision (Published in 2016), which contains information on diagnosis and health condition, but not on functional status. Hence, the ICD and ICF constitute the core classifications in the WHO Family of International Classifications (WHO-FIC).

Global child disability data are generally non-comparable, comprising different tools, methodologies and disability definitions. UNICEF and The Washington Group on Disability Statistics have developed a new tool on child functioning and disability to make data comparable across countries.

The Washington Group/UNICEF Module on Child Functioning, finalized in 2016, covers children between 2 and 17 years of age and assesses functional difficulties in different domains including hearing, vision, communication/comprehension, learning, mobility and emotions. To better reflect the degree of functional difficulty, each area is assessed against a rating scale. The purpose is to identify the subpopulation of children who are at greater risk than other children of the same age or who are experiencing limited participation in an unaccommodating environment. The set of questions is intended for use in national household surveys and censuses, and beyond household surveys and censuses for surveys with parents/primary caregivers.

The module has undergone extensive review by experts, and testing in several countries to determine the quality of questions being asked and ascertain cultural understanding by respondents. It has been incorporated into the most recent round of Multiple Indicator Cluster Surveys (MICS) and is being implemented in some countries as part of MICS6.

Background

Global child disability data are generally non-comparable, comprising different tools, methodologies and disability definitions. UNICEF and The Washington Group on Disability Statistics (WG) have developed a new tool on child functioning and disability to address this need.

Rationale and Principles for Questions on Child Functioning:

While the Short Set questions can identify many children with functional difficulties, the WG determined a special set devoted to measuring child functioning was needed to improve and expand upon that identification, and to address the aspects of child development not addressed in previous methods.

Therefore, in partnership with UNICEF, the Washington Group developed a set of survey questions for identifying children with disabilities.

The Child Functioning Module can be used as a component of national population surveys or as supplements to surveys on specific topics of interest. As with other WG question sets, disability is defined as difficulty undertaking basic activities. As such, the work draws upon the previously developed WG question sets for adults.

The Child Functioning Module was designed to do the following:

- **Expand the Functional Domains for Children**: The distribution of types of disability are different for children compared with adults. In adults, the major problems are mobility, sensory, and personal care – especially with advancing years. In children the main disabilities are related to intellectual functioning, affect and behaviour.

- **Incorporate a fuller age range**: The reference age is 2-17 years. The workgroup decided it was not feasible to capture disabilities among children under 2 years of age through population surveys. There are different question sets for children age 2-4 and those age 5-17.

- **Recognize the Range of Disability**: Answer categories were designed to reflect the continuum of functional difficulties with the ability to determine appropriate cut-offs based on the requirements for the disability data collection.

- **Identify age-appropriate difficulties**: For reference and to focus the respondent on the functioning of their own child in reference to that child's cohort, where appropriate, questions are prefaced with the clause: "Compared with children of the same age…".

- **Rely on Proxy Respondents**: Due to the standard methodology of survey administration, the ethical considerations of interviewing children, and the inability of young children to answer these types of questions reliably, the group decided that the questions would be designed for the children's mother or primary caregivers.

- **Preserve International Comparability**: The aim of the questions is to provide comparable data cross-nationally.

- **Follow Rigorous Standards of Development**: Questions were designed in consultation with a wide range of experts. This included survey statisticians, paediatricians, developmental psychologists, speech therapists etc. Questions were then validated through cognitive and field testing, following established WG procedures.

Methods:
UNICEF and the WG developed a parent-reported survey module to identify children aged 2–17 years with functional difficulties in population-based surveys through: review of existing documentation, consultation with experts and cognitive testing. A field test of the draft module was undertaken in Cameroon and India within a population-based survey. Functional limitation in each of 14 domains was scored on a scale comprising "no difficulty", "some difficulty", "a lot of difficulty" and "cannot do".

2.3. Module on Child Functioning (Age 2-4 Years)

CHILD FUNCTIONING		**(AGE 2-4)**
CF1. I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT DIFFICULTIES YOUR CHILD MAY HAVE. DOES (*name*) WEAR GLASSES?	Yes .....1 No 2	 2⇨CF3
CF2. WHEN WEARING HIS/HER GLASSES, DOES (*name*) HAVE DIFFICULTY SEEING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty .....1 Some difficulty .....2 A lot of difficulty .....3 Cannot do at all 4	1⇨CF4 2⇨CF4 3⇨CF4 4⇨CF4
CF3. DOES (*name*) HAVE DIFFICULTY SEEING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty .....1 Some difficulty .....2 A lot of difficulty .....3 Cannot do at all 4	
CF4. DOES (*name*) USE A HEARING AID?	Yes .....1 No 2	 2⇨CF6
CF5. WHEN USING HIS/HER HEARING AID, DOES (*name*) HAVE DIFFICULTY HEARING SOUNDS LIKE PEOPLES' VOICES OR MUSIC? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty .....1 Some difficulty .....2 A lot of difficulty .....3 Cannot do at all 4	1⇨CF7 2⇨CF7 3⇨CF7 4⇨CF7
CF6. DOES (*name*) HAVE DIFFICULTY HEARING SOUNDS LIKE PEOPLES' VOICES OR MUSIC? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty .....1 Some difficulty .....2 A lot of difficulty .....3 Cannot do at all 4	
CF7. DOES (*name*) USE ANY EQUIPMENT OR RECEIVE ASSISTANCE FOR WALKING?	Yes .....1 No 2	 2⇨CF10
CF8. WITHOUT HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING? WOULD YOU SAY (*name*) HAS: SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	Some difficulty .....2 A lot of difficulty .....3 Cannot do at all 4	
CF9. WITH HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING?	No difficulty 1	1⇨CF11

WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	2⇨CF11 3⇨CF11 4⇨CF11
CF10. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY WALKING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF11. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY PICKING UP SMALL OBJECTS WITH HIS/HER HAND? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF12. DOES (*name*) HAVE DIFFICULTY UNDERSTANDING YOU? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF13. WHEN (*name*) SPEAKS, DO YOU HAVE DIFFICULTY UNDERSTANDING HIM/HER? WOULD YOU SAY YOU HAVE: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF14. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY LEARNING THINGS? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF15. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY PLAYING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty.....1 Some difficulty.....2 A lot of difficulty.....3 Cannot do at all.....4	
CF16. COMPARED WITH CHILDREN OF THE SAME AGE, HOW MUCH DOES (*name*) KICK, BITE OR HIT OTHER CHILDREN OR ADULTS? WOULD YOU SAY: NOT AT ALL, THE SAME OR LESS, MORE OR A LOT MORE?	Not at all.....1 The same or less.....2 More.....3 A lot more.....4	

2.4. Module on Child Functioning (Age 5-17 Years)

CHILD FUNCTIONING (AGE 5-17)		CF
CF1. I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT DIFFICULTIES YOUR CHILD MAY HAVE. DOES (*name*) WEAR GLASSES OR CONTACT LENSES?	Yes No	 2⇨CF3
CF2. WHEN WEARING HIS/HER GLASSES OR CONTACT LENSES, DOES (*name*) HAVE DIFFICULTY SEEING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty Some difficulty A lot of difficulty Cannot do at all	1⇨CF4 2⇨CF4 3⇨CF4 4⇨CF4
CF3. DOES (*name*) HAVE DIFFICULTY SEEING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty Some difficulty A lot of difficulty Cannot do at all	
CF4. DOES (*name*) USE A HEARING AID?	Yes No	 2⇨CF6
CF5. WHEN USING HIS/HER HEARING AID, DOES (*name*) HAVE DIFFICULTY HEARING SOUNDS LIKE PEOPLES' VOICES OR MUSIC? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty Some difficulty A lot of difficulty Cannot do at all	1⇨CF7 2⇨CF7 3⇨CF7 4⇨CF7
CF6. DOES (*name*) HAVE DIFFICULTY HEARING SOUNDS LIKE PEOPLES' VOICES OR MUSIC? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty Some difficulty A lot of difficulty Cannot do at all	
CF7. DOES (*name*) USE ANY EQUIPMENT OR RECEIVE ASSISTANCE FOR WALKING?	Yes No	 2⇨CF12
CF8. WITHOUT HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING 100 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 1 FOOTBALL FIELD. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	Some difficulty A lot of difficulty Cannot do at all	 3⇨CF10 4⇨CF10

CF9. WITHOUT HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING 500 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 5 FOOTBALL FIELDS. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF10. WITH HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING 100 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 1 FOOTBALL FIELD. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	 3⇨CF14 4⇨CF14
CF11. WITH HIS/HER EQUIPMENT OR ASSISTANCE, DOES (*name*) HAVE DIFFICULTY WALKING 500 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 5 FOOTBALL FIELDS. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	1⇨CF14
CF12. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY WALKING 100 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 1 FOOTBALL FIELD. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	 3⇨CF14 4⇨CF14
CF13. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY WALKING 500 YARDS/METERS ON LEVEL GROUND? THAT WOULD BE ABOUT THE LENGTH OF 5 FOOTBALL FIELDS. [OR INSERT COUNTRY SPECIFIC EXAMPLE]. WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF14. DOES (*name*) HAVE DIFFICULTY WITH SELF-		

CARE SUCH AS FEEDING OR DRESSING HIM/HERSELF? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF15. WHEN (*name*) SPEAKS, DOES HE/SHE HAVE DIFFICULTY BEING UNDERSTOOD BY PEOPLE INSIDE OF THIS HOUSEHOLD? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF16. WHEN (*name*) SPEAKS, DOES HE/SHE HAVE DIFFICULTY BEING UNDERSTOOD BY PEOPLE OUTSIDE OF THIS HOUSEHOLD? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF17. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY LEARNING THINGS? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF18. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY REMEMBERING THINGS? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF19. DOES (*name*) HAVE DIFFICULTY CONCENTRATING ON AN ACTIVITY THAT HE/SHE ENJOYS DOING? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF20. DOES (*name*) HAVE DIFFICULTY ACCEPTING CHANGES IN HIS/HER ROUTINE? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty ..... Some difficulty ..... A lot of difficulty ..... Cannot do at all	
CF21. COMPARED WITH CHILDREN OF THE SAME AGE, DOES (*name*) HAVE DIFFICULTY CONTROLLING HIS/HER BEHAVIOUR?	No difficulty	

WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	Some difficulty..... A lot of difficulty..... Cannot do at all.....	
CF22. DOES (*name*) HAVE DIFFICULTY MAKING FRIENDS? WOULD YOU SAY (*name*) HAS: NO DIFFICULTY, SOME DIFFICULTY, A LOT OF DIFFICULTY OR CANNOT DO AT ALL?	No difficulty..... Some difficulty..... A lot of difficulty..... Cannot do at all.....	
CF23. HOW OFTEN DOES (*name*) SEEM VERY ANXIOUS, NERVOUS OR WORRIED? WOULD YOU SAY: DAILY, WEEKLY, MONTHLY, A FEW TIMES A YEAR OR NEVER?	Daily..... Weekly..... Monthly..... A few times a year ..... Never	
CF24. HOW OFTEN DOES (*name*) SEEM VERY SAD OR DEPRESSED? WOULD YOU SAY: DAILY, WEEKLY, MONTHLY, A FEW TIMES A YEAR OR NEVER?	Daily..... Weekly..... Monthly..... A few times a year ..... Never	

Chapter 3

Intellectual Disabilities, Learning Disabilities and Autism Spectrum Disorder (ASD): Definitions, Characteristics and Causes

Objective:

The objective of this chapter is to understand and learn about definitions, characteristics and causes of Intellectual Disability, Learning Disability and Autism Spectrum Disorder.

3.1. Intellectual disabilities

3.1.1. Definition:

Intellectual disability is a disability characterized by significant limitations in both intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills. This disability originates before the age of 18.

Intellectual functioning, also called intelligence, refers to general mental capacity, such as learning, reasoning, problem solving, and so on. One way to measure intellectual functioning is an Intelligence Quotient (IQ) test. Generally, an IQ test score of around 70 or as high as 75 indicates a limitation in intellectual functioning.

Adaptive behavior is the collection of conceptual, social, and practical skills that are learned and performed by people in their everyday lives.

- Conceptual skills—language and literacy; money, time, and number concepts; and self-direction.
- Social skills—interpersonal skills, social responsibility, self-esteem, gullibility, naïveté (i.e., wariness), social problem solving, and the ability to follow rules/obey laws and to avoid being victimized.
- Practical skills—activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone.
- Standardized tests can also determine limitations in adaptive behavior.

Age of Onset:

This condition is one of several developmental disabilities - that is, there is evidence of the disability during the developmental period, which can be noticed before the age of 18.

Additional Considerations:

But in defining and assessing intellectual disability, the American Association on Intellectual and Developmental Disabilities (AAIDD) stresses that additional factors must be taken into account, such as the community environment typical of the individual's peers and culture. Professionals should also consider linguistic diversity and cultural differences in the way people communicate, move, and behave.

Finally, assessments must also assume that limitations in individuals often coexist with strengths, and that a person's level of life functioning will improve if appropriate personalized supports are provided over a sustained period.

Only on the basis of such multidimensional evaluations can professionals determine whether an individual has an intellectual disability and tailor individualized support plans.

3.1.2. Classification:

Experts divide the types of cognitive impairments into four categories: mild intellectual disability, moderate intellectual disability, severe intellectual disability, and profound intellectual disability. The degree of impairment from an intellectual disability varies widely. DSM-V places less emphasis on the degree of impairment (i.e. IQ scores) and more on the amount and type of intervention needed.

While IQ scores are still relevant and important in assessing the level of intellectual disability, the new DSM-V adds another layer of diagnostic criteria (Intellectual Disability: Causes and Characteristics). Mental health professionals must consider the person's ability or impairment across three skill areas: conceptual, social, and practical life skill.

The category details are as follows:

Mild intellectual disability

- IQ 50 to 70
- Slower than typical in all developmental areas
- No unusual physical characteristics
- Able to learn practical life skills
- Attains reading and math skills up to grade levels 3 to 6
- Able to blend in socially
- Functions in daily life
- About 85 percent of people with intellectual disabilities fall into the mild category and many achieve academic success. A person who can read, but has difficulty comprehending what he or she reads represents one example of someone with mild intellectual disability.

Moderate intellectual disability

- IQ 35 to 49
- Noticeable developmental delays (i.e. speech, motor skills)
- May have physical signs of impairment (i.e. thick tongue)
- Can communicate in basic, simple ways
- Able to learn basic health and safety skills
- Can complete self-care activities
- Can travel alone to nearby, familiar places
- People with moderate intellectual disability have fair communication skills, but cannot typically communicate on complex levels. They may have difficulty in social situations and problems with social cues and judgment. These people can care for themselves, but might need more instruction and support than the typical person. Many can live in independent situations, but some still need the support of a group home. About 10 percent of those with intellectual disabilities fall into the moderate category.

Severe intellectual disability

- IQ 20 to 34
- Considerable delays in development
- Understands speech, but little ability to communicate
- Able to learn daily routines
- May learn very simple self-care

- Needs direct supervision in social situations
- Only about 3 or 4 percent of those diagnosed with intellectual disability fall into the severe category. These people can only communicate on the most basic levels. They cannot perform all self-care activities independently and need daily supervision and support. Most people in this category cannot successfully live an independent life and will need to live in a group home setting.

Profound intellectual disability

- IQ less than 20
- Significant developmental delays in all areas
- Obvious physical and congenital abnormalities
- Requires close supervision
- Requires attendant to help in self-care activities
- May respond to physical and social activities
- Not capable of independent living
- People with profound intellectual disability require round-the-clock support and care. They depend on others for all aspects of day-to-day life and have extremely limited communication ability. Frequently, people in this category have other physical limitations as well. About 1 to 2 percent of people with intellectual disabilities fall into this category.

According to the new DSM-V, though, someone with severe social impairment (so severe they would fall into the moderate category, for example) may be placed in the mild category because they have an IQ of 80 or 85. So the changes in the DSM-V require mental health professionals to assess the level of impairment by weighing the IQ score against the person's ability to perform day-to-day life skills and activities.

3.1.3. Characteristics:

Most children with intellectual impairments are in the mild range with an IQ of 50 to 70. For many of these children, there is no specific known cause of their developmental delays.

The two characteristics shared in varying degrees by all children with intellectual disabilities are limitations in intellectual functioning and limitations in adaptive behavior. Limitations in intellectual functioning often include difficulties with memory recall, task and skill generalization, and these students may demonstrate a tendency towards low motivation and learned helplessness. Issues in adaptive behavior may include difficulties with conceptual skills, social skills and practical skills. Children with intellectual disabilities also tend to exhibit deficits in self-determination skills, including skill areas such as choice making, problem solving, and goal setting.

Students diagnosed as having mildly intellectually impairments demonstrate delays in cognitive, social, and adaptive behavior skills within typical classroom settings. In different settings, these same individuals function quite capably both socially and vocationally. In their adult lives, these individuals can be independent and well-adjusted in the world outside of school settings. It is only in the context of academic demands and intensive intellectual challenges that their abilities appear impaired. This type of school-based diagnosis has been referred to as "six-hour intellectual impairment", reflecting the time the student is actually in the classroom and appears to be academically impaired. The assertion that intellectual disabilities is a school-based diagnosis underlines the often arbitrary nature of eligibility requirements in this disability category for future adult services.

Impact on Learning:

With the appropriate supports in place, students with intellectual disabilities can achieve a high quality of life in many different aspects. Standard curriculum and instruction must be carefully modified where necessary to help these students reach their potential in both academics and other functional areas such as independent living. While these students will have limitations in adaptive behaviors, these limitations will co-exist alongside strengths in other areas within the same child. Academic and social learning to reach their potential as well as independence and self-reliance should always be primary goals of all instructional strategies employed with students with intellectual disabilities.

However, a child with a significant intellectual impairment will not be able to cognitively "catch up" with his or her peers in terms of academic performance. In fact, the opposite is often true and the child may fall further behind as it gets older, particularly if no appropriate academic supports are implemented. Even with a good program in place, the cognitive and academic gap between these students and their typically functioning peers often widens with age. The child with developmental delays will learn and understand fewer things at a slower pace than the average child, and intellectual development will always be impaired. However, a child with an intellectual impairment will continue to learn and understand some aspects of the world, but this cognitive growth is less complete and there will remain gaps in the student's knowledge base. Because new learning is filtered through a younger mental context in children with developmental delays, the quality of what is learned and how it is applied will be different from that of a typically developing peer.

3.1.4. Causes:

Intellectual disability can be caused by any condition that impairs development of the brain before birth, during birth or in the childhood years. Many causes have been discovered, but in about one-third of children affected, the cause remains unknown. The three major types of intellectual disability are Down syndrome, Fetal Alcohol Spectrum Disorder (FASD) and Fragile X syndrome. The causes can be categorized as follows:

- Genetic conditions - These result from abnormalities of genes inherited from parents, errors when genes combine, or from other disorders of the genes caused during pregnancy by infections, overexposure to x-rays and other factors. There are many genetic diseases associated with intellectual disability. Some examples include PKU (phenylketonuria), a single gene disorder. Due to a missing or defective enzyme, children with PKU cannot process a part of a protein called phenylalanine. Without treatment, phenylalanine builds up in the blood and causes intellectual disability. Down syndrome is an example of a chromosomal disorder. Chromosomal disorders happen sporadically and are caused by too many or too few chromosomes, or by a change in structure of a chromosome. Fragile X syndrome is a single gene disorder located on the X chromosome and is the leading inherited cause of intellectual disability.

- Problems during pregnancy - Use of alcohol or drugs by the pregnant mother can cause intellectual disability. In fact, alcohol is known to be the leading preventable cause of intellectual disability. Recent research has implicated smoking in increasing the risk of intellectual disability. Other risks include malnutrition, certain environmental toxins, and illnesses of the mother during pregnancy, such as toxoplasmosis, cytomegalovirus, rubella and syphillis.

- Problems at birth - Prematurity and low birth weight may result in serious problems such as a disruption of important processes involved in early brain development. Difficulties during the birth process such as temporary oxygen deprivation or birth injuries may cause intellectual disability.

- Problems after birth - Childhood diseases such as whooping cough, chicken pox, measles, and Hib disease (an infection caused by Haemophilus influenzae type B Hib, which mainly affects children in the first 5 years of life) that may lead to meningitis and encephalitis can damage the brain, as can

injuries such as a blow to the head or near drowning. Lead, mercury and other environmental toxins can cause irreparable damage to the brain and nervous system.

- Poverty and deprivation - Children growing up in poverty are at higher risk for malnutrition, childhood diseases, exposure to environmental health hazards and often receive inadequate health care. These factors increase the risk of intellectual disability. Also, children in disadvantaged areas may be deprived of educational and development stimulating experiences provided to other youngsters.

3.1.5. Prevention:

- Certain causes of intellectual disability are preventable. The most common of these is fetal alcohol syndrome. Pregnant women shouldn't drink alcohol. Getting proper prenatal care, taking a prenatal vitamin, and getting vaccinated against certain infectious diseases can also lower the risk that a child will be born with intellectual disabilities.

- In families with a history of genetic disorders, genetic testing may be recommended before conception.

- Certain tests, such as ultrasound and amniocentesis, can also be performed during pregnancy to look for problems associated with intellectual disability. Although these tests may identify problems before birth, they cannot correct them.

- Other interventions have reduced the chance of intellectual disability. Removing lead from the environment reduces brain damage in children. Preventive interventions such as child safety seats and bicycle helmets reduce head trauma. Early intervention programs with high-risk infants and toddlers have shown positive effects on intellectual functioning. Finally, early comprehensive prenatal care and preventive measures prior to and during pregnancy increase a woman's chances of preventing intellectual disability. Dietary supplementation with folic acid, taken before and during pregnancy, reduces the risk of neural tube defects. Women who have phenylketonuria (PKU) should be counseled to go on a restricted phenylalanine diet three months prior to pregnancy to prevent intellectual disability in their baby.

- The health of a baby can depend on how healthy a mother is before pregnancy. Ideally, she should obtain a general health assessment six months before pregnancy that includes:

  - Updating immunizations;
  - Reviewing use of medications;
  - Reviewing diet and vitamin supplementation, including folic acid;
  - Considering genetic counseling; and
  - Stopping use of alcohol, cigarettes or other tobacco forms, illegal drugs, and legal drugs not approved by the doctor.

- Prenatal care should begin as soon as she suspects she is pregnant. During pregnancy, a woman can protect the developing fetus by:

  - Getting plenty of rest and sleep;
  - Eating nutritious meals;
  - Avoiding alcohol, cigarettes and drugs;
  - Avoiding people who are sick;
  - Wearing seat belts in a car; and
  - Not lifting heavy objects.

- Genetic counseling should be considered if:

  - The child may inherit a genetic or chromosomal disorder because of a specific condition in the family;
  - A previous birth to either parent resulted in a child with a genetic disorder, unexplained intellectual disability or a birth defect;
  - The mother has had two or more miscarriages or a baby who died in infancy;
  - The mother is 35 years of age or over;
  - Either partner is of a race or ethnic group with a high incidence of a genetic condition; or the partners are blood relatives.

- Intellectual disability can be prevented during childhood by knowing the causes and taking steps to keep children safe and healthy. These steps include:

  - Childhood immunizations to protect children from at least six diseases that can lead to brain damage. These include measles, mumps, pertussis (whooping cough), Hib disease, varicella (chicken pox), and pneumococcal disease.
  - Injury prevention to avoid brain damage, such as using bicycle helmets and safety seats and seat belts in automobiles; preventing near-drowning; preventing falls and protecting babies from severe shaking.
  - Newborn screening to identify treatable genetic conditions.
  - Reducing the incidence of Reye's syndrome caused by giving medicines containing salicylate (aspirin); instead, using medicines containing acetaminophen (such as Tylenol) to reduce the brain damage caused by Reye's syndrome.
  - Reducing exposure to lead, mercury and other toxins in the environment that are known to cause brain damage.
  - Protecting children from household products that are poisonous.

3.1.6. Intelligence Quotient (IQ):

An intelligence quotient (IQ) is a total score derived from several standardized tests designed to assess human intelligence. The abbreviation "IQ" was coined by the psychologist William Stern for the German term Intelligenzquotient, his term for a scoring method for intelligence tests at University of Wrocław he advocated in a 1912 book.

Historically, IQ is a score obtained by dividing a person's mental age score, obtained by administering an intelligence test, by the person's chronological age, both expressed in terms of years and months. The resulting fraction is multiplied by 100 to obtain the IQ score. When current IQ tests were developed, the median raw score of the norming sample is defined as IQ 100 and scores each standard deviation (SD) up or down are defined as 15 IQ points greater or less, although this was not always so historically. By this definition, approximately two-thirds of the population scores are between IQ 85 and IQ 115. About 5 percent of the population scores above 125, and 5 percent below 75.

Scores from intelligence tests are estimates of intelligence because concrete measurements (e.g. distance, mass) cannot be achieved given the abstract nature of the concept of "intelligence". IQ scores have been shown to be associated with such factors as morbidity and mortality, parental social status, and, to a substantial degree, biological parental IQ. While the heritability of IQ has been investigated for nearly a century, there is still debate about the significance of heritability estimates and the mechanisms of inheritance.

IQ scores are used for educational placement, assessment of intellectual disability, and evaluating job applicants. Even when students improve their scores on standardized tests, they do not always improve their cognitive abilities, such as memory, attention and speed. In research contexts they have been studied as predictors of job performance, and income.

3.2. Learning Disabilities

3.2.1. Definition:

A learning disability is a neurological disorder. In simple terms, a learning disability results from a difference in the way a person's brain is "wired." Children with learning disabilities are as smart or smarter than their peers. But they may have difficulty reading, writing, spelling, reasoning, recalling and/or organizing information if left to figure things out by themselves or if taught in conventional ways.

A learning disability can't be cured or fixed; it is a lifelong issue. With the right support and intervention, however, children with learning disabilities can succeed in school and go on to successful, often distinguished careers later in life.

We can help children with learning disabilities achieve such success by encouraging their strengths, knowing their weaknesses, understanding the educational system, working with professionals and learning about strategies for dealing with specific difficulties.

Not all great minds think alike:

Did you know that Albert Einstein couldn't read until he was nine? Walt Disney, General George Patton, and former U.S. Vice President, Nelson Rockefeller had trouble reading all their lives. Whoopi Goldberg and Charles Schwab and many others have learning disabilities which haven't affected their ultimate success.

Some facts about learning disabilities:

- Fifteen percent of the U.S. population, or one in seven Americans, has some type of learning disability, according to the National Institutes of Health.

- Difficulty with basic reading and language skills are the most common learning disabilities. As many as 80% of students with learning disabilities have reading problems.

- Learning disabilities often run in families.

- Learning disabilities should not be confused with other disabilities such as autism, intellectual disability, deafness, blindness, and behavioral disorders. None of these conditions are learning disabilities. In addition, they should not be confused with lack of educational opportunities like frequent changes of schools or attendance problems. Also, children who are learning English do not necessarily have a learning disability.

- Attention disorders, such as Attention Deficit/Hyperactivity Disorder (ADHD) and learning disabilities often occur at the same time, but the two disorders are not the same.

Common learning disabilities:

- **Dyslexia**: Dyslexia is a language-based disability in which a person has trouble understanding written words. It may also be referred to as reading disability or reading disorder.

- **Dyscalculia**: Dyscalculia is a mathematical disability in which a person has a difficult time solving arithmetic problems and grasping math concepts.

- **Dysgraphia**: Dysgraphia is a writing disability in which a person finds it hard to form letters or write within a defined space.

- **Auditory and Visual Processing Disorders**: Auditory and Visual Processing Disorders is sensory disabilities in which a person has difficulty understanding language despite normal hearing and vision.

- **Nonverbal Learning Disabilities**: Nonverbal Learning Disabilities is a neurological disorder which originates in the right hemisphere of the brain, causing problems with visual-spatial, intuitive, organizational, evaluative and holistic processing functions.

Common Signs of Learning Disabilities:

The good news about learning disabilities is that scientists are learning more every day. Their research provides hope and direction.

If parents, teachers, and other professionals discover a child's learning disability early and provide the right kind of help, it can give the child a chance to develop skills needed to lead a successful and productive life. A recent National Institutes of Health, Bethesda, Maryland, USA, study showed that 67 percent of young students who were at risk for reading difficulties became average or above average readers after receiving help in the early grades.

Parents are often the first to notice that "something doesn't seem right." If you are aware of the common signs of learning disabilities, you will be able to recognize potential problems early. The following is a checklist of characteristics that may point to a learning disability. Most people will, from time to time, see one or more of these warning signs in their children. This is normal. If, however, you see several of these characteristics over a long period of time, consider the possibility of a learning disability.

Preschool:

- Speaks later than most children
- Pronunciation problems
- Slow vocabulary growth, often unable to find the right word
- Difficulty rhyming words
- Trouble learning numbers, alphabet, days of the week, colors, shapes
- Extremely restless and easily distracted
- Trouble interacting with peers
- Difficulty following directions or routines
- Fine motor skills slow to develop

Grades K-4:

- Slow to learn the connection between letters and sounds
- Confuses basic words (run, eat, want)
- Makes consistent reading and spelling errors including letter reversals (b/d), inversions (m/w), transpositions (felt/left), and substitutions (house/home)
- Transposes number sequences and confuses arithmetic signs (+, -, x, /, =)
- Slow to remember facts
- Slow to learn new skills, relies heavily on memorization
- Impulsive, difficulty planning

- Unstable pencil grip
- Trouble learning about time
- Poor coordination, unaware of physical surroundings, prone to accidents

Grades 5-8:

- Reverses letter sequences (soiled/solid, left/felt)
- Slow to learn prefixes, suffixes, root words, and other spelling strategies
- Avoids reading aloud
- Trouble with word problems
- Difficulty with handwriting
- Awkward, fist-like, or tight pencil grip
- Avoids writing assignments
- Slow or poor recall of facts
- Difficulty making friends
- Trouble understanding body language and facial expressions

High School Students and Adults:

- Continues to spell incorrectly, frequently spells the same word differently in a single piece of writing
- Avoids reading and writing tasks
- Trouble summarizing
- Trouble with open-ended questions on tests
- Weak memory skills
- Difficulty adjusting to new settings
- Works slowly
- Poor grasp of abstract concepts
- Either pays too little attention to details or focuses on them too much
- Misreads information

3.2.2. Causes:

Researchers do not know exactly what causes learning disabilities, but they appear to be related to differences in brain structure. These differences are present from birth and often are inherited. To improve understanding of learning disabilities, researchers are studying areas of the brain and how they function. Scientists have found that learning disabilities are related to areas of the brain that deal with language and have used imaging studies to show that the brain of a dyslexic person develops and functions differently from a typical brain.

Sometimes, factors that affect a developing fetus, such as alcohol or drug use, can lead to a learning disability. Other factors in an infant's environment may play a role as well. These can include poor nutrition and exposure to toxins such as lead in water or paint. In addition, children who do not receive the support necessary to promote their intellectual development early on may show signs of learning disabilities once they start school.

Sometimes a person may develop a learning disability later in life. Possible causes in such a case include dementia or a traumatic brain injury (TBI).

Since no one knows for sure what causes learning disabilities, mental health professionals stress that it does not help to look backward to search for possible reasons. Despite substantial work related to this field,

determining precise causation has been difficult, and the effort to do so still continues (Hardman, Drew, & Egan, 2003). As should be evident after reading this chapter, there are likely many causes of learning disabilities, and in some cases, a specific type of learning disability may have multiple causes. Teachers need to recognize that it is not certain what causes learning disabilities and to not make assumptions about the students they teach (Deutsch-Smith, 2004).

Consequently, parents and teachers must adopt an eclectic, multidisciplinary approach and seek advice from professionals in the field. It is far more important to move forward in finding ways to cope effectively and overcome the difficulties.

3.2.3. Prevention:

- Prevention is usually described as primary, secondary, or tertiary, depending on when and why preventive action is taken. The prevention of learning disabilities may involve all three types.

- Primary prevention means keeping the disability from occurring in the first place. Primary prevention in learning disabilities might involve reducing the chances of brain injury, improving teachers' skills in instruction and behavior management, or teaching parents child-rearing skills. For primary prevention to work, the strategy must be aimed at reducing or eliminating the cause(s) of learning disabilities or protecting against causal factors.

  For example, it was too late to do primary prevention of the difficulties noticed in kindergarten by Jamal's teacher. After problems emerge, it is too late for primary prevention.
- We caution that even if primary prevention is implemented - including good instruction-learning disabilities will occur. Primary prevention may reduce the number of children who have learning disabilities or lessen the severity of the disabilities, but it will not eliminate learning disabilities (the same statement can be made regarding primary prevention of any type of disability; see Kauffman, 1999, 2003). Thus, primary prevention is important in keeping the prevalence of learning disabilities as low as possible. However, it is a mistake to assume that it will reduce the prevalence to zero.

3.3. Autism spectrum disorder (ASD)

Autism spectrum disorder (ASD) takes on a new meaning in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). The American Psychiatric Association (APA), responsible for developing the new DSM, believes that the changes in diagnostic criteria provide a more accurate and useful way of diagnosing people with autism-related disorders.

Under the old DSM-IV, people could receive one of four separate diagnoses:

- Autism
- Asperger's disorder
- Childhood disintegrative disorder
- Pervasive developmental disorder not otherwise specified (PDD-NOS)

According to research, clinicians did not consistently apply these diagnoses in their clinics and treatment programs. The DSM-V removes these four disorders as separate conditions and places them all under the autism spectrum disorder umbrella.

Even though the four pervasive developmental disorders now appear on the autism spectrum, anyone previously diagnosed with one of them should continue to meet ASD criteria in the DSM-V.

3.3.1. Definition:

The term autism spectrum disorder refers to a range of disorders classified as pervasive developmental disorders (PDD) in the DSM-V. The autism spectrum disorder definition was revised to reflect important advances in research since the DSM-IV criteria were published in 1994. Autism represents the core of the autism spectrum disorders. Autism is characterized by "persistent deficits in social communication and social interaction across multiple contexts", according to the Autism Speaks website. Individuals with autism show impairment in the following:

- Impairment in social and emotional reciprocity that ranges from abnormal social approaches and failure to participate in typical give-and-take conversations to diminished sharing of interests and emotions as well as failure to respond to social cues and interactions.
- Impairment in use and understanding of nonverbal communications used in social interactions, such as inability to make eye contact and abnormalities in body language. These children also have difficulty understanding the use of physical gestures and often have a complete lack of facial expression.
- Impairment in developing and maintaining social relationships.

Individuals with autism also exhibit restrictive, repetitive patterns of behavior, interests and activities, including:

- Repetitive motions or repetitive use of objects or speech
- Inflexible insistence on sameness in routines, exhibit ritualized behavior patterns or nonverbal behavior.
- Restricted, narrow and fixated interests.

- Extreme sensitivity or insensitivity to sensory input from the environment, such as temperature, sounds, and textures.

These represent a broad overview of autism spectrum disorder symptoms. The symptoms can range from mild to very severe on the autism spectrum. The severity dictates the type of interventions and treatments the clinician advises.

Asperger's syndrome disorder is closely related to typical autism when it comes to symptoms and probably causes. People with this type of autism, formerly called Asperger's syndrome, don't have a significant delay in language development as they do with more severe forms of autism.

Those with the condition formerly known as childhood disintegrative disorder seem to develop normally and show age-appropriate verbal and non-verbal communication skills as well as appropriate motor, social, and self-care skills. But somewhere between the ages of 2 and 10 years, people with this type of autism lose these skills almost completely in at least two developmental areas.

Children with the form of autism previously called PDD-NOS have severe and pervasive impairment in reciprocal social interaction or verbal and nonverbal communication skills and show other stereotypical behaviors associated with autism, but do not meet criteria for a specific pervasive developmental disorder.

3.3.2. Causes of Autism Spectrum Disorder:

Experts don't have a clear understanding about the causes of autism spectrum disorder, but scientists believe that genetics and environment play a significant role. Research studies have identified a number of genes associated with ASD and have found differences in brain structure of people with the disorder. Some studies suggest that individuals with ASD have insufficient levels of the neurotransmitter, serotonin, in the brain. These abnormalities may occur due to disruption of normal brain development during a critical time of fetal development. While these findings are interesting, scientists have a long way to go before they pinpoint exact causes of ASD.

3.3.3. Autism Spectrum Disorder Signs:

Autism spectrum disorder signs vary by individual, as does severity. This may result in the signs going unnoticed, especially in children with mild autism. It's important to note that, in some cases, symptoms can lessen over time, but studies show that over 70 percent of adults with autism are still dependent on their families and need help attending to basic daily living duties. It's important that these adults continue to receive qualified assistance and familial support. The earlier an individual receives an accurate diagnosis, the better the future outcome. If the child exhibits any of the following signs, he or she may need an autism assessment:

- No babbling or "baby talk" by 12 months
- No single words by 16 months or no two-word phrases by 24 months
- Does not respond to name by age 1
- Rapid loss of attained language or social skills
- Poor eye contact
- Excessive lining up or organizing toys and objects
- No smiling in response to your smile
- Diminished ability to make and maintain friendships
- Inability to initiate or maintain casual conversation with others
- Absence of pretend play and imaginative social play (i.e. playing house, doctor)
- Repetitive or unusual use of language
- Narrow patterns of interest that are excessive

- Excessive preoccupation with certain topics or objects
- Excessive resistance to change in routine

The family physician or clinician will use a questionnaire or other tool to collect information about child's development and behavior patterns.

3.3.4. Autism Spectrum Disorder Assessment:

Clinicians, such as a psychologist or psychiatrist, will give the child an autism assessment to determine if he or she is exhibiting autism spectrum disorder symptoms or if it's something else. The DSM-5 requires that symptoms appear in early childhood even if they're not recognized until later.

To receive an autism spectrum disorder diagnosis, individuals must meet all of the following criteria associated with impairment in social communication and interaction across various settings:

- **Difficulty engaging in social or emotional interactions**: The individual will have problems establishing and maintaining the normal give-and-take required in conversational interactions. He or she seemingly cannot initiate interaction and will have issues sharing feelings and interests with others.

- **Persistent and marked difficulty maintaining social relationships**: The child may not have any interest in others and may not have the ability to engage in pretend play and other age-appropriate activities. He or she may not have the ability to adjust to changes in social contexts and requirements.

- **Nonverbal communication difficulties**: The child may have problems establishing and maintaining eye contact and have an inability to understand and respond to body language, such as posture, facial expressions, tone of voice, and other cues.

And individuals must meet two of the four symptoms related to repetitive and restrictive behavior patterns:

- Repetitive or restrictive speech, body movements, or use of objects (i.e. lining up toys)
- Ritualized patterns of behavior, both verbal and nonverbal and excessive insistence on adhering to routines
- Narrow and highly restricted interests that are excessive in focus or intensity
- Hyper- or hypo-sensitivity to environmental sensory inputs (i.e. temperature, texture, sound) or excessive interest in these aspects of the external environment

Autism Spectrum Disorder Diagnosis:

A comprehensive autism assessment requires the collaboration of several professionals: psychologist, psychiatrist, neurologist, speech therapist, and others. These professionals will conduct a thorough neurological exam as well as cognitive and language testing. This will help clinicians identify the severity of autism, which will allow them to develop an effective therapy and intervention plan based on the child's individual needs.

3.3.5. Autism Spectrum Disorder Treatment:

While there's no cure for autism spectrum disorder, there are treatments for ASD and interventions available that can alleviate certain symptoms and lead to significant improvement. The clinician will develop a treatment and intervention plan based on the child's individual needs and the severity of the ASD. Treatments and interventions may include:

- Education and behavior interventions

- Medications (i.e. to treat anxiety, depression, Obsessive-Compulsive Disorder (OCD), and other autism-related symptoms)
- Other therapeutic interventions

Chapter 4

Down Syndrome and Cerebral Palsy

Objective: The objective of this chapter is to understand and learn about definitions, characteristics and causes of Down Syndrome and Cerebral Palsy.

4.1. Down Syndrome

4.1.1. Definition:

Down syndrome is a genetic disorder caused when abnormal cell division results in an extra full or partial copy of chromosome 21. This extra genetic material causes the developmental changes and physical features of Down syndrome.

Our bodies are made up of millions of cells. In each cell there are 46 chromosomes. The DNA in our chromosomes determines how we develop. Down syndrome is caused when there is an extra chromosome. People with Down syndrome have 47 chromosomes in their cells instead of 46. They have an extra chromosome 21, which is why Down syndrome is also sometimes known as trisomy 21.

Although we know how Down syndrome occurs, we do not yet know why it happens. Down syndrome occurs at conception, across all ethnic and social groups and to parents of all ages. It is nobody's fault. There is no cure and it does not go away.

Down syndrome varies in severity among individuals, causing lifelong intellectual disability and developmental delays. It's the most common genetic chromosomal disorder and cause of learning disabilities in children. It also commonly causes other medical abnormalities, including heart and gastrointestinal disorders.

Better understanding of Down syndrome and early interventions can greatly increase the quality of life for children and adults with this disorder and help them live fulfilling lives.

4.1.2. Symptoms:

Each person with Down syndrome is an individual - intellectual and developmental problems may be mild, moderate or severe. Some people are healthy while others have significant health problems such as serious heart defects.

Children and adults with Down syndrome have distinct facial features. Though not all people with Down syndrome have the same features, some of the more common features include:

- Flattened face
- Small head
- Short neck
- Protruding tongue
- Upward slanting eye lids (palpebral fissures)
- Unusually shaped or small ears
- Poor muscle tone
- Broad, short hands with a single crease in the palm
- Relatively short fingers and small hands and feet
- Excessive flexibility
- Tiny white spots on the colored part (iris) of the eye called Brushfield's spots
- Short height

Infants with Down syndrome may be average size, but typically they grow slowly and remain shorter than other children the same age.

Intellectual disabilities:
Most children with Down syndrome have mild to moderate cognitive impairment. Language is delayed, and both short and long-term memory is affected.

When to see a doctor:
Children with Down syndrome usually are diagnosed before or at birth. However, if you have any questions regarding your pregnancy or your child's growth and development, talk with your doctor.

4.1.3. The genetic basis of Down syndrome:

Human cells normally contain 23 pairs of chromosomes. One chromosome in each pair comes from your father, the other from your mother.

Down syndrome results when abnormal cell division involving chromosome 21 occurs. These cell division abnormalities result in an extra partial or full chromosome 21. This extra genetic material is responsible for the characteristic features and developmental problems of Down syndrome. Any one of three genetic variations can cause Down syndrome:

- **Trisomy 21.** About 95 percent of the time, Down syndrome is caused by trisomy 21 - the person has three copies of chromosome 21, instead of the usual two copies, in all cells. This is caused by abnormal cell division during the development of the sperm cell or the egg cell.

- **Mosaic Down syndrome.** In this rare form of Down syndrome, a person has only some cells with an extra copy of chromosome 21. This mosaic of normal and abnormal cells is caused by abnormal cell division after fertilization.

- **Translocation Down syndrome.** Down syndrome can also occur when a portion of chromosome 21 becomes attached (translocated) onto another chromosome, before or at conception. These children have the usual two copies of chromosome 21, but they also have additional genetic material from chromosome 21 attached to another chromosome.

There are no known behavioral or environmental factors that cause Down syndrome.

Is it inherited?

Most of the time, Down syndrome isn't inherited. It's caused by a mistake in cell division during early development of the fetus.

Translocation Down syndrome can be passed from parent to child. However, only about 3 to 4 percent of children with Down syndrome have translocation and only some of them inherited it from one of their parents.

When balanced translocations are inherited, the mother or father has some rearranged genetic material from chromosome 21 on another chromosome, but no extra genetic material. This means he or she has no signs or symptoms of Down syndrome, but can pass an unbalanced translocation on to children, causing Down syndrome in the children.

4.1.4. Risk factors:

Some parents have a greater risk of having a baby with Down syndrome. Risk factors include:

- **Advancing maternal age.** A woman's chances of giving birth to a child with Down syndrome increase with age because older eggs have a greater risk of improper chromosome division. A woman's risk of conceiving a child with Down syndrome increases after 35 years of age. However, most children with Down syndrome are born to women under age 35 because younger women have far more babies.

- **Being carriers of the genetic translocation for Down syndrome.** Both men and women can pass the genetic translocation for Down syndrome on to their children.

- **Having had one child with Down syndrome.** Parents who have one child with Down syndrome and parents who have a translocation themselves are at an increased risk of having another child with Down syndrome. A genetic counselor can help parents assess the risk of having a second child with Down syndrome.

Complications:

People with Down syndrome can have a variety of complications, some of which become more prominent as they get older. These complications can include:

- **Heart defects.** About half the children with Down syndrome are born with some type of congenital heart defect. These heart problems can be life-threatening and may require surgery in early infancy.

- **Gastrointestinal (GI) defects.** GI abnormalities occur in some children with Down syndrome and may include abnormalities of the intestines, esophagus, trachea and anus. The risk of developing digestive problems, such as GI blockage, heartburn (gastroesophageal reflux) or celiac disease, may be increased.

- **Immune disorders.** Because of abnormalities in their immune systems, people with Down syndrome are at increased risk of developing autoimmune disorders, some forms of cancer, and infectious diseases, such as pneumonia.

- **Sleep apnea.** Because of soft tissue and skeletal changes that lead to the obstruction of their airways, children and adults with Down syndrome are at greater risk of obstructive sleep apnea.

- **Obesity.** People with Down syndrome have a greater tendency to be obese compared with the general population.

- **Spinal problems.** Some people with Down syndrome may have a misalignment of the top two vertebrae in the neck (atlantoaxial instability). This condition puts them at risk of serious injury to the spinal cord from overextension of the neck.

- **Leukemia.** Young children with Down syndrome have an increased risk of leukemia.

- **Dementia.** People with Down syndrome have a greatly increased risk of dementia — signs and symptoms may begin around age 50. Having Down syndrome also increases the risk of developing Alzheimer's disease.

- **Other problems.** Down syndrome may also be associated with other health conditions, including endocrine problems, dental problems, seizures, ear infections, and hearing and vision problems.

For people with Down syndrome, getting routine medical care and treating issues when needed can help with maintaining a healthy lifestyle.

Life expectancy:
Life spans have increased dramatically for people with Down syndrome. Today, someone with Down syndrome can expect to live more than 60 years, depending on the severity of health problems.

Diagnosis:
The American College of Obstetricians and Gynecologists recommends offering the option of screening tests and diagnostic tests for Down syndrome to all pregnant women, regardless of age.

- **Screening tests** can indicate the likelihood or chances that a mother is carrying a baby with Down syndrome. But these tests can't tell for sure or diagnose whether the baby has Down syndrome.

- **Diagnostic tests** can identify or diagnose whether your baby has Down syndrome.

Your health care provider can discuss the types of tests, advantages and disadvantages, benefits and risks, and the meaning of your results. If appropriate, your provider may recommend that you talk to a genetics counselor.

4.1.5. Screening tests during pregnancy:

Screening for Down syndrome is offered as a routine part of prenatal care. Although screening tests can only identify your risk of carrying a baby with Down syndrome, they can help you make decisions about more-specific diagnostic tests.

Screening tests include the first trimester combined test and the integrated screening test.

The first trimester combined test:
The first trimester combined test, which is done in two steps, includes:

- **Blood test.** This blood test measures the levels of pregnancy-associated plasma protein-A (PAPP-A) and the pregnancy hormone known as human chorionic gonadotropin (HCG). Abnormal levels of PAPP-A and HCG may indicate a problem with the baby.

- **Nuchal translucency test.** During this test, an ultrasound is used to measure a specific area on the back of your baby's neck. This is known as a nuchal translucency screening test. When abnormalities are present, more fluid than usual tends to collect in this neck tissue.

Using your age and the results of the blood test and the ultrasound, your doctor or genetic counselor can estimate your risk of having a baby with Down syndrome.

Integrated screening test:
The integrated screening test is done in two parts during the first and second trimesters of pregnancy. The results are combined to estimate the risk that your baby has Down syndrome.

- **First trimester.** Part one includes a blood test to measure PAPP-A and an ultrasound to measure nuchal translucency.

- **Second trimester.** The quad screen measures your blood level of four pregnancy-associated substances: alpha fetoprotein, estriol, HCG and inhibin A.

4.1.6. Diagnostic tests during pregnancy:

If your screening test results are positive or worrisome, or you're at high risk of having a baby with Down syndrome, you might consider more testing to confirm the diagnosis. Your health care provider can help you weigh the pros and cons of these tests.
Diagnostic tests that can identify Down syndrome include:

- **Chorionic villus sampling (CVS).** In CVS, cells are taken from the placenta and used to analyze the fetal chromosomes. This test is typically performed in the first trimester, between 10 and 13 weeks of pregnancy. The risk of pregnancy loss (miscarriage) from a CVS is very low.

- **Amniocentesis.** A sample of the amniotic fluid surrounding the fetus is withdrawn through a needle inserted into the mother's uterus. This sample is then used to analyze the chromosomes of the fetus. Doctors usually perform this test in the second trimester, after 15 weeks of pregnancy. This test also carries a very low risk of miscarriage.

Preimplantation genetic diagnosis is an option for couples undergoing in vitro fertilization who are at increased risk of passing along certain genetic conditions. The embryo is tested for genetic abnormalities before it's implanted in the womb.

4.1.7. Diagnostic tests for newborns:

After birth, the initial diagnosis of Down syndrome is often based on the baby's appearance. But the features associated with Down syndrome can be found in babies without Down syndrome, so your health care provider will likely order a test called a chromosomal karyotype to confirm diagnosis. Using a sample of blood, this test analyzes your child's chromosomes. If there's an extra chromosome 21 in all or some cells, the diagnosis is Down syndrome.

4.1.8. Treatment:

Early intervention for infants and children with Down syndrome can make a major difference in improving their quality of life. Because each child with Down syndrome is unique, treatment will depend on individual needs. Also, different stages of life may require different services.

Team care:
If your child has Down syndrome, you'll likely rely on a team of specialists that can provide medical care and help him or her develop skills as fully as possible. Depending on your child's particular needs, your team may include some of these experts:

- Primary care pediatrician to coordinate and provide routine childhood care
- Pediatric cardiologist

- Pediatric gastroenterologist
- Pediatric endocrinologist
- Developmental pediatrician
- Pediatric neurologist
- Pediatric ear, nose and throat (ENT) specialist
- Pediatric eye doctor (ophthalmologist)
- Audiologist
- Speech pathologist
- Physical therapist
- Occupational therapist

You'll need to make important decisions about your child's treatment and education. Build a team of health care providers, teachers and therapists you trust. These professionals can help evaluate the resources in your area and explain state and federal programs for children and adults with disabilities.

4.2. Cerebral Palsy

4.2.1. Definition:

Cerebral palsy refers to a group of neurological disorders that appear in infancy or early childhood and permanently affect body movement and muscle coordination Cerebral palsy (CP) is caused by damage to or abnormalities inside the developing brain that disrupt the brain's ability to control movement and maintain posture and balance. The term cerebral refers to the brain; palsy refers to the loss or impairment of motor function.
Cerebral palsy affects the motor area of the brain's outer layer (called the cerebral cortex), the part of the brain that directs muscle movement.

In some cases, the cerebral motor cortex hasn't developed normally during fetal growth. In others, the damage is a result of injury to the brain either before, during, or after birth. In either case, the damage is not repairable and the disabilities that result are permanent.

4.2.2. Characteristics:

Children with CP exhibit a wide variety of symptoms, including:

- lack of muscle coordination when performing voluntary movements (ataxia);
- stiff or tight muscles and exaggerated reflexes (spasticity);
- weakness in one or more arm or leg;
- walking on the toes, a crouched gait, or a "scissored" gait;
- variations in muscle tone, either too stiff or too floppy;
- excessive drooling or difficulties swallowing or speaking;
- shaking (tremor) or random involuntary movements;
- delays in reaching motor skill milestones; and
- difficulty with precise movements such as writing or buttoning a shirt.

The symptoms of CP differ in type and severity from one person to the next, and may even change in an individual over time. Symptoms may vary greatly among individuals, depending on which parts of the brain have been injured. All people with cerebral palsy have problems with movement and posture, and some also have some level of intellectual disability, seizures, and abnormal physical sensations or perceptions, as

well as other medical disorders. People with CP also may have impaired vision or hearing, and language, and speech problems.

CP is the leading cause of childhood disabilities, but it doesn't always cause profound disabilities. While one child with severe CP might be unable to walk and need extensive, lifelong care, another child with mild CP might be only slightly awkward and require no special assistance. The disorder isn't progressive, meaning it doesn't get worse over time. However, as the child gets older, certain symptoms may become more or less evident.

A study by the Centers for Disease Control and Prevention shows the average prevalence of cerebral palsy is 3.3 children per 1,000 live births.

There is no cure for cerebral palsy, but supportive treatments, medications, and surgery can help many individuals improve their motor skills and ability to communicate with the world.

4.2.3. Early signs:

The signs of cerebral palsy usually appear in the early months of life, although specific diagnosis may be delayed until age two years or later. Infants with CP frequently have developmental delay, in which they are slow to reach developmental milestones such as learning to roll over, sit, crawl, or walk. Some infants with CP have abnormal muscle tone. Decreased muscle tone (hypotonia) can make them appear relaxed, even floppy. Increased muscle tone (hypertonia) can make them seem stiff or rigid. In some cases, an early period of hypotonia will progress to hypertonia after the first 2 to 3 months of life. Children with CP may also have unusual posture or favor one side of the body when they reach, crawl, or move. It is important to note that some children without CP also might have some of these signs.

Some early warning signs:

In a Baby Younger Than 6 Months of Age

- His head lags when you pick him up while he's lying on his back
- He feels stiff
- He feels floppy
- When you pick him up, his legs get stiff and they cross or scissor

In a Baby Older Than 6 Months of Age

- She doesn't roll over in either direction
- She cannot bring her hands together
- She has difficulty bringing her hands to her mouth
- She reaches out with only one hand while keeping the other fisted

In a Baby Older Than 10 Months of Age

- He crawls in a lopsided manner, pushing off with one hand and leg while dragging the opposite hand and leg
- He cannot stand holding onto support

4.2.4. Causes:

Cerebral palsy is caused by abnormal development of part of the brain or by damage to parts of the brain that control movement. This damage can occur before, during, or shortly after birth. The majority of children have congenital cerebral palsy CP (that is, they were born with it), although it may not be detected until months or years later. A small number of children have acquired cerebral palsy, which means the disorder begins after birth. Some causes of acquired cerebral palsy include brain damage in the first few months or years of life, brain infections such as bacterial meningitis or viral encephalitis, problems with blood flow to the brain, or head injury from a motor vehicle accident, a fall, or child abuse.

In many cases, the cause of cerebral palsy is unknown. Possible causes include genetic abnormalities, congenital brain malformations, maternal infections or fevers, or fetal injury, for example. The following types of brain damage may cause its characteristic symptoms:

Damage to the white matter of the brain (periventricular leukomalacia, or PVL): The white matter of the brain is responsible for transmitting signals inside the brain and to the rest of the body. Damage from PVL looks like tiny holes in the white matter of an infant's brain. These gaps in brain tissue interfere with the normal transmission of signals. Researchers have identified a period of selective vulnerability in the developing fetal brain, a period of time between 26 and 34 weeks of gestation, in which periventricular white matter is particularly sensitive to insults and injury.

Abnormal development of the brain (cerebral dysgenesis): Any interruption of the normal process of brain growth during fetal development can cause brain malformations that interfere with the transmission of brain signals. Mutations in the genes that control brain development during this early period can keep the brain from developing normally. Infections, fevers, trauma, or other conditions that cause unhealthy conditions in the womb also put an unborn baby's nervous system at risk.

Bleeding in the brain (intracranial hemorrhage): Bleeding inside the brain from blocked or broken blood vessels is commonly caused by fetal stroke. Some babies suffer a stroke while still in the womb because of blood clots in theplacenta that block blood flow in the brain. Other types of fetal stroke are caused by malformed or weak blood vessels in the brain or by blood-clotting abnormalities. Maternal high blood pressure (hypertension) is a common medical disorder during pregnancy and is more common in babies with fetal stroke. Maternal infection, especially pelvic inflammatory disease, has also been shown to increase the risk of fetal stroke.

Severe lack of oxygen in the brain: Asphyxia, a lack of oxygen in the brain caused by an interruption in breathing or poor oxygen supply, is common for a brief period of time in babies due to the stress of labor and delivery. If the supply of oxygen is cut off or reduced for lengthy periods, an infant can develop a type of brain damage called hypoxic-ischemic encephalopathy, which destroys tissue in the cerebral motor cortex and other areas of the brain. This kind of damage can also be caused by severe maternal low blood pressure, rupture of the uterus, detachment of the placenta, or problems involving the umbilical cord, or severe trauma to the head during labor and delivery.

4.2.5. Risk factors:

There are some medical conditions or events that can happen during pregnancy and delivery that may increase a baby's risk of being born with cerebral palsy. These risks include:

Low birthweight and premature birth: Premature babies (born less than 37 weeks into pregnancy) and babies weighing less than 5 ½ pounds at birth have a much higher risk of developing cerebral palsy than full-term, heavier weight babies. Tiny babies born at very early gestational ages are especially at risk.

Multiple births: Twins, triplets, and other multiple births -- even those born at term -- are linked to an increased risk of cerebral palsy. The death of a baby's twin or triplet further increases the risk.

Infections during pregnancy: Infections such as toxoplasmosis, rubella (German measles), cytomegalovirus, and herpes, can infect the womb and placenta. Inflammation triggered by infection may then go on to damage the developing nervous system in an unborn baby. Maternal fever during pregnancy or delivery can also set off this kind of inflammatory response.

Blood type incompatibility between mother and child: Rh incompatibility is a condition that develops when a mother's Rh blood type (either positive or negative) is different from the blood type of her baby. The mother's system doesn't tolerate the baby's different blood type and her body will begin to make antibodies that will attack and kill her baby's blood cells, which can cause brain damage.

Exposure to toxic substances: Mothers who have been exposed to toxic substances during pregnancy, such as methyl mercury, are at a heightened risk of having a baby with cerebral palsy.

Mothers with thyroid abnormalities, intellectual disability, excess protein in the urine, or seizures: Mothers with any of these conditions are slightly more likely to have a child with CP.

There are also medical conditions during labor and delivery, and immediately after delivery that act as warning signs for an increased risk of CP. However, most of these children will not develop CP. Warning signs include:

Breech presentation: Babies with cerebral palsy are more likely to be in a breech position (feet first) instead of head first at the beginning of labor. Babies who are unusually floppy as fetuses are more likely to be born in the breech position.

Complicated labor and delivery: A baby who has vascular or respiratory problems during labor and delivery may already have suffered brain damage or abnormalities.

Small for gestational age: Babies born smaller than normal for their gestational age are at risk for cerebral palsy because of factors that kept them from growing naturally in the womb.

Low Apgar score: The Apgar score is a numbered rating that reflects a newborn's physical health. Doctors periodically score a baby's heart rate, breathing, muscle tone, reflexes, and skin color during the first minutes after birth. A low score at 10-20 minutes after delivery is often considered an important sign of potential problems such as CP.

Jaundice: More than 50 percent of newborns develop jaundice (a yellowing of the skin or whites of the eyes) after birth when bilirubin, a substance normally found in bile, builds up faster than their livers can break it down and pass it from the body. Severe, untreated jaundice can kill brain cells and can cause deafness and CP.

Seizures: An infant who has seizures faces a higher risk of being diagnosed later in childhood with CP.

Can cerebral palsy be prevented?
Cerebral palsy related to genetic abnormalities cannot be prevented, but a few of the risk factors for congenital cerebral palsy can be managed or avoided. For example, rubella, or German measles, is preventable if women are vaccinated against the disease before becoming pregnant. Rh incompatibilities can also be managed early in pregnancy. Acquired cerebral palsy, often due to head injury, is often preventable using common safety tactics, such as using car seats for infants and toddlers.

4.2.6. Classification:

The specific forms of cerebral palsy are determined by the extent, type, and location of a child's abnormalities. Doctors classify CP according to the type of movement disorder involved -- spastic (stiff muscles), athetoid (writhing movements), or ataxic (poor balance and coordination) -- plus any additional symptoms, such weakness (paresis) or paralysis (plegia). For example, hemiparesis (hemi = half) indicates that only one side of the body is weakened. Quadriplegia (quad = four) means all four limbs are affected.

Spastic cerebral palsy is the most common type of the disorder. People have stiff muscles and awkward movements. Forms of spastic cerebral palsy include:

- Spastic hemiplegia/hemiparesis typically affects the arm and hand on one side of the body, but it can also include the leg. Children with spastic hemiplegia generally walk later and on tip-toe because of tight heel tendons. The arm and leg of the affected side are frequently shorter and thinner. Some children will develop an abnormal curvature of the spine (scoliosis). A child with spastic hemiplegia may also have seizures. Speech will be delayed and, at best, may be competent, but intelligence is usually normal.

- Spastic diplegia/diparesis involves muscle stiffness that is predominantly in the legs and less severely affects the arms and face, although the hands may be clumsy. Tendon reflexes in the legs are hyperactive. Toes point up when the bottom of the foot is stimulated. Tightness in certain leg muscles makes the legs move like the arms of a scissor. Children may require a walker or leg braces. Intelligence and language skills are usually normal.

- Spastic quadriplegia/quadriparesis is the most severe form of cerebral palsy and is often associated with moderate-to-severe intellectual disability. It is caused by widespread damage to the brain or significant brain malformations. Children will often have severe stiffness in their limbs but a floppy neck. They are rarely able to walk. Speaking and being understood are difficult. Seizures can be frequent and hard to control.

Dyskinetic cerebral palsy (also includes athetoid, choreoathetoid, and dystonic cerebral palsies): is characterized by slow and uncontrollable writhing or jerky movements of the hands, feet, arms, or legs. Hyperactivity in the muscles of the face and tongue makes some children grimace or drool. They find it difficult to sit straight or walk. Some children have problems hearing, controlling their breathing, and/or coordinating the muscle movements required for speaking. Intelligence is rarely affected in these forms of cerebral palsy.

Ataxic cerebral palsy: affects balance and depth perception. Children with ataxic CP will often have poor coordination and walk unsteadily with a wide-based gait. They have difficulty with quick or precise movements, such as writing or buttoning a shirt, or a hard time controlling voluntary movement such as reaching for a book.

Mixed types: of cerebral palsy refer to symptoms that don't correspond to any single type of CP but are a mix of types. For example, a child with mixed CP may have some muscles that are too tight and others that are too relaxed, creating a mix of stiffness and floppiness.

What other conditions are associated with cerebral palsy?
Intellectual disability: Approximately 30 – 50 percent of individuals with CP will be intellectually impaired. Mental impairment is more common among those with spastic quadriplegia than in those with other types of cerebral palsy.

Seizure disorder: As many as half of all children with CP have one or more seizures. Children with both cerebral palsy and epilepsy are more likely to have intellectual disability.

Delayed growth and development: Children with moderate to severe CP, especially those with spastic quadriparesis, often lag behind in growth and development. In babies this lag usually takes the form of too little weight gain. In young children it can appear as abnormal shortness, and in teenagers it may appear as a combination of shortness and lack of sexual development. The muscles and limbs affected by CP

tend to be smaller than normal, especially in children with spastic hemiplegia, whose limbs on the affected side of the body may not grow as quickly or as long as those on the normal side.

Spinal deformities and osteoarthritis: Deformities of the spine—curvature (scoliosis), humpback (kyphosis), and saddle back (lordosis) -- are associated with CP. Spinal deformities can make sitting, standing, and walking difficult and cause chronic back pain. Pressure on and misalignment of the joints may result in osteoporosis (a breakdown of cartilage in the joints and bone enlargement).

Impaired vision: Many children with CP have strabismus, commonly called "cross eyes," which left untreated can lead to poor vision in one eye and can interfere with the ability to judge distance. Some children with CP have difficulty understanding and organizing visual information. Other children may have defective vision or blindness that blurs the normal field of vision in one or both eyes.

Hearing loss: Impaired hearing is also more frequent among those with CP than in the general population. Some children have partial or complete hearing loss, particularly as the result of jaundice or lack of oxygen to the developing brain.

Speech and language disorders: Speech and language disorders, such as difficulty forming words and speaking clearly, are present in more than a third of persons with CP. Poor speech impairs communication and is often interpreted as a sign of cognitive impairment, which can be very frustrating to children with CP, especially the majority who have average to above average intelligence,

Drooling: Some individuals with CP drool because they have poor control of the muscles of the throat, mouth, and tongue.

Incontinence: A possible complication of CP is incontinence, caused by poor control of the muscles that keep the bladder closed.

Abnormal sensations and perceptions: Some individuals with CP experience pain or have difficulty feeling simple sensations, such as touch.

Learning difficulties: Children with CP may have difficulty processing particular types of spatial and auditory information. Brain damage may affect the development of language and intellectual functioning.

Infections and long-term illnesses: Many adults with CP have a higher risk of heart and lung disease, and pneumonia (often from inhaling bits of food into the lungs), than those without the disorder.

Contractures: Muscles can become painfully fixed into abnormal positions, called contractures, which can increase muscle spasticity and joint deformities in people with CP.

Malnutrition: Swallowing, sucking, or feeding difficulties can make it difficult for many individuals with CP, particularly infants, to get proper nutrition and gain or maintain weight.

Dental problems: Many children with CP are at risk of developing gum disease and cavities because of poor dental hygiene. Certain medications, such as seizure drugs, can exacerbate these problems.

Inactivity: Childhood inactivity is magnified in children with CP due to impairment of the motor centers of the brain that produce and control voluntary movement. While children with CP may exhibit increased energy expenditure during activities of daily living, movement impairments make it difficult for them to participate in sports and other activities at a level of intensity sufficient to develop and maintain strength

and fitness. Inactive adults with disability exhibit increased severity of disease and reduced overall health and well-being.

4.2.7. Diagnosis:

Most children with cerebral palsy are diagnosed during the first 2 years of life. But if a child's symptoms are mild, it can be difficult for a doctor to make a reliable diagnosis before the age of 4 or 5.

Doctors will order a series of tests to evaluate the child's motor skills. During regular visits, the doctor will monitor the child's development, growth, muscle tone, age-appropriate motor control, hearing and vision, posture, and coordination, in order to rule out other disorders that could cause similar symptoms. Although symptoms may change over time, CP is not progressive. If a child is continuously losing motor skills, the problem more likely is a condition other than CP—such as a genetic or muscle disease, metabolism disorder, or tumors in the nervous system.

Lab tests can identify other conditions that may cause symptoms similar to those associated with CP.

Neuroimaging techniques that allow doctors to look into the brain (such as an MRI scan) can detect abnormalities that indicate a potentially treatable movement disorder. Neuroimaging methods include:

- **Cranial ultrasound**: uses high-frequency sound waves to produce pictures of the brains of young babies. It is used for high-risk premature infants because it is the least intrusive of the imaging techniques, although it is not as successful as computed tomography or magnetic resonance imaging at capturing subtle changes in white matter—the type of brain tissue that is damaged in CP.

- **Computed tomography (CT):** uses x-rays to create images that show the structure of the brain and the areas of damage.

- **Magnetic resonance imaging (MRI):** uses a computer, a magnetic field, and radio waves to create an anatomical picture of the brain's tissues and structures. MRI can show the location and type of damage and offers finer levels of details than CT.

Another test, an **electroencephalogram**, uses a series of electrodes that are either taped or temporarily pasted to the scalp to detect electrical activity in the brain. Changes in the normal electrical pattern may help to identify epilepsy.

Some metabolic disorders can masquerade as CP. Most of the childhood metabolic disorders have characteristic brain abnormalities or malformations that will show up on an MRI.

Other types of disorders can also be mistaken for CP or can cause specific types of CP. For example, coagulation disorders (which prevent blood from clotting or lead to excessive clotting) can cause prenatal or perinatal strokes that damage the brain and produce symptoms characteristic of CP, most commonly hemiparetic CP. Referrals to specialists such as a child neurologist, developmental pediatrician, ophthalmologist, or otologist aid in a more accurate diagnosis and help doctors develop a specific treatment plan.

4.2.8. Treatment:

Cerebral palsy can't be cured, but treatment will often improve a child's capabilities. Many children go on to enjoy near-normal adult lives if their disabilities are properly managed. In general, the earlier treatment begins, the better chance children have of overcoming developmental disabilities or learning new ways to accomplish the tasks that challenge them.

There is no standard therapy that works for every individual with cerebral palsy. Once the diagnosis is made, and the type of CP is determined, a team of health care professionals will work with a child and his or her parents to identify specific impairments and needs, and then develop an appropriate plan to tackle the core disabilities that affect the child's quality of life.

Physical therapy: usually begun in the first few years of life or soon after the diagnosis is made, is a cornerstone of CP treatment. Specific sets of exercises (such as resistive, or strength training programs) and activities can maintain or improve muscle strength, balance, and motor skills, and prevent contractures. Special braces (called orthotic devices) may be used to improve mobility and stretch spastic muscles.

Occupational therapy: focuses on optimizing upper body function, improving posture, and making the most of a child's mobility. Occupational therapists help individuals address new ways to meet everyday activities such as dressing, going to school, and participating in day-to-day activities.

Recreation therapy: encourages participation in art and cultural programs, sports, and other events that help an individual expand physical and cognitive skills and abilities. Parents of children who participate in recreational therapies usually notice an improvement in their child's speech, self-esteem, and emotional well-being.

Speech and language therapy: can improve a child's ability to speak, more clearly, help with swallowing disorders, and learn new ways to communicate—using sign language and/or special communication devices such as a computer with a voice synthesizer, or a special board covered with symbols of everyday objects and activities to which a child can point to indicate his or her wishes.

Treatments for problems with eating and drooling: are often necessary when children with CP have difficulty eating and drinking because they have little control over the muscles that move their mouth, jaw, and tongue. They are also at risk for breathing food or fluid into the lungs, as well as for malnutrition, recurrent lung infections, and progressive lung disease.

Drug Treatments:

Oral medications such as diazepam, baclofen, dantrolene sodium, and tizanidine are usually used as the first line of treatment to relax stiff, contracted, or overactive muscles. Some drugs have some risk side effects such as drowsiness, changes in blood pressure, and risk of liver damage that require continuous monitoring. Oral medications are most appropriate for children who need only mild reduction in muscle tone or who have widespread spasticity.

- **Botulinum toxin (BT-A)**, injected locally in USA, has become a standard treatment for overactive muscles in children with spastic movement disorders such as CP. BT-A relaxes contracted muscles by keeping nerve cells from over-activating muscle. The relaxing effect of a BT-A injection lasts approximately 3 months. Undesirable side effects are mild and short-lived, consisting of pain upon injection and occasionally mild flu-like symptoms. BT-A injections are most effective when followed by a stretching program including physical therapy and splinting. BT-A injections work best for children who have some control over their motor movements and have a limited number of muscles to treat, none of which is fixed or rigid.

- **Intrathecal baclofen** therapy uses an implantable pump to deliver baclofen, a muscle relaxant, into the fluid surrounding the spinal cord. Baclofen decreases the excitability of nerve cells in the spinal cord, which then reduces muscle spasticity throughout the body. The pump can be adjusted if muscle tone is worse at certain times of the day or night. The baclofen pump is most appropriate

for individuals with chronic, severe stiffness or uncontrolled muscle movement throughout the body

Surgery:

Orthopedic surgery is often recommended when spasticity and stiffness are severe enough to make walking and moving about difficult or painful. For many people with CP, improving the appearance of how they walk – their gait – is also important. Surgeons can lengthen muscles and tendons that are proportionately too short, which can improve mobility and lessen pain. Tendon surgery may help the symptoms for some children with CP but could also have negative long-term consequences. Orthopedic surgeries may be staggered at times appropriate to a child's age and level of motor development. Surgery can also correct or greatly improve spinal deformities in people with CP. Surgery may not be indicated for all gait abnormalities and the surgeon may request a quantitative gait analysis before surgery.

Surgery to cut nerves: Selective dorsal rhizotomy (SDR) is a surgical procedure recommended for cases of severe spasticity when all of the more conservative treatments – physical therapy, oral medications, and intrathecal baclofen -- have failed to reduce spasticity or chronic pain. A surgeon locates and selectively severs overactivated nerves at the base of the spinal column. SDR is most commonly used to relax muscles and decrease chronic pain in one or both of the lower or upper limbs. It is also sometimes used to correct an overactive bladder. Potential side effects include sensory loss, numbness, or uncomfortable sensations in limb areas once supplied by the severed nerve.

Assistive devices:

Assistive devices such devices as computers, computer software, voice synthesizers, and picture books can greatly help some individuals with CP improve communications skills. Other devices around the home or workplace make it easier for people with CP to adapt to activities of daily living.

Orthotic devices help to compensate for muscle imbalance and increase independent mobility. Braces and splints use external force to correct muscle abnormalities and improve function such as sitting or walking. Other orthotics help stretch muscles or the positioning of a joint. Braces, wedges, special chairs, and other devices can help people sit more comfortably and make it easier to perform daily functions. Wheelchairs, rolling walkers, and powered scooters can help individuals who are not independently mobile. Vision aids include glasses, magnifiers, and large-print books and computer typeface. Some individuals with CP may need surgery to correct vision problems. Hearing aids and telephone amplifiers may help people hear more clearly.

Complementary and Alternative Therapies:

Many children and adolescents with CP use some form of complementary or alternative medicine. Controlled clinical trials involving some of the therapies have been inconclusive or showed no benefit and the therapies have not been accepted in mainstream clinical practice. Although there are anecdotal reports of some benefit in some children with CP, these therapies have not been approved by the U.S. Food and Drug Administration for the treatment of CP. Such therapies include hyperbaric oxygen therapy, special clothing worn during resistance exercise training, certain forms of electrical stimulation, assisting children in completing certain motions several times a day, and specialized learning strategies. Also, dietary supplements, including herbal products, may interact with other products or medications a child with CP may be taking or have unwanted side effects on their own. Families of children with CP should discuss all therapies with their doctor.

Stem cell therapy: is being investigated as a treatment for cerebral palsy, but research is in early stages and large-scale clinical trials are needed to learn if stem cell therapy is safe and effective in humans. Stem cells are capable of becoming other cell types in the body. Scientists are hopeful that stem cells may be able

to repair damaged nerves and brain tissues. Studies in the U.S. are examining the safety and tolerability of umbilical cord blood stem cell infusion in children with CP.

Are there treatments for other conditions associated with cerebral palsy?

Epilepsy: Many children with intellectual disability and CP also have epilepsy. In general, drugs are prescribed based on the type of seizures an individual experiences, since no one drug controls all types. Some individuals may need a combination of two or more drugs to achieve good seizure control.

Incontinence: Medical treatments for incontinence include special exercises, biofeedback, prescription drugs, surgery, or surgically implanted devices to replace or aid muscles.

Osteopenia: Children with CP who are unable to walk risk developing poor bone density (osteopenia), which makes them more likely to break bones. In a study of older Americans funded by the National Institutes of Health (NIH), a family of drugs called bisphosphonates, which has been approved by the FDA to treat mineral loss in elderly patients, also appeared to increase bone mineral density Doctors may choose to selectively prescribe the drug off-label to children to prevent osteopenia.

Pain: Pain can be a problem for people with CP due to spastic muscles and the stress and strain on parts of the body that are compensating for muscle abnormalities. Some individuals may also have frequent and irregular muscle spasms that can't be predicted or medicated in advance. Diazepam can reduce the pain associated with muscle spasms and gabapentin has been used successfully to decrease the severity and frequency of painful spasms. Botulinum toxin injections have also been shown to decrease spasticity and pain. Intrathecal baclofen has shown good results in reducing pain. Some children and adults have been able to decrease pain by using noninvasive and drug-free interventions such as distraction, relaxation training, biofeedback, and therapeutic massage.

Do adults with cerebral palsy face special health challenges?

Premature aging: The majority of individuals with CP will experience some form of premature aging by the time they reach their 40s because of the extra stress and strain the disease puts upon their bodies. The developmental delays that often accompany CP keep some organ systems from developing to their full capacity and level of performance. As a consequence, organ systems such as the cardiovascular system (the heart, veins, and arteries) and pulmonary system (lungs) have to work harder and they age prematurely.

Functional issues at work: The day-to-day challenges of the workplace are likely to increase as an employed individual with CP reaches middle age. Some individuals will be able to continue working with accommodations such as an adjusted work schedule, assistive equipment, or frequent rest periods.

Depression: Mental health issues can also be of concern as someone with cerebral palsy grows older. The rate of depression is three to four times higher in people with disabilities such as cerebral palsy. It appears to be related not so much to the severity of their disabilities, but to how well they cope with them. The amount of emotional support someone has, how successful they are at coping with disappointment and stress, and whether or not they have an optimistic outlook about the future all have a significant impact on mental health.

Post-impairment syndrome: This syndrome is marked by a combination of pain, fatigue, and weakness due to muscle abnormalities, bone deformities, overuse syndromes (sometimes also called repetitive motion injuries), and arthritis. Fatigue is often a challenge, since individuals with CP may use up to three to five times the amount of energy that able-bodied people use when they walk and move about.

Osteoarthritis and degenerative arthritis: Musculoskeletal abnormalities that may not produce discomfort during childhood can cause pain in adulthood. For example, the abnormal relationships between

joint surfaces and excessive joint compression can lead to the early development of painful osteoarthritis and degenerative arthritis. Individuals with CP also may have limited strength and restricted patterns of movement, which puts them at risk for overuse syndromes and nerve entrapments.

Pain: Individuals with CP may have pain that can be acute (usually comes on quickly and lasts a short while) or chronic, and is experienced most commonly in the hips, knees, ankles, and the upper and lower back. Individuals with spastic CP may have an increased number of painful sites and worse pain than those with other types of cerebral palsy. Preventive treatment aimed at correcting skeletal and muscle abnormalities early in life may help to avoid the progressive accumulation of stress and strain that causes pain. Dislocated hips, which are particularly likely to cause pain, can be surgically repaired.

Other medical conditions: Adults have higher than normal rates of other medical conditions secondary to their cerebral palsy, such as hypertension, incontinence, bladder dysfunction, and swallowing difficulties. Scoliosis is likely to progress after puberty, when bones have matured into their final shape and size. People with CP also have a higher incidence of bone fractures, occurring most frequently during physical therapy sessions.

What research is being done?
The National Institute of Neurological Disorders and Stroke (NINDS), Bethesda, Maryland, USA, a part of the National Institutes of Health (NIH), is the nation's leading funder of basic, clinical, and translational research on brain and nervous system disorders. Another NIH agency, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), also conducts and supports research on cerebral palsy.

Much of what we now know about CP came from research sponsored by the NINDS, including the identification of new causes and risk factors for cerebral palsy, the discovery of drugs to control stiff and spastic muscles and more precise methods to deliver them, refined surgical techniques to correct abnormalities in muscle and bone, and a greater understanding of how and why brain damage at critical stages of fetal development causes CP.

Many scientists think that a significant number of children develop CP because of mishaps early in **brain development**. They are examining how neurons (nerve cells) in the brain specialize and form the right connections with other brain cells, and they are looking for ways to prevent the factors that disrupt the normal processes of brain development.
Genetic defects are sometimes responsible for the brain malformations and abnormalities that cause cerebral palsy. Scientists are searching for the genes responsible for these abnormalities by collecting DNA samples from people with cerebral palsy and their families and using genetic screening techniques to discover linkages between individual genes and specific types of abnormality – primarily those associated with the process in the developing brain in which neurons migrate from where they are born to where they settle into neural circuits (called neural migration).

Scientists are scrutinizing events in newborn babies' brains, such as bleeding, epileptic seizures, and breathing and circulation problems, which can cause the **abnormal release of chemicals** that triggers the kind of damage that causes cerebral palsy. For example, research has shown that bleeding in the brain unleashes dangerously high amounts of glutamate, a chemical that helps neurons communicate. However, too much glutamate overexcites and kills neurons. By learning how brain chemicals that are normally helpful become dangerously toxic, scientists will have opportunities to develop new drugs to block their harmful effects.

Researchers are using **imaging techniques** and neurobehavioral tests to predict those preterm infants who will develop cerebral palsy. If these screening techniques are successful, doctors will be able to identify infants at risk for cerebral palsy before they are born.

Periventricular **white matter damage**—the most common cause of CP—is characterized by death of the white matter around the fluid-filled ventricles in the brain. The periventricular area contains nerve fibers that carry messages from the brain to the body's muscles. NINDS-sponsored researchers are hoping to develop preventative strategies for white matter damage. For example, researchers are examining the role the brain chemicals play on white matter development in the brain. Another NINDS-funded project involves the development of a novel mouse model and cell-based therapies for perinatal white matter injury. Researchers funded by NINDS are studying a chemical found naturally in the body, called erythropoietin to see if it decreases the risk of CP in prematurely born infants.

NIH-funded scientists continue to look at new therapies and novel ways to use existing options to treat individuals with CP, including:

Constraint-induced therapy (CIT): is a promising therapy for CP. CIT typically involves restraining the stronger limb (such as the "good" arm in a person who has been affected by a stroke on one side of the body) in a cast and forcing the weaker arm to perform intensive activities every day over a period of weeks. A clinical study sponsored by the NICHD is examining the use of different dosage levels of daily training using either full-time cast immobilization vs. part-time splint restraint in improving upper body extremity skills in children with weakness on both sides of their body. Study findings will establish evidence-based practice standards to improve lifelong neuromotor capacity in individuals with CP.

Functional electrical stimulation (FES) - the therapeutic use of low-level electrical current to stimulate muscle movement and restore useful movements such as standing or stepping—is an effective way to target and strengthen spastic muscles. Researchers are evaluating how FES-assisted stationary cycling can improve physical conditioning and general lower extremity muscle strength in adolescents. **Robotic therapy** that applies controlled force to the leg during the swing phase of gait is may improve the efficacy of body weight supported treadmill training in children with CP. The results from this NICHD study will lead to an innovative clinical therapy aimed at improving locomotor function in children with CP.

Botulinum toxin (Botox), injected locally, has become a standard treatment in children with spastic movement disorders such as CP. Recent animal studies suggest Botox degrades bone but there are no studies of its skeletal consequences in humans. Other research shows a low intensity vibration treatment can improve bone structure in the lower extremity leg bones of children with CP. In a novel clinical study being conducted by NICHD, researchers are determining the effect of Botox treatment in conjunction with a daily vibration treatment on bone mass and bone structure in children with spastic CP.

Systemic hypothermia—the controlled medical cooling of the body's core temperature—appears to protect the brain and decrease the rate of death and disability from certain disorders and brain injuries. Previous studies have shown that hypothermia is effective in treating neurologic symptoms in term or late preterm babies less than one month old that are attributed to hypoxic-ischemia (HIE, brain injury due to a severe decrease in the oxygen supply to the body), which can cause quadriplegic CP, with or without movement disorder. In an effort to determine the most effective cooling strategies, NICHD-funded researchers are studying different cooling treatments to improve the chance of survival and neurodevelopment outcomes 18-22 months post-treatment in infants with neurologic symptoms attributed to HIE. Other researchers are examining if combined therapy using hypothermia and recombinant erythropoietin (a hormone that promotes the growth of new red blood cells and increases oxygen levels in the blood) is more effective than either therapy alone in treating neurodevelopmental handicaps in an animal model involving lack of oxygen before, during, or just after birth.

As researchers continue to explore new treatments for cerebral palsy and to expand our knowledge of brain development, we can expect significant improvements in the care of children with cerebral palsy and many other disorders that strike in early life.

Chapter 5

Grouping of Children with disabilities

Objective: The objective of this chapter is to group the children with disabilities based on their chronological age and mental age in pre-primary and primary schools.

5.1. Grouping of Children:

Based on their chronological age and mental age the children with disabilities, especially children with intellectual disabilities may be grouped in pre-primary and primary schools as detailed below.

Sl. No.	Group	Chronological Age	Mental Age
1.	Pre-Primary	3 to 6 Years	Below 5 Years
2.	Primary - I	6 to 10 Years	5 to 7 Years
3.	Primary - II	10 to 13 Years	7 to 9 Years
4.	Primary - III	13 to 16 Years	8+ Years

5.2. Chronological Age:

Chronological Age is the age of a person measured in years, months, and days from the date the person was born.

5.3. Mental Age:

Mental Age is a measure used in psychological testing that expresses an individual's mental attainment in terms of the number of years it takes an average child to reach the same level. That means, mental age is a

measure of an individual's mental attainment based on the age in which it takes an average individual to reach that same level of attainment.

Imagine that you are observing a group of 12-year-old boys. You notice that they all look very different from each other, even though they are the same age. Some boys are more muscular, while others are tall and thin. You notice that some have already started their growth spurt, while others have yet to follow. You also notice that some boys are stronger and can endure more physical activities than their same-age counterparts. Just as these boys differ in their physical capabilities and characteristics, they also differ in their mental capabilities and characteristics, even though they are all the same age.

So what exactly do we mean by mental age? Mental age is the age level of an individual's mental ability. It is based on the age in which it takes an average individual to reach that same level of mental attainment. Mental age is usually measured by standardized intelligence tests. For example, early versions of the Stanford-Binet Intelligence Scales calculated a mental age based on how well a child performed on the test.

Chapter 6

Curriculum and Functional assessment checklist for programming

Objective:

The objective of this chapter is to use regular curriculum to teach children with disabilities in inclusive classroom settings, and to develop appropriate functional assessment checklist for programming to teach children with disabilities in special schools.

6.1. Curriculum:

As far as possible, with appropriate accommodations and modifications, the children with disabilities will be taught existing general curriculum in Pre-Primary and Primary schools. However, Functional assessment checklist for programming may be used for children in special education schools.

6.2. Functional assessment checklist for programming:

6.2.1. Group: Pre-Primary

Group: Pre-Primary	
Domain & Sl. No.	**Activity**
Personal/Activities of Daily Living	
1.	Chews and swallows solid food when placed in his/her mouth.
2.	Holds and drinks water or milk or juice from a glass or cup.
3.	Eats by self with fingers when food is mixed and given.
4.	Sits on potty or squats to pass urine or stools.

5. Indicates verbally or through gestures the need to go to the toilet.
6. Takes off under clothes to use toilet (when unbutton/pulling elastic pants).
7. Brushes teeth either with tooth brush or with a finger using tooth paste.
8. Cooperate while being bathed-extending hands /legs, when told.
9. Takes off clothes (including under garments) when unbuttoned.
10. Wears undergarments.
11. Cleans nose with a handkerchief.
12. Washes hands before eating snacks or food or after using toilet or when hands are dirty.
13. Wipes with a towel after bath.
14. Peels off fruits such as orange or banana before eating.
15. Eats with an appropriate side dish, such as bread & jam, rice & curry, noodles.
16. Mixes and eats by self without spilling.
17. Wipes hands and mouth with a towel after washing.
18. Wears slippers.
19. Wears shoes without shoe lace or buckle.

Social

1. Moves head or eyes to see persons moving near him/her or in the room.
2. Respond to his/her name by stopping an activity or looking at the person when called.
3. Goes to familiar person when called to come near him/her.
4. Smiles when other person smiles at him/her.
5. Plays with two other children cooperatively.
6. Wait for his/her turn in the classroom, playground, dining room.
7. Shares his/her things (pencil, books, toys and eatables) when requested by his/her classmates or others.
8. Greets teachers or elders in school or at home.
9. Differentiates strangers from familiar people.
10. Expresses anger or displeasure by vocalizations (shouting/turning away/screaming) other than crying.
11. Stops momentarily an activity when said 'no'.
12. Uses vocal sounds/gestures/actions to call a person or to get attention of others.
13. Respond appropriately to words along with gestures such as come, up, go, bye-bye, etc.
14. Uses gestures such as shaking head for 'no', head nodding for 'yes', hand gesture for 'come', 'give', 'sleep', 'bye-bye'.
15. Follows simple verbal requests with gestures such as 'give', 'I will take' (response could be gesture or verbal).
16. Uses words such as 'mak-mak', 'ta-ta', 'bong', etc.
17. Follows simple commands without gestures like 'where is the ball', 'put that down', 'bring the ball'.
18. Answers questions such as 'how does a car go', 'how does an aeroplane go', 'how do you apply power on face'.
19. Identifies persons by pointing or naming upon request (eg. Uncle, aunty, sister, brother, etc.).
20. Asks for desired objects using gestures/alongwith vocalization.
21. Tells his/her name when asked.
22. Gestures/says suitably good morning/chum reap suo/sa-thu.

Academic

1. Points/shows body parts (head, nose, eyes, ears, hands, legs) when requested.
2. Names body parts when pointed to.

3. Points to 10 common objects with which he/she has to interact in his/her home environment (eg. Rice, lentil, bread, light, fan, mat, table, chair, shirt/frock, shorts/pants etc.), when asked.
4. Says orally the names of 10 common objects, when shown or when he/she wants.
5. Holds pencil and scribbles.
6. Colours with a crayon within a given diagram.
7. Traces on the given diagram.
8. Joins dots to form pictures.
9. Copies a given figure/diagram.
10. Groups common colours (red, green, blue, yellow) when given a group of coloured objects.
11. Groups objects according to the size (big and small, long and short).
12. Gives objects/pictures of common colours, when asked.
13. Names common colours (red, green, blue, yellow).
14. Points to the objects which are big and small/long and short, upon request.
15. Tells the size of the objects (big and small, long and short).
16. Points to sets of objects to show/more less quantity.
17. Tells which sets has more/less quantity.
18. Points to containers with either solids or liquids to show full and empty.
19. Tell when a container is shown either full or empty, with or without solid or liquid.
20. Rote counts up to 5.
21. Counts and gives objects up to 5, when not asked sequentially.
22. Counts and gives objects up to 10, when not asked sequentially.
23. Shows a numeral and places value, when not asked sequentially.
24. Names up to 5 numbers, when not asked sequentially.
25. Writes numerals up to 5 in a sequence.
26. Writes numerals up to 5 when given dictation not sequentially.
27. Points to alphabets (Khmer/English language) on a chart, not asked sequentially (3 letter words in case of sight word teaching).
28. Names alphabets, when asked not sequentially (3 letter words in case of sight word teaching).
29. Writes alphabets when given dictation (3 letter words in case of sight word teaching).
30. Identifies a clock or wrist watch.
31. Tells/points to, when asked the use of clock or wrist watch.
32. Differentiates money from objects.
33. Tells/points to, when asked the use of money.
34. Groups KHR 1, 5 notes, when given or groups USD 1, 5 notes, when given.
35. Gives KHR 1, 5 notes, when asked or gives USD 1, 5 notes, when asked.
36. Points/tells, when asked by showing KHR 1, 5 notes or points/tells, when asked by showing USD 1, 5 notes.
37. Counts and give 100 KHR notes up to KHR 500, when asked or counts and give 1 USD notes up to USD 5, when asked.
38. Points to at least 5 pictures of animals, when asked.
39. Names at least 5 animals, when shown pictures.
40. Points to at least 5 pictures of fruits, when asked.
41. Names at least 5 fruits, when shown pictures.
42. Tells/points to the clothes (frock, short, shirt, T-shirt) he/she wears, when asked.
43. Uses words or gestures for 'now and later' when necessary.
44. Identifies/names the various means of transport (bicycle, cyclo, motodop, tuk-tuk, car, bus, train, aeroplane).

Occupational

1. Dusts with a duster the furniture in the classroom and home.

2. Washes glasses and plates before and after meals.
3. Wipes glasses and plates with a cloth after washing.
4. Fold small clothes (such as hand towel/panties).

Recreational

Indoor:

1. Watches T.V. advertisements.
2. Dances/claps/taps with rhythm of music in Radio or T.V.
3. Plays with blocks - assembling and dismantling.
4. Colours with pencil or crayons.
5. Plays make believe games - pretending to be a teacher, mum, dad or elder sibling going to school/household keeping.
6. Arranges own things in their appropriate places, in a given room.
7. Sees pictures in magazines without tearing the book.

Outdoor:

1. Plays with ball.
2. Plays running and catching game/runs a race/duck walking/frog jumping, etc.
3. Climbs jungle gym etc.
4. Sand play.
5. Water play.
6. Plays hide and seek game/passing the parcel/musical chairs, etc.
7. Plays on a slide.
8. Swings on a swing.

6.2.2. Group: Primary-I

Group: Primary-I	
Domain & Sl. No.	**Activity**

Personal/Activities of Daily Living

1. Walk by himself/herself a distance of 10 feet to fetch an object.
2. Climbs up and down the stairs placing both feet on each step without support.
3. Climbs up and down the stairs placing alternate feet without support.
4. Turns/removes a door knob/latch/bolt and opens the door, when he/she wants to go in/out of the room.
5. Cleans self after defecation.
6. Flushes or pour water after toileting.
7. Wears clothes, including under garments (may not fix fastener).
8. Fastens clothes: a) zip, b) press button, c) shirt buttons, d) hooks.
9. Unfastens clothes: a) zip, b) press button, c) shirt buttons, d) hooks.
10. Eats by self a complete meal without spilling.
11. Asks/points meal (eg. Rice and curry, noodle) when he/she wants more.
12. Makes arrangement for lunch and dinner either on table or floor.
13. Takes water from the pot/tap to drink, when he/she is thrusty.

14. Serves water to others.
15. Washes hands before eating snacks or food or after using toilet or when hands are dirty.
16. Washes face with face wash/soap and water.
17. Wipes hands and face with towel after washing.
18. Cleans nose with a handkerchief/tissue paper, when needed.
19. Applies soap/body wash on the body while bathing.
20. Apply powder/lotion on face.
21. Combs/brushes hair and puts rubber band after removing tangled hair (in case of girls).

Social

1. When given a chance makes a choice between two activities or between two items.
2. Performs the activity requested by teachers and parents.
3. Asks for permission to use a toy or other material, which does not belong to him/her.
4. Participate in a group game in which 4 to 5 children are involved.
5. Waits for his/her turn while playing games.
6. Shares play materials during group games.
7. Maintained appropriate manners, when taken to social functions.
8. Takes care of his/her own belongings in school (eg. school bag, lunch box, pencil box).
9. Defends/seeks assistance, when injured or teased by others.
10. Recognizes that the speaker is angry, tired, sad, happy, etc.
11. Names body parts, when pointed to.
12. Uses combination of words or gestures to express his/her need or wish.
13. Answers (verbally/gesturally) to question 'whose is' by pointing to self or others correctly.
14. Carries out two consecutive instructions/commands.
15. Names members of the family like brother, sister, aunt, uncle.
16. Uses 2-3 word sentence to communicate information (if non-verbal makes self understood by gestures).
17. Asks for help (verbally or gesturally) for personal needs.
18. Follows messages involving prepositions such as under, behind, in front (Eg. Put the bag in front of the boy).
19. Uses correct gender term when asked. Are you (or pointed person) a boy or girl?
20. Can say plural forms of names. Eg., Chairs, pencils, books.
21. Can follow instructions of a task without visual clues or gestures.

Academic

1. Reads alphabets (English or Khmer language) when shown a chart/book. (Words in case of sight word teaching).
2. Reads words (vegetables, fruits, furniture, animals) seeing a picture.
3. Reads 2-3 letter words without a clue of picture (about 10 words).
4. Reads his/her name.
5. Reads his/her friend's names in his/her class.
6. Reads four sign boards related to independent mobility.
7. Writes his/her name.
8. Write names of words (vegetables, fruits, furniture, animals, clothes).
9. Tells functions of sense organs.
10. Counts and give objects up to 10, when not asked sequentially.
11. Shows a numeral, when not asked sequentially, up to 10.
12. Names numbers up to 10, when not asked sequentially.
13. Writes numerals up to 10, when given dictation randomly.

14. Writes numerals up to 10 in a logical sequence.
15. Writes missing numbers before and after up to 10.
16. Does simple addition within 10 with objects (without paper).
17. Does simple addition within 10 on paper using slash marks.
18. Gives exact number of objects, when asked, up to 20.
19. Expands the numbers from 11-20 (Eg., 11 = 10 & 1).
20. Points to numerals up to 20, when asked sequentially.
21. Names numbers up to 20, when not asked sequentially.
22. Writes numerals up to 20, when given dictation.
23. Writes numerals up to 20 in a sequence.
24. Writes missing numbers after and before 20.
25. Counts in tens up to 100 (10, 20, 30, 40, . . . , 100).
26. Groups in tens to make 20, 30, 40, . . . , 100).
27. Associates time with daily activities.
28. Tells/shows on a calendar/chart the name of the day, when asked what day is today, what day will be tomorrow and what day was yesterday.
29. Tells/gestures in order what he/she does from morning till he/she goes to bed.
30. Tells his/her age when asked.
31. Tells/gestures the number of days in a week.
32. Tells the number of months in a year.
33. Indicates the date on the calendar.
34. Changes the date and month on a calendar.
35. Tells the position of long and short hand on a clock, when asked.
36. Shows on a clock time in hours, when asked.
37. Tells time in hours seeing a clock/wrist watch.
38. Shows on a clock the time in half hours (6.30, 7.30).
39. Tells time in half hour (3.30, 4.30) seeing a clock/wrist watch.
40. Gets ready to come to school in time.
41. Identify Riel notes (KHR 100, KHR 200, KHR 500) or identify dollar notes (USD 1, USD 5, USD 10).
42. Counts 100 Riel notes to give a sum of KHR 800, 1000, 2000, etc. or counts 1 dollar notes to give a sum of USD 8, 10, 20, etc.
43. Groups Riel 1000 notes to give 2000, 3000, 4000, 5000, . . ., 10000 or groups USD 10 notes to give 20, 30, 40, 50, . . ., 100.
44. Gives change to KHR 1000 using 500 KHR (500+500) or gives change to USD 10 using 5 USD (5+5).
45. Gives change to KHR 500, 1000, 2000 using a combination of KHR 100 & KHR 200 notes or gives change to USD 10, 20, 50 using a combination of USD 5 & USD 10 notes.
46. Tells names of Riel notes or tells names of dollar notes.
47. Tells how many cups/glasses of water, rice are required to fill a given utensil.
48. Measures the required cups of water for making tea/coffee.
49. Tells his/her parents/family members, when he/she feels sick.
50. Identifies the various means of transport (bicycle, cyclo, motodop, tuk-tuk, car, bus, train, aeroplane).
51. Names various means of transport.
52. Gets in and gets down from the desired transport, when it stops.

Occupational

1. Dusts with a duster cloth the furniture and other items in the house.
2. Sorts out vegetables and places them in respective container/basket in fridge.

3. Places plates and glasses suitably on the dining table/floor for breakfast/lunch/dinner, when told.
4. Washes plates and glasses after eating food/snacks.
5. Peels vegetables such as beans, onions, boiled potatoes etc. where knife/scrapper are not used.
6. Carries water in a small bucket from the tap, when required or asked by the family members.
7. Stacks utensils in the kitchen after washing.
8. Serves plates with snacks/food to family members.
9. Separate leaves in the leafy vegetables.
10. Helps mother/father/sibling in the kitchen in bringing cooking items such as vegetables/ ingredients, measuring water for making tea/coffee, when told.

Recreational

Indoor:

1. Plays common games like snakes & ladder, with 2-3 children (with only 2 specific rules).
2. Watches T.V. programs for 15 to 30 minutes.
3. Builds blocks to copy a given model (3 to 8 pieces).
4. Draws simple figures and colours them.
5. Cuts and pastes pictures from old magazines to make a scrap book/collage work (when assisted while cutting).
6. Collects stickers.
7. Assembles (Logo) games/puzzle.
8. Looks through picture books or comics.
9. Arranges room, by placing objects in their respective place.
10. Feeds and cares for pets (under supervision).

Outdoor:

1. Plays by passing/throwing and catching the ball.
2. Flies kites, plays marble games.
3. Plays games like, hide and seek.
4. Waters plants.
5. Goes for a walk outside or visit friends house in the same area of living.
6. Plays aiming of darts at the bucketing the ball, etc.
7. Climb jungle gym, trees or other similar structures.
8. Plays hopping game governed by rules.
9. Goes with adults for shopping.
10. Goes out to restaurant/theatres with adults.

6.2.3. Group: Primary-II

Group: Primary-II
Activity
Personal/Activities of Daily Living 1. Folds paper (note book size) into four parts. 2. Folds paper to fit into an envelope and seals it. 3. Uses toilet on his/her own when necessary without any body's assistance. 4. Takes bath (including, soaping, washing and wiping with towel) closing the door for privacy by himself/herself. 5. Combs hair.

6. Combs hair and puts a rubber band.
7. Plaits hair and puts a rubber band.
8. Applies powder/lotion on face.
9. Wears clean clothes.
10. Chooses clothes appropriate to the weather condition.
11. Dresses and grooms suitably to go out.
12. Places dirty clothes for washing.
13. Cleans his/her own tiffin box, plate, glass and spoon after eating.
14. Informs the family members the arrival of a visitor.
15. Identifies himself with boys/identifies herself with girls.
16. Tells to which group he/she belongs to.

Social

1. Asks politely to pass on the dishes he/she wants while having a meal.
2. Goes by walk to a shop or play ground or friend's house in 1 Kilometer periphery of the neighborhood and returns.
3. Buys two items written on a chit from the shop near to his/her house (may not know amount).
4. When required introduces himself/herself to new people who come to his/her house.
5. Greets and asks relatives or family friends to be seated when they come to his/her house.
6. Reads directions on the street and follows.
7. Reads sign boards.
8. Reads the price labels on items (KHR 4800, KHR 5100) or reads the price labels on items ($10.20, $11.25).
9. Buys correct stationary from the shop, when told.
10. Tells/gestures that he/she requires money to travel by bicycle, cyclo, motodop, tuk-tuk, car, bus, train, aeroplane.
11. Points out/tells items of his/her choice in the restaurant.
12. During conversation asks relevant questions.
13. Remembers information/messages and passes on appropriately to concerned person (verbal/gestural).
14. Narrates in 2-3 sentences about past event without prompts (if non-verbal makes self understood by gestures and actions).
15. Follows verbal directions to move from place to place within a building.
16. Spontaneously tries to express ideas to other people or narrates incidents.
17. Appropriately uses past, present, and future tenses of verbs in sentences.
18. Speaks/expresses gesturally clearly enough to be understood by someone who is not familiar.

Academic

1. Reads names of vegetables, fruits, ingredients, pulses, clothes, etc.
2. Reads names of week days.
3. Reads names of months.
4. Does simple addition (one digit) when given either vertically or horizontally (2+3).
5. Does simple subtraction (one digit).
6. Does two digit addition without carry over.
7. Does two digit subtraction without borrowing.
8. Able to relate the computations to daily living situation.
9. Writes names of at least 5 vegetables, fruits, clothes, ingredients, pulses.
10. Writes names of week days, when dictated.
11. Writes names of month, when dictated.
12. Writes two word phrases, when dictated.

13. Writes date, month and year in his/her note book/board.
14. Writes date, month and year while writing a leave letter application form/cheque.
15. Tells/gestures what day is today.
16. Tells time when long hand is at 3, 6, 9, 12.
17. Tells time with minutes in multiples of 5.
18. Counts one hundred Riel notes up to KHR 10000 or counts one dollar notes up to $ 10.
19. Gives change in one hundred Riel for KHR 500, and KHR 1000 or gives change in one dollar for $5, and $ 10.
20. Pays bills up to KHR 10000 in any form of combination of KHR 500 and KHR 1000 or pays bills up to $ 10 in any form of combination of $ 1 and $ 5.
21. Groups the notes (KHR 100, KHR 200) to make KHR 1000 or groups the notes ($1, $5) to make $ 10.
22. Gives up to KHR 10000 by grouping into five hundred Riels from mixed notes or gives up to $ 10 by grouping into five dollars from mixed notes.
23. Groups notes (100 KHR, 200 KHR, 500 KHR) to make change such as 1300 KHR, 2010 KHR, 3200 KHR or groups notes (1$, 5$, 10$) to make change such as 16$, 21$, 32$.
24. Gives change up to KHR 5000 or gives change up to $ 5.
25. Gives change up to KHR 10000 or gives change up to $ 10.
26. Gives change up to KHR 20000 or gives change up to $ 20.
27. Writes amount larger than one dollars with decimals.
28. Does addition with carry-over (3 and more line 2 digit).
29. Does subtractions involving borrowing (2 digit/3 digit).
30. Identifies/names 1 Liter/1 Kg. measuring jars/weighing stone.
31. Tells the use of balance.
32. Measures 1 Kg. of vegetables and pulses.
33. Identifies/names a measuring rod/tape.

Occupational

1. Climbs a ladder to clean or dust the house or paint wall.
2. Wipes kitchen wear with a cloth after cleaning.
3. Sweeps floor with a broom stick.
4. Eats without calling the attention of others.
5. Picks up items in a super market as per written or pictorial list and carries to the cash counter.
6. Reads bills, receipts.
7. Writes small notes, shopping list when dictated.
8. Takes phone messages.
9. Goes to the market/general store to buy provisions.
10. Makes flower Garlands using thread and needle.
11. Cleans rice and other pulses.
12. Prepares tea/coffee/juice.
13. Prepares simple snacks such as, sandwitch, omelet, crispy, candy.
14. Cuts vegetables into small pieces.
15. Peals potatoes, cucumber and other vegetables, when required.
16. Prepares a vegetable/noodle soup.
17. Lights gas stove/charcoal/dry wood on his/her own.
18. Serves breakfast to family members.
19. Arranges dishes on dining table before lunch and dinner.
20. Cleans table after eating food.
21. Dusts furniture, cupboard and other items in the house with a duster.
22. Wipes floor with a wet cloth.

23. Washes utensils and put them in respective places.
24. Spreads clothes on a cloth line after washing.
25. Folds clothes after drying and places them in cupboard.
26. Folds bed sheets and places them in proper place.
27. Makes bed on his/her own.
28. Washes rice and vegetables, when requested.
29. Decorates entrance/room with leaves, flowers during festivals and social functions.
30. Makes flower arrangements in flower vases.
31. Goes to the correct bus/tuk-tuk /kor-yun stop to travel a given destination in familiar route.
32. Identifies the bus/tuk-tuk /kor-yun to reach his/her destination.
33. Pays correct bus/taxi/tuk-tuk/kor-yun fare.
34. Finds a seat/request people for sitting place while travelling in bus or offers his/her seat to elders.
35. Gets down at the correct destination from bus/taxi/tuk-tuk/kor-yun.

Recreational

Indoor:

1. Watches T.V. serials and follows the story sequence.
2. Plays games like ludo, chineese checkers, snakes & ladder.
3. Selects specific cassette/CD or radio station and operates record players/radio independently.
4. Plays a musical instrument or sings.
5. Dances/claps/taps with tune when music is played (or shows signs of enjoying music).
6. Arranges flowers in vases.
7. Cares for pets.
8. Practices crafts (doll making, greeting card making, cut work on paper, needle work).

Outdoor:

1. Goes out for a picnic with family or friends (3-4 persons).
2. Involves in plant care and gardening.
3. Goes out to see a film accompanied by one or more family members.
4. Plays racquet games/other rule governed games with ball.
5. Swims under supervision.
6. Rides horse under supervision.
7. Goes out for a walk (accompanied).
8. Participate in social gatherings organized by friends and relatives (accompanied).

6.2.4. Group: Primary-III

Group: Primary-III
Activity
Personal/Activities of Daily Living 1. Stitches buttons. 2. Mends his/her clothes with a running stitch. 3. When needed carries a medium size bucket with water. 4. Washes hair with soap or shampoo or soap nut powder. 5. Shaves beard to present himself neat (male)/manages herself during menstruation (female). 6. Washes his/her clothes with soap cake or powder. 7. Irons his/her own clothes.

8. Applies ointment on a cut and bandages, if necessary.
9. Tells/gestures illness and pain promptly to get assistance.
10. Follows the medical advice without reminder during illness.
11. Presents self neatly and suitably for varied occasions.
12. Uses telephone/mobile phone, when needed.

Social

1. Uses bicycle or walks independently for simple errands at request within 1 Km periphery around the house.
2. Assists in moving heavy furniture in the house or work place.
3. Finds a toilet on his/her own by asking others in new places (such as relatives or friend's house, restaurant, cinema hall, shopping mall).
4. Orders items of his/her choice in a restaurant.
5. Stands in a queue (such as for buying tickets or items in shopping mall).
6. Asks for directions when needed.
7. Participates age appropriately in social/religious activities without attracting undue attention.
8. Expresses distress when in trouble, and seeks help.
9. Defends self when teased/exploited by others.
10. Reads essential sign boards for getting the work done.
11. Selects, buys, signs and sends cards to significant persons for New Year and other occasions.
12. Keeps appointments.
13. Tells time upon request.
14. Goes to a cinema hall, stands in a queue, and buys ticket to see a movie.
15. Receives telephone calls and responds or passes on information, when told to.
16. Tells the name of the city/district/town/village where he/she is living.

Academic

1. Reads two words phrases.
2. Reads simple sentences.
3. Does two digit addition with carry over.
4. Does two digit subtraction with borrowing.
5. Aware of table 5.
6. Uses table 5 for time/money purposes.
7. Writes simple sentences, when required.
8. Writes a list of items to buy from a general store.
9. Copies a paragraph (5-6 sentences) with punctuation.
10. Writes a letter.
11. Sets time on watch.
12. Buys things up to the value of 5 dollars.
13. Gives change up to $ 5.
14. Gives change up to $ 10.
15. Gives change up to $ 20.
16. Buys things up to the value of 1000 riels.
17. Gives change up to Riels 500.
18. Gives change up to Riels 1000.
19. Identifies/Names 2 Kg., 5 Kg., 10 Kg., weighing stones.
20. Measures 2 Kg., 5 Kg., 10 Kg. of items such as rice, pulses, vegetables.
21. Identifies 1/2 Kg., 1/4 Kg., weighing stones.
22. Measures 1/2 Kg., 1/4 Kg. rice, pulses, vegetables.
23. Measures cloth in meters.
24. Add the prices on a receipt up to $ 5.

25. Add the prices on a receipt up to $ 10.
26. Pays bills up to $20 in any form of combination of $1, $5, and $ 10.
27. Pays bills up to $50 in any form of combination of $1, $5, $ 10 and $ 20.
28. Add the prices on a receipt up to Riels 500.
29. Add the prices on a receipt up to Riels 1000.
30. Pays bills up to Riels 1000 in any form of combination of Riels 100 and Riels 500.
31. Indicates the body parts such as lungs, heart, kidneys, on a map or approximate place on self.
32. Describes in a very simple terms the functions of lungs, heart, kidneys, and blood vessels.
33. Tells the name of King/Prime Minister of Cambodia.
34. Names one's own country, province.
35. Tells/Indicates different sources of water.
36. Tells/Indicates sources of milk products/oil.
37. Tells/Indicates use of disinfectants.

Occupational

1. Cleans utensils with washing powder or liquid soap.
2. Wipes floor with a wet cloth.
3. Stores rice and pulses in respective tins after shopping.
4. Cuts vegetables appropriately to prepare different dishes.
5. Prepares tea/coffee/juice.
6. Operates kerosene stove/gas stove.
7. Operates kitchen appliances (such as scraper, peeler, coconut grater, blander, grinder).
8. Prepares sand witch, omelet, crispy, candy.
9. Prepares rice, porridge, noodles.
10. Arranges dishes, plates, etc. on the dining table.
11. Washes clothes with soap bar/powder.
12. Folds clothes and stacks them in cupboard.
13. Makes bed for sleeping.
14. Fetches vegetables and other household items from a nearby shop.
15. Gets ready to reach work place in time.
16. Describes the various transports.
17. Buys a ticket from ticket counter.
18. Fills in personal information in an application form (ie., name, date of birth, address, father's name, sex, language spoken).
19. Uses bank forms under guardian's supervision when, required.
20. Fills airline booking form.
21. Upon request nurses family members during their illness.
22. Does simple first aid (fixing band aid, applying pain ointment).

Recreational

Indoor:

1. Shows interests in drawing and colouring work.
2. Plays carom, card games (clearance, donkey), scrabbles, Chinese checkers.
3. Listens to selected music in cassette/CD players or selecting a station at given time on radio or selecting appropriate channel on T.V. independently.
4. Participates in decorating the house for festivals or parties or special social occasions.
5. Gets dressed and puts on make-up or any activity for beauty care.
6. Arranges bouquets with natural/artificial flowers.
7. Spends time with peers chatting about various social incidents.
8. Involves or makes dolls, greeting cards, or any other craft activity.

9. Participates in doing needle work, embroidery, knitting work etc.
10. Collects photos of favourite sports/movie stars/stamps/notes, and arranges photos in album.

Outdoor:

1. Goes for a hike or camping trip.
2. Rides bicycle to visit friends or relatives or travel by bus to visit within 3 Km. distance.
3. Attends a music concert/goes out for a play or a movie.
4. Flies kites/plays hopscotch.
5. Tends plants – gardening.
6. Develops/shows interest in martial skills like judo, karate, tykondo, etc./or and practice of dance/music.
7. Goes out to a restaurant with peers.
8. Plays request games (badminton, table tennis, lawn tennis, etc.).
9. Plays rule governed ball games (basketball, soccer etc.).
10. Swims independently.
11. Rides horse independently.

Chapter 7

Teaching Strategies

Objective:

The objective of this chapter is to understand and learn the relevant teaching strategies to teach children with disabilities in pre-primary and primary schools.

7.1. Strategies to teach Children with Intellectual Disability:

It is important to know that despite difficulties in a learning environment students with intellectual disability can and do have the capacity to acquire and use new information. There is a range of inclusive teaching strategies that can assist all students to learn but there are some specific strategies that are useful in teaching a group which includes students with intellectual disability:

1. Provide an outline of what will be taught - highlight key concepts and provide opportunities to practise new skills and concepts.

2. Provide reading lists well before the start of a course so that reading can begin early.

3. Consider tailoring reading lists and provide guidance to key texts. Allow work to be completed on an in-depth study of a few texts rather than a broad study of many.

4. Whenever you are introducing procedures or processes or giving directions, for example in a laboratory or computing exercise, ensure that stages or sequences are made clear and are explained in verbal as well as written form.

5. Students may benefit from using assistive technology.

6. Use as many verbal descriptions as possible to supplement material presented on blackboard or overhead.

7. Use clear, succinct, straightforward language.

8. Reinforce learning by using real-life examples and environments.

9. Present information in a range of formats – handouts, worksheets, overheads, videos – to meet a diversity of learning styles.

10. Use a variety of teaching methods so that students are not constrained by needing to acquire information by reading only. Where possible, present material diagrammatically - in lists, flow charts, concept maps etc.

11. Keep diagrams uncluttered and use colour wherever appropriate to distinguish and highlight.

12. Ensure that lists of technical/professional jargon which students will need to learn are available early in the course.

13. Recording lectures will assist those students who have handwriting or coordination problems and those who write slowly as well as those who have a tendency to mishear or misquote.

14. Students will be more likely to follow correctly the sequence of material in a lecture if they are able to listen to the material more than once.

15. Wherever possible, ensure that key statements and instructions are repeated or highlighted in some way.

16. One-to-one tutoring in subjects may be important; this can include peer tutoring.

17. Students may benefit from having oral rather than written feedback on their written assignments.

18. It may be helpful for students with intellectual disability to have an individual orientation to laboratory equipment or computers to minimize anxiety.

7.2. Strategies to teach Children with Learning Disability:

There is a range of teaching strategies that can assist all students to learn but there are some specific strategies that are useful in teaching a group which includes students with learning disability:

1. Provide reading lists well before the start of a course so that reading can begin early. Consider tailoring reading lists and providing guidance to key texts. Allow work to be completed on an in-depth study of a few texts rather than a broad study of many.

2. Whenever you are introducing procedures or processes or giving directions, for example in a laboratory or computing exercise, ensure that stages or sequences are made clear and are explained in verbal as well as written form.

3. Students may benefit from using assistive technology.

4. Use as many verbal descriptions as possible to supplement material presented on blackboard or overhead. Students with a learning disability often have a marked preference for an auditory mode of learning.

5. Present information in a range of formats – handouts, worksheets, overheads, videos – to meet a diversity of learning styles.
6. Use a variety of teaching methods so that students are not constrained by needing to acquire information by reading only. Where possible, present material diagrammatically - in lists, flow charts, concept maps etc.

7. Keep diagrams uncluttered and use colour wherever appropriate to distinguish and highlight.

8. Ensure that lists of technical/professional jargon which students will need to learn are available early in the course.

9. Recording lectures will assist those students who have handwriting or coordination problems and those who write slowly as well as those who have a tendency to mishear or misquote.

10. Students will be more likely to follow correctly the sequence of material in a lecture if they are able to listen to the material more than once.

11. Repetition is important for students with a learning disability. Wherever possible, ensure that key statements and instructions are repeated or highlighted in some way.

12. Students with a learning disability will benefit from discussion on time management and organisation issues. Such discussions can be built into tutorial activities.

13. Extra tutoring in subjects where processes and sequences are important may be desirable.

14. Students with learning disability may benefit from having oral rather than written feedback on their written assignments.

15. Do not make students over-anxious about making mistakes, asking questions, getting through the work or meeting learning goals.

16. It may be helpful for students with a learning disability to have an individual orientation to laboratory equipment or computers to minimize anxiety.

7.3. Strategies to teach Children with Autism Spectrum Disorder (ASD)

1. **Children with ASD need structure and routine:** Structure and routine to a child with ASD is like glasses for a child who has a visual impairment or a hearing aid for a child with a hearing impairment. It's that important. The more organized and structured the environment and consistent the teaching style, the better.

2. **Structure "time" for the child with ASD:** A daily schedule is one tool for structuring "time" for the child with ASD. You may have your daily schedule posted on the board, but typically this is

just not enough for the child with ASD. Most children will require a personal interactive daily schedule which is often more detailed. Mini-schedules for specific time periods are often needed.

3. **Structure "space" for the child with ASD**: Children with ASD benefit from clearly defined boundaries for specific areas of the classroom. Use of furniture to define areas or tape on the floor is often helpful. The student's work area should also be organized. Having a folder for work "to do" and "done" can be useful.

4. **Prepare the child with ASD for changes in the routine:** Despite the most routine-based classroom, there will always be changes in the schedule. Think of the all the events that may occur that impact the routine of your classroom. Assemblies and fire alarms are typical events that impact the routine of the classroom and often cause distress for the student with autism. The use of the daily schedule or a tool such as a social story may be helpful.

5. **Children with ASD have significant difficulty processing oral language:** Language deficits are the hallmark of autism. Children with ASD have difficulty processing long strings of verbal input. Provide one to two directions at a time and keep it simple. Directions such as, "get your math book out of your desk, turn to page 59, complete the first 10 problems, be sure to put your name on your paper and then put it in the basket", would be very difficult for the child with ASD. Of course, the amount of information that can be processed is different from child to child, but be aware that processing oral language is always an area of deficit.

6. **Children with ASD are visual processors**: Although the language areas of the brain are affected, the visual areas are often normal or, in many cases, well developed. Children with ASD process information visually significantly better than oral language. When at all possible, content information should be accompanied by visual representations. Pictures! Pictures! Pictures!

7. **Children with ASD have a difficult time understanding non-verbal communication**: You know your disapproving "teacher look" when the class is too loud? Well, your student with ASD will likely not understand that your look means that you want your class to quiet down. While the rest of your students quickly realize to they are to stop talking, the child with ASD will continue to chat and then be perplexed as to why he's now in trouble. You will need to be direct in your language and tell the child exactly what you want him to do ("Joey, stop talking").

8. **Children with ASD have difficulty reading social cues.** Children with ASD have significant difficulty understanding social cues. They have a difficult time taking on the perspective of another person. They may not understand how their comments or actions affects another person's feelings. Social skills such as using social greetings, turn taking, and sharing are all skills that likely need to be taught directly.

9. **Children with ASD are often rule followers**. High functioning students with ASD are often known as the classroom policeman. Once a rule is established, it is established forever and breaking of a rule by a classmate often causes stress for the child with ASD. They are black and white thinkers with no shades of gray. This often causes conflicts with peers as the child with ASD is viewed as a tattler.

10. **Many children with ASD have sensory related issues.** Many children with ASD have sensitivity to touch, sight, sound or a combination of some or all. They may be oversensitive to the buzzing of the lights in the classroom or the echoes in the school cafeteria or gym. Sensory related issues may be so severe that escaping these situations may be the cause of significant behavioral issues. Your school's Occupational Therapist may be helpful in determining sensory-related triggers

for the students. The child's parents can also provide valuable information as to how their child likely perceives certain environments.

11. **Children with ASD focus on details rather than on the whole**. Children with ASD tend to focus on specific details rather than the big picture. For example, coming up with the main idea of a story will likely be difficult for the child. They may focus instead on irrelevant details of the story. It is important to keep your instructional materials simple. When teaching letters or words just have the letter or word on a flashcard rather than a fancy chevron border, for example. The child is just more likely to be paying attention to the stripes than to the letter or word itself.

12. **Children with ASD have significant difficulty generalizing information**. Learning skills in one setting are not likely to easily transfer into another setting. There will need to be a concerted effort to teach skills (social, language, academic) in a variety of settings and with various people.

13. **Children with ASD are literal thinkers**. Figurative language such as "raining cat and dogs" is lost on the person with ASD. In the course of the day, we use a tremendous amount of figurative language that would be confusing for a child with ASD. Children need to be taught the literal meanings of common phrases used by classmates and teachers.

14. **Children with ASD are often the victims of bullying**. Children with ASD are easy targets for bullies. Because their triggers are so obvious and often their reactions severe, some children tend to enjoy setting them off. All adults in the child's environment need to be especially aware of this issue. Educating classmates about autism and explaining the "why" behind the behaviors is often helpful.

15. **Children with ASD are children first!** Children with ASD are unique and wonderful individuals. They are first and foremost children. They are only children who think and perceive the world differently than most individuals.

7.4. Other strategies to Teaching Children with Disabilities

Though each child with disability is different from the other, and hence, may require individualized instructions, there are certain fundamental principles that have to be born in mind while imparting any skill to the child.

Basic principles of teaching: The teaching must always proceed from:

1. **Simple to complex**: Always start with a step in which the child is bound to meet with success. This would motivate the child to learn further. Goals which are too high for the child should be avoided. As the child learn the simpler steps, gradually introduce the complex or difficult steps. For instance, while teaching brushing teeth, one should start with front teeth and slowly proceed to the teeth on other side, then the inside of the teeth.

2. **Known to unknown**: The child's current level of functioning must be the starting point for teaching the skill. Consider what he knows in a skill as the beginning for teaching the rest of the skill. Thus, if a child needs to be taught reading the word, 'dog', one has to start with the identification of picture of the 'dog' which known to the child, math the word 'dog' to the picture, and then let him or her identify the written word 'dog' in two choice and multi choice situation.

3. **Concrete to abstract**: Children with disabilities have difficulty in following abstract concepts. Every teaching must have concrete examples associated with it. For instance, to give the child the

concept of 'Sunday' which is abstract, associate it with activities of Sunday such as 'Daddy wouldn't go to office', 'The child will not have to go to school'.

4. **Whole to part**: Any concept taught must be introduced as a whole. Before teaching about the various parts of body, are we not introducing the whole self? 'This is man', 'These are his eyes' and so on. Similarly, words must be introduced as a whole before the letters that make up the word are taught.

The above four basic principles must be remembered while teaching any task to the child. While deciding on teaching procedure, one must stop to think, if the above four principles are followed. If it does not necessary alternations need to be made in teaching steps, for the program to be effective.

Stages of learning: There are following three stages that have to be followed in teaching a task:

1. **Acquisition**: This is the stage when a child learns a task. To be successful, one has to be very careful in structuring the teaching/learning situation during this time. There is absolute need for consistency in teaching. The task should be carefully analysed and imparted. For instance, if a child is being taught toileting skill, during the acquisition stage, the toilet used should be the same, the cue word should be the same and initially the associated activity such as waking up from bed, or drinking milk before toileting should be the same. This helps in conditioning the child. Variations in these, will not help the child to get the cue and thus learning will be unsuccessful or delayed.

2. **Maintenance**: When the child is found to perform the task consistently in the correct manner in eight of ten situations, we call this maintenance of the skill. Thus the child who is being toilet trained indicates and uses a particular toilet correctly on waking up from sleep or right after drinking milk or takes hint from a particular cue word used eight times out of ten chances, he or she is said to be maintaining the skill.

3. **Generalization**: This is the stage when child is able to apply the learnt skill appropriately in any given situation. That is, the ability to transfer from one situation what is acquired and maintained to other similar situations. If we take the same example of toilet training, when the child is able to use a particular toilet appropriately most of the time, he or she requires training in using other toilets whenever a need arises, for example, a toilet in public places, understanding other words used for toilet and using whenever he or she feels the need to use one. If he or she successfully does so, we can say that the skill has been generalized.

Reinforcements: Another most important aspect in training in any skill is rewarding the child appropriately for each attempt he or she makes. Such rewards may range from a simple smile or pat to expensive presents to the child, depending upon the situation. A child who is asked to get up and close the door, may be told 'good' or 'smiled at' for obeying the instruction. Another child who has completed making a glass of juice independently as per the training given may be given the juice as a reward.

Methods of teaching: The various methods commonly used for teaching are shaping, prompting, modelling, chaining and fading. Though the terms seem technical they are used by all of us in day-to-day living while teaching.

1. **Shaping**: Shaping means rewarding a child for a behaviour that is a step towards the desired behaviour. Thus if a child whose target behaviour is to ask verbally for water, he or she will be rewarded for attempting to say 'wa' initially. Gradually the reward will be given when the progress is made in reaching the target, perhaps, 'wat' followed by 'water' finally. This is generally called as reinforcing successive approximations.

2. **Prompting**: Prompting is simply assisting a child in various degrees depending on his or her current level of function. For instance, a physical prompt is one where one physically assists the child by holding him or her. Helping a child by holding his or her hand to pick up food or direct to his or her mouth is a physical prompt. On the other hand, telling him or her, to pick up food, and telling him or her to direct to his or her mouth is a verbal prompt.

3. **Modelling**: Modelling is a visual prompt. When the child is watching, performing the desired task for him to follow is modelling. Brushing one's own teeth when the child is watching and making him do is an example of modelling. This is very powerful mode of teaching. Children learn very fast if the model looks like himself. Therefore, use peer models wherever possible for teaching a skill.

4. **Chaining**: Every task that is to be taught is broken down into smaller steps. This is called task analysis. Linking each subtask of the task is called chaining. Teaching the task from the beginning to the end is called forward chaining. In contrast, teaching from the last step and moving towards the first step is called backward chaining. To quote an example, bathing skill has the following subtasks in brief – pouring water, applying soap, pouring water till clean, wiping dry with towel.

   Linking eat of these steps are chaining. If one teaches from pouring water, down to the last step, it is forward chaining. Depending on the skill selected, each of the subtasks and the child's ability, forward or backward chaining can be used.

5. **Fading**: All the methods used for teaching are to be reduced gradually letting the child perform independently. This is called fading.

7.5. Some examples of Teaching Children with Disabilities

Auditory Processing Disorder: Signs and Symptoms

- Has difficulty processing and remembering language-related tasks but may have no trouble interpreting or recalling non-verbal environmental sounds, music, etc.
- May process thoughts and ideas slowly and have difficulty explaining them
- Misspells and mispronounces similar-sounding words or omits syllables; confuses similar-sounding words (celery/salary; belt/built; three/free; jab/job; bash/batch)
- May be confused by figurative language (metaphor, similes) or misunderstand puns and jokes; interprets words too literally
- Often is distracted by background sounds/noises
- Finds it difficult to stay focused on or remember a verbal presentation or lecture
- May misinterpret or have difficulty remembering oral directions; difficulty following directions in a series
- Has difficulty comprehending complex sentence structure or rapid speech
- "Ignores" people, especially if engrossed
- Says "What?" a lot, even when has heard much of what was said

Auditory Processing Disorder: Strategies

- Show rather than explain
- Supplement with more intact senses (use visual cues, signals, handouts, manipulatives)
- Reduce or space directions, give cues such as "ready?"
- Reword or help decipher confusing oral and/or written directions
- Teach abstract vocabulary, word roots, synonyms/antonyms
- Vary pitch and tone of voice, alter pace, stress key words
- Ask specific questions as you teach to find out if they do understand
- Allow them 5-6 seconds to respond ("think time")
- Have the student constantly verbalize concepts, vocabulary words, rules,

Auditory Processing Disorder (APD)
Activity Examples

Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
• May misinterpret or have difficulty remembering oral directions; difficulty following directions in a series	**Activity 1:** **Following Auditory Directions** **Students will be able to:** ➢ follow oral direction ➢ Carefully follow direction in series. **Teacher direction…** **Step 1**: Ask your students to do one activity, advice students to use their imagination to picture that activity in his/her mind to repeat the direction back to you. **Step 2**: Make sure to hold up one finger when telling the direction and the student to hold up one finger when the student repeats it back to the teacher. Then, he/she needs to go do one activity that was told to do. **Step 3**: Next day, go through the same process with two directions. You give the directions, holding up one finger for the first direction and two fingers for the second direction. Students picture the two directions and repeat them while holding up one finger for the first direction and two fingers for the second. He/she then does both things he was asked. **Step 4**: Third day, give three directions. The fourth day, four. And, so on. Stop once the student was able to do seven or eight things in order.

• Has difficulty processing and remembering language-related tasks but may have no trouble interpreting or recalling non-verbal environmental sounds, music, etc. • Misspells and mispronounces similar-sounding words or omits syllables; confuses similar-sounding words (celery/salary; belt/built; three/free; jab/job; bash/batch) • May be confused by figurative language (metaphor, similes) or misunderstand puns and jokes; interprets words too literally • Finds it difficult to stay focused on or remember a verbal presentation or lecture • Has difficulty comprehending complex sentence structure or rapid speech	**APD: Activity-2** **JUNK JAM MUSIC GAME: A Fun Way to Explore Sound and Rhythm** Kids love noise. We have trash. Combine the two and kids will create music while they explore sound and rhythm. It is a simple idea: hang trash from the ceiling (or tree branches) and let the kids tap and drum to explore the different sounds. Once the bottles were hung the ideas for games just kept coming. Try this in your yard or school and see what games make your heart sing.  **why kids should explore sound and rhythm**: **Students will be able to:** ➢ Understand the auditory Discrimination process ➢ Make sense that there are different types of Pitch, and Vary pitch and tone of voice, alter pace, stress key words. Volume, Patterning, Explore Sound and Rhythm **Materials for your own Junk Jam Music Game so your kids can explore sound and rhythm:** • Plastic Bottles (bottles with handles work best) • String • Sticks (I used chopsticks) • Optional: Cotton and Tape to turn the sticks into drumsticks. 
• Has difficulty comprehending complex sentence structure or rapid speech	**Activity 3:** **Listening for Comprehension** **Students will be able to:** ➢ Develop their listening skills ➢ Express themselves through acting out to comprehend story elements. **Act or Illustrate.** Tell or read stories aloud then ask your students to act out or illustrate the story. Either of these activities encourage listening for detail and listening for lengths of time.

Books on CD. As your student listens to books on CD, they should follow along in the real book, if possible. If that's not possible, just listening is a good exercise. This particular Amelia Bedelia book on CD set serves double duty. Because Amelia Bedelia takes figurative words literally, there are all sorts of fun consequences. The stories offer a great opportunity to discuss idioms and how the listener in a conversation really must understand what is being said.

Catch Me If You Can. Read (or tell) stories that are well-known to your children. Change bits and pieces here and there to see if they can catch the mistakes. This is activity requires an extended amount of auditory attention.

APD: Activity- 4:

Back to Back and Ear to Ear; a Language and Listening Game

Grab some kids and have fun with this language and listening game. We are always looking for ways to build language and listening skills and this simple game has a bunch of skills packed into it.

It is effective in helping the children make progress with the target skills. It is easy to modify to work on a variety of skills.

Students will be able to;

- Following directions
- Develop fine motor (Drawing and cutting)
- Directionality
- Prepositions
- Communication skills
- Joint Attention
- Auditory Processing

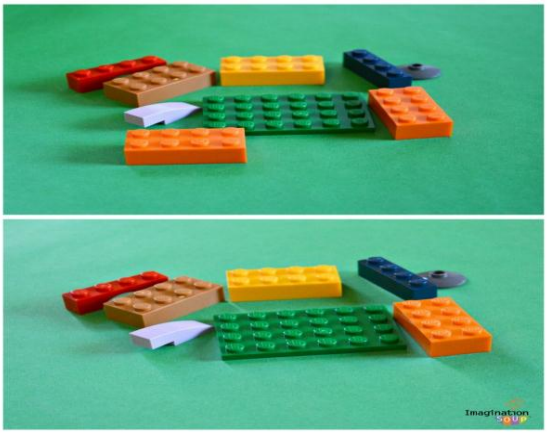
Materials for *Back to Back, Ear to Ear; Language and Listening Game*:

- 2 sheets of paper
- Pairs of geometric shapes in different colors.
- Scissors
- Crayons or markers

Instructions for Back to Back, Ear to Ear; Language and Listening Game:

- Players sit back to back for this game, facing away from each other.
- Place a sheet of paper on the ground in front of each player as well as a set of the shapes. The first player places a shape somewhere on the page and calls out the location for the other player. For example: "Put a small red square in the upper right-hand corner."
- Now it's the other players turn to choose and call out instructions After a few turns, players compare their masterpieces to see how well they match up. Seeing how the

	kids processed directions will give you good information. You can see if they are understanding or struggling with auditory processing, prepositions, descriptive words, or directionality. Here is an example where one child was having a difficult time with directionality. • Seeing how the kids processed directions will give you good information. You can see if they are understanding or struggling with auditory processing, prepositions, descriptive words, or directionality. Here is an example where one child was having a difficult time with directionality. 

• Misspells and mispronounces similar-sounding words or omits syllables; confuses similar-sounding words (celery/salary; belt/built; three/free; jab/job; bash/batch)	**Activity 5** Visual Processing Game #2: What's Missing? **Students will be able to:** ➢ Improves visual discrimination which is seeing details as well as recognizing similarities and differences. Why is this skill important? It helps with writing, spelling, and reading comprehension. Kids need to see their spelling mistakes. They need to see that they're reading the word "bed" not "bad". Person 1 puts out an assortment of LEGOs. Person 2 studies these for a minute. Person 1 covers LEGOs and removes 1 brick. (For more challenge, either remove more than one piece or use more bricks in the group.)  Then the LEGOs are uncovered and person 2 guesses which piece is missing. Switch turns

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Problem: Dyslexia

Dyslexia: Signs and Symptoms

- Processing and understanding what they hear.
- They may have difficulty comprehending rapid instructions, following more than one command at a time or remembering the sequence of things.
- Reversals of letters (b for d) and a reversal of words (saw for was) are typical among individuals who have dyslexia.
- Individuals with dyslexia may also try to read from right to left,
- May fail to see (and occasionally to hear) similarities and differences in letters and words, may not

recognize the spacing that organizes letters into separate words, and may be unable to sound out the pronunciation of an unfamiliar word.

Dyslexia: Strategies/Treatment

- There's no known way to correct the underlying brain malfunction that causes dyslexia.
- Treatment is by remedial education.
- Psychological testing will help you identify the areas you need to work on.
- You may use techniques involving hearing, vision and touch to improve reading skills. Helping an individual to use several senses to learn — for example, by listening to a taped lesson and tracing with a finger the shape of the words spoken — can help you process the information. The most important teaching approach may be frequent instruction by a reading specialist who uses these multisensory methods of teaching.
- If you have a severe reading disability, tutoring may involve several individual or small-group sessions each week, and progress may be slow. An individual with severe dyslexia may never be able to read well and may need training for vocations that don't require strong reading skills.
- People with milder forms of dyslexia often eventually learn to read well enough to succeed in school.

Dyslexia :Activity Examples	
Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
• Processing and understanding what they hear. • May fail to see (and occasionally to hear) similarities and differences in letters and words, may not recognize the spacing that organizes letters into separate words, and may be unable to sound out the pronunciation of an unfamiliar word.	**Dyslexia: Activities 1** **Title:** Letter Blend Bingo **Grade Level:** Kindergarten, First Grade and Second Grade **Subject:** Reading/Phonics **Students will be able to:** Students will hear words that begin with consonant blends and correctly match them to the letters on a bingo card. Children with dyslexia have a hard time processing sounds and matching letters to their corresponding sounds. Multi-sensory activities and lessons have been found to be an effective way of teaching phonics and reading. As practice, bingo is a fun way to help students listen for and identify

	common consonant blends. This lesson helps children learn blended letters through more than one sense. It includes sight by looking at the letters on the bingo board and, if pictures are used, looking at the pictures. It includes auditory because they hear the word as the teacher calls it out. It also includes touch by having the students mark off the letters as they are called out. CORE STATE CURRICULUM STANDARDS RF.1.2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes). **Approximate Time Required:** 30 minutes **Required Materials and Equipment:** • Bingo worksheets (grids with five blocks across and five blocks down) with letter blends randomly placed in the blocks. Each worksheet should be different. • Markers or crayons • List of words beginning with letter blends or flash cards with pictures of words beginning with blended letters. **Activity:** The teacher reads a word and/or shows a picture of a word of that begins with a letter blend. Saying the word out loud and showing a picture increases the multi-sensory experience of the game. Students mark the square on their bingo board of the letter blend that represents the beginning sound. For example, if the word was "grape" any student with the letter blend "gr" on their bingo card would mark that square. As each word is called out, students mark the square with the letter blend in the beginning of the word. When a student gets a straight or diagonal line, they have "BINGO." The game can be continued by having the students try to get every block on their sheet filled or starting again with a different color marker. **Alternative Methods:** • Use worksheets with blank bingo boards on them and have the students write one letter blend in each block, making sure to use each letter blend only one time (let students know they will not use all of the letter blends). You may want to write

	the letter blends at the bottom of the worksheet for students to use for reference. • Use smaller grids, with four squares up and four squares across and have four grids per page, allowing for four games of bingo. • Use the entire alphabet and have students mark the beginning or ending sound of a word. Bingo cards can be customized to match your current lesson, for example, simple vocabulary words, ending consonants or colors and shapes. **Tip:** Laminate bingo cards so they can be used more than once. Use dry-erase markers to make it easy to wipe off marks. Letter blends commonly found in the beginning of words: bl, br, ch, cl, cr, dr, fl, fr, gl, gr, fr, pl, pr, sc, scr, sh, sk, sl, sm, sn, sp, spl, squ, st, str, sw, th,thr, tr, tw, wh **List of possible words:** Block, Brown Chair, Clown, Crayon Dragon Flower, Frame Glow, Grape Plane, Prize Scare, Scrap Skate, Sled, Smile, Snake, Spoon, Splash, Square, Stone, Street, Swing Truck, Twin Free Online Bingo card generator websites: Print-Bingo.com: www.print-bingo.com Free Bingo Sheet Generator: www.saksena.net/partygames/bingo
• Reversals of letters (b for d) and a reversal of words (saw for was) are typical among individuals who have dyslexia • Processing and understanding what they hear. • They may have difficulty comprehending rapid instructions, following more than one command at a time	**Activity 2: Spelling Stations** Dyslexics struggle with perceiving the sequence of letters in a word, which can lead them to see a "b" as a "d" or may have them rearrange a particular word (for instance, the word "read" may appear as "erad"). If you want to understand what that feels like, here is a video example of different types of dyslexia: **https://youtu.be/tZ3MFFPvS3w Video** In order to help students who suffer with spelling due to dyslexia, Education Corner created "Spelling Stations" to give students in grades

or remembering the sequence of things. • Individuals with dyslexia may also try to read from right to left,	1-3 the opportunity to sharpen their spelling skills through different visual, auditory, writing, and verbal repetition stations. This lesson should be used several times a week to enforce learning by repetition, which solidifies their skills but in a fun and engaging way. **<u>Different station ideas for this lesson plan</u>:** • **Letter Magnets** – Using magnetic letters on a metal surface, students spell out words that are given to them. • **Puzzle Time** – This station will be made up of spelling worksheets such as crossword puzzles and word searches. These help students learn spelling through word recognition, while at the same time keeping students engaged through fun games. • **Colorful Words** – Students who visit this station will write out their spelling words using different colors for each letter. Using these different colors, students can use associations between colors and letters to learn the correct **Pop Quiz** – Students in this station quiz each other on spelling words. One student will read words out loud, while the other either vocally spells the letter or spells the word on paper. This aids the students in auditory and verbal spelling challenges. • **Word Art** – Using crayons, markers, glitter, and other art materials, students spell out words on construction paper, then decorate the words. This helps students retain word spelling through visual association with art, which can lessen the effects that dyslexia has on a child.
• They may have difficulty comprehending rapid instructions, following more than one command at a time or remembering the sequence of things.	**<u>Activity 3:</u>** **"Dear Peter Rabbit" Lesson Plan** **Goal:** After hearing (and/or reading) Peter Rabbit, the students will work on story elements and writing a letter to Peter Rabbit. Note: All links listed here can be found on this site named "Dear Peter Rabbit Letter Writing Lesson" listed at the bottom of this site. (Includes Templates, interactives and more) •Identify story elements of setting •Identify story elements of characters •Identify story elements of plot •Identify story elements of problems and solutions •Compare the similarities/differences between events in a story and events in life •Apply basic reasoning skills by telling differences between reality and fantasy in texts

	•Write simple stories with a central idea or event; a beginning, middle, and end; and details •Participate in group writing activities and processes, including using prewriting strategies, including listing, brainstorming, and drawing to generate ideas for writing •Write for various purposes, including responses that follow simple formats, including envelopes, lists, and journals . NOTE: Lesson links can also be found below. http://www.digitalwish.com/dw/digitalwish/view_lesson_plans?id=4326 Please refer to this link to excess resources. 1. Building Background: Share sites with Peter Rabbit activities from "Peter Rabbit Online" (See URL below) Click on play games, click "characters" to discuss the characters in the story. 2. Story: Read "Peter Rabbit" with the students online (See URL below) or by using the book. Discuss the story elements, events and have students retell the story in their own words. Ask questions about the story details. 3. Story Elements: Go to Read Write Think's Story Map Link and have the class (or students) work on a Story Map that includes story elements. (Character, setting, conflict, resolution) Link is listed below. 4. Graphic Organizer: This MS Word web template may be downloaded for students to type six questions or statements to Peter Rabbit. MS Word Document can be found on the "Dear Peter Rabbit Letter Writing Lesson" 5. Writing Letter: Now once the graphic organizers are complete, the students will type letters to Peter Rabbit. The teacher can use one of two templates online. •Printable letter for writing rough drafts can be found can be found on the "Dear Peter Rabbit Letter Writing Lesson" link listed below. •Once rough drafts are written, students can use any of the interactive forms for electronic versions: a. Interactive MS Word Template: Students type in the date, the greeting, the body of the letter and the salutation. Template can be found can be found can be found on the "Dear Peter Rabbit Letter" Writing Lesson link listed below. b. Interactive PowerPoint Template: Download PowerPoint Template can be found can be found on the "Dear Peter Rabbit Letter" Writing Lesson link listed below.

	Once the PowerPoint template is downloaded, go to Slide Show at the top. Click "View Show." Go to advance the slide or click enter. The child or teacher can type in their story in the white box. Then save each PowerPoint with that child's name or the class name. Practice reading as a class. c. Other options to write friendly letters can be found on the "Dear Peter Rabbit Letter Writing" Lesson link listed below. •ReadWriteThink Friendly Letter Generator •Study Zone Letter Interactive •Let's Write a Letter Interactive •ReadWriteThink Post Card Generator 6. Art: Students can make bunny hats or headbands. One site to help can be found can be found on the "Dear Peter Rabbit Letter" Writing Lesson link listed below. 7. Presenting Letters to the Class: Each student will present or read their letter to the class. Note: Students can wear their bunny ears while reading their letters to Peter Rabbit. Film stories with a flip camera. Share with the class at the end of the unit. 8. Webpage/Blog: Optional: For those with websites, the students can take pictures of each other with digital cameras and the teacher can place the students letter with a picture of the student who wrote the letter. You can do this with blogs as well. (See example to share with students. Mrs. Sadie's letter to Peter can be found can be found on the "Dear Peter Rabbit Letter" Writing Lesson link listed below. 9. More extension ideas for Easter activities can be found on the Vermilion Parish Easter Holiday site can be found can be found on the "Dear Peter Rabbit Letter Writing" Lesson link listed below. 10. Extension Story: Comparing fiction and non-fiction stories of rabbits and survival. Real life story of a rabbit named Bugs who survived Hurricane Katrina (PowerPoint) can be found can be found on the "Dear Peter Rabbit Letter Writing" Lesson link listed below. Teacher can use one "Compare and Contrast" interactives from stories or use one Venn Diagrams links can be found can be found on the "Dear Peter Rabbit Letter Writing" Lesson link listed below.
Student does not distinguish letters correctly. Example: - Consonants:	• Show big letters that look similar to help students to easily recognize them and identify the differences. • Read the letters aloud clearly by pointing to the letter and asking students to follow along.

- Vowels: ◌ា ◌ោ ◌ែ ◌ៅ - Combined consonants: ក្ក ក្ប…	• Ask students to draw comparisons and tell them which letters have similar or different drawings. • Ask students to find letters (both consonants and vowels) in a text and to point to, circle around, underline or write those letters out. • Use a variety of materials and activities to teach these concepts.
Student does not distinguish sounds correctly. Example: - Consonant sound: ក ត ត ត… - Vowel sound: ◌ា ◌ោ ◌ែ ◌ៅ … - Combined sound: កា ◌ែ្ន ◌ែត - Spelled sound: ក្ប ច្ច តាត់ - Spelled sound: ក្កន ក្កង្ខ់	• Walk to and stand facing the student, show the letters and read them clearly. • Point to the letters and ask students to read them one by one and to tell the different sounds of those letters. • Ask the students to practice reading in groups as many times as possible with assistance from high performing students. • Practice distinguishing the sounds of vowels and consonants by singing, reading texts, showing pictures, etc. and asking students to identify the sound of each letter in the texts. E.g.: Distinguishing sound by a song ក ខ្ ខ្ចិតខ្ចំ សំតី ត តា តិតី តីកួនតីឯតក់ ឃ ឃា កុំ◌ែ◌ែកន្លួមក់ ឧ ◌ែលើបកុំឯក់ ក ខ្ ត ឃ ឧៗ • Divide students into two different groups. The first group sings and the second one listens, and then the second group sings and the first one listens. On finishing, the teacher asks: ➢ How many 'ក' sounds are there in the song? (Write down the answers on the board). ➢ The teacher checks the answer by writing the song on the board.
Student does not combine sounds and spell correctly. Example: - Combined sound:◌ែ◌ោ ◌ែតា ◌ែ◌ោ - Spelled sound:ក្ប តាច - Combined and spelled sound: ក្កន ក្កង្ខ់	• Show pictures and word cards representing pictures. • Ask students to combine mobile letters to form a word which has meaning as the shown picture. • Practice combining sounds by changing consonants or vowels to enable students to understand the changes of sounds and position of combined letters. • Practice combining sounds by changing consonants or vowels to enable students to understand the changes of sounds and position of combined letters. • Write down a model word on the board and ask students to read it. • Delete the original consonant or vowel and keep the consonant or vowel to be learned. ➢ Example 1: The teacher writes ◌ែ◌ោ and then asks students to read. After that the teacher deletes or replaces កwith ខ្ក... and asks students to read ◌ែ◌ោ ◌ែខ្កា.... ➢ Example 2: The teacher writes ដែand asks students to read. After that the teacher deletes or replaces ដាwith ◌ាី◌ា◌ុ◌ា and ask students to read ◌ែ◌ីដ◌ែ◌ុ

Student does not read words and sentences correctly	• Follow the approach for teaching how to distinguish sounds and combine sounds. • Ask students to read one word at a time and then two words or three words at a time and then the whole sentence. Ask high-performing students to tell them any words that they are not able to read. • Ask them to read the whole sentence again. • Continue doing this until the student has finished reading the whole text.
Student reads without understanding the content	• Ask them to read words or sentences by using pictures, real objects or gestures or by comparing or providing examples. • Provide pictures or real objects which match the word cards. • Lead students to read words by using pictures. • Add three or four more pictures and word cards and ask students to match the pictures or real objects with the word cards.

Problem: Dyscalculia

Dyscalculia: Signs and Symptoms

- Shows difficulty understanding concepts of place value, and quantity, number lines, positive and negative value, carrying and borrowing
- Has difficulty understanding and doing word problems
- Has difficulty sequencing information or events
- Exhibits difficulty using steps involved in math operations
- Shows difficulty understanding fractions
- Is challenged making change and handling money
- Displays difficulty recognizing patterns when adding, subtracting, multiplying, or dividing
- Has difficulty putting language to math processes
- Has difficulty understanding concepts related to time such as days, weeks, months, seasons, quarters, etc.
- Exhibits difficulty organizing problems on the page, keeping numbers lined up, following through on long division problems

Dyscalculia: Strategies

- Allow use of fingers and scratch paper
- Use diagrams and draw math concepts
- Provide peer assistance
- Suggest use of graph paper
- Suggest use of colored pencils to differentiate problems
- Work with manipulatives
- Draw pictures of word problems
- Use mnemonic devices to learn steps of a math concept
- Use rhythm and music to teach math facts and to set steps to a beat
- Schedule computer time for the student for drill and practice

Dyscalculia Activity Examples	
Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
• Shows difficulty understanding concepts of place value, and quantity, number lines, positive and negative value, carrying and borrowing • Has difficulty sequencing information or events • Has difficulty putting language to math processes .	**Dyscalculia: Activities** **Math Games:** • **Board games** help kids practice matching the sets of dots on a die, or a set of objects, to the correct number of spaces to move. A game like Candy Land, for example, would fit into this category. • **Board books** also help kids match numerals and set of objects. In *Eric Carle's 123* pull-tab board book, for example, kids have to pull the right number tab to match the items on the page. • **Matching games** ask kids to keep track of where they saw items and patterns. Dominoes also lets kids practice matching numbers and sets. • **Mystery games**, such as 20 questions or Guess Who? ask kids to keep information in mind to use as a strategy for narrowing down to the correct answer. • **Spatial strategy games** ask kids to come up with ways to move pieces in order to block or capture other pieces. This includes games like chess, checkers, Connect Four and Battleship. • **Numerical strategy games** involve removing, getting rid of or rearranging pieces to win. This includes games like mancala and card games, such as Uno and trash. **Resource-management games**, such as Monopoly or Carcassone, ask kids to think about how much money or resources (such as property) they have and how they can use them to get to a goal. Video on Dyscalculia: https://sharemylesson.com/teaching-resource/dyscalculia-teaching-help-196309
• Has difficulty understanding and doing word problems • Has difficulty sequencing information or events • Exhibits difficulty using steps involved in math operations	***Activity 5*** *An over-reliance on counting in ones.* Use manipulatives, such as base ten blocks to provide visual images of quantities. Use recognisable and consistent patterns based on 1, 2, 5 and 10. For example;

Children can be shown how 'chunking' can help them work beyond ones.

Difficulty in counting backwards.

Counting backwards requires working memory, so it can be much harder than many teachers and parents recognise. It sets the foundation for subtraction. Use materials and visuals again. It's a good opportunity to introduce and demonstrate vocabulary such as 'take away' and 'subtract' and one of my favourite questions, 'Is it bigger or smaller?'

A poor sense of number and an inability to estimate.

Again objects set out in recognisable patterns create the foundations for developing this skill. Try comparing objects set out in patterns with random sets. That question, 'Is it bigger or smaller?' is useful again.

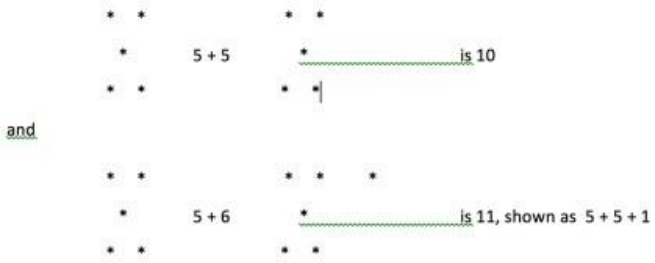
Difficulty in understanding place value and its role in arithmetic.

A child can learn to count to ten, but writing ten as 10 is a very sophisticated task in terms of understanding how that communicates 'ten'. This can be demonstrated as a cognitively developmental sequence, using base ten blocks on a place value card as the starting point and then weaning the child down to using the symbols (digits) on their own.

The processes of multiplying and dividing by 10, 100, 1000 and so on can be demonstrated with a similar process.

Poor recall of basic facts, but better with 2x, 5x and 10x facts.

All facts are useful, but some are more useful than others. Luckily the more useful ones are the ones learners are most likely to learn. Children can be shown how to link the patterns (and their symbols) to demonstrate addition and subtraction facts, for example,



The principle can be extended to multiplication facts. Understanding is developed as well as strategies for accessing facts. Multiplication is linked to addition, so 7 x 6 is explained and demonstrated as repeated addition of seven sixes, 6 + 6 + 6 + 6 + 6 + 6 + 6. The sixes can be chunked as (6 + 6 + 6 + 6 + 6) and (6 + 6), that is 5 x 6 and 2 x 6, making 30 + 12, making 42.

This strategy can be applied to many other examples and it teaches the child about multiplication and how it is linked to addition. It sets the foundation for later, more challenging work on multiplication.

Slow speed of working.

There are a number of contributing factors that combine to make dyscalculic children slower to do maths problems, for example, slow retrieval of basic facts and slow and uncertain recall of procedures. So they do fewer examples and gain less experience. They become more anxious and that makes the situation worse. So they need less examples, but carefully selected to provide a sufficient breadth of learning experience.

The culture of maths to provide answers quickly is counter-productive for many children. Any help in reducing this (often unrealistic) expectation will be good for the child.

Very weak skills for mental arithmetic.

There are people who think that mental arithmetic skills are an essential basic for learning maths. I would challenge that belief. Two skills you need to be good at mental arithmetic are short term memory (to remember the question) and working memory (to work out the answer). Dyscalculic children often have weak short term and working memories. A reasonable adjustment would be to show the question, not just say the question. Another reasonable adjustment would be to give more time and that means more than an extra 25%.

Task avoidance.

If a child (or adult) predicts that they will get a task wrong, then they will,

	quite reasonably, avoid it. This is a fear of negative evaluation. Most of us experience this about something. If you don't try you don't fail. That requires setting a classroom, and home, ethos that allows a child to fail without that failure creating another step up the withdrawal ladder. *High levels of anxiety, usually specific to maths.* Anxiety can be facilitative. That rarely happens for dyscalculic students. There is sound research that has demonstrated that anxiety makes working memory less effective and thus reduces the ability to do maths. In my school we used attributional style to help tackle fear of failure, anxiety and low self-esteem ***Forgets maths procedures and formulas.*** If long term memory for maths is poor, then the child needs support to remember the often quite complex formulas we use in maths. It is a huge help if the child understands what he is doing and why. The steps should make sense and the task as a whole should make sense. Since maths builds, this will usually require a sound understanding of the pre-requisite work. Hence the need to revise, again and again. It is of no use what-so-ever to say to a child, 'I've told you this ten times, you should remember it.' Ten times without understanding is a waste of times. Use materials and visuals (alongside the symbols and digits) to develop understanding.
Student does not know number values Example: (8 =)	• Show 8 real objects or pictures and ask: how many objects/pictures are there? • Ask students to find 8 objects. • Ask students to count 8 fingers (5 and 3). • Write down a big number 8 on the board and tell students to follow in their notebooks. • Ask students to write number 8 in the air by following the teacher. • Ask students to write down number 8 on their slate boards many times. • Ask students to break down number 8 (Use real objects to help students to understand better) ➢ Example: 8=7+1; 8=3+3+2; 8=6+2; 8=4+2+2; 8=5+3; 8=5+2+l; 8=4+4; 8=6+1+1; 8=4+3+l
Student does not know how to add or subtract	• Use real objects or pictures to substitute numbers in the calculation. • Give students an addition or subtraction problem and asks them to use objects to do the calculation. • Ask students to keep practicing until they understand. • Remind students that: o Adding refers to putting together a number with another number. o Subtracting refers to taking one number away from a total number.

	➢ Example 1: (3+2=5) Neary has 3 pencils and her sister has 2. How many do they have in total? ➢ Example 2: (5-2=3) Sokha has 5 mangoes and gives 2 to his friends. How many mangoes does Sokha have left?
Student does not know how to add or subtract numbers by place value (units, tens, hundreds, etc.)	• Give students squared paper and demonstrate how to: o Write each digit of the number in a separate square. o Put the numbers in the correct order (from right to left and from top to bottom) o Add or subtract each digit from right to left ➢ Example: H T U H T U 1 5 8 1 5 8 + 3 1 - 3 1 1 8 9 1 2 7 • Give similar exercises to students to practice.
Student can not remember multiplication tables	• Use a chart of numbers 1 to 100 for students to count by 2s and by 5s. Do this every day. • Have students recite multiplication tables as a class every day. Use the multiplication tables chart for students to follow along. • Provide a sheet with multiplication tables for individual students and show them how to use it. • Practice multiplication in every mathematics session.
Student does not know how to multiply	• Give students squared paper and sheet with multiplication tables and demonstrate how to: o Write the numbers in a vertical line o Use the multiplication tables sheet to find the answer o Carry-over for double digit multiplication ➢ Example: T U 6 8 5 8 x 6 x 3 4 8 1 7 4
Student does not know how to divide.	• Explain that division is the opposite function of multiplication and use real objects to show how to divide. ➢ Example: Use a study game of dividing students into small groups of different numbers. o Demonstrate how to use the multiplication tables sheet to find the answer
Student does not know how to identify the function required in word problems	• Teach students to look for important words or concepts in the problem statement that indicate the function required. o In addition, important words are "in total" or "altogether" o In subtraction, important words are "gives" or "left" o In multiplication, the important concept is: The SAME amount of something in EACH thing.

	➢ Example 1: Sok has 15 pencils and Sao has 5. How many pencils do Sok and Sao have in total? ➢ Example 2: Sok has 15 pencils. He gives Sao 5 pencils. How many pencils does Sok have left? ➢ Example 3: There are 4 boxes. Each box has 7 stones. How many stones are there altogether?

PROBLEM: DYSGRAPHIA

Dysgraphia: Signs and Symptoms

- Students may exhibit strong verbal but particularly poor writing skills.
- Random (or non-existent) punctuation. Spelling errors (sometimes same word spelled differently); reversals; phonic approximations; syllable omissions; errors in common suffixes. Clumsiness and disordering of syntax; an impression of illiteracy. Misinterpretation of questions and questionnaire items. Disordered numbering and written number reversals.
- Generally illegible writing (despite appropriate time and attention given the task).
- Inconsistencies: mixtures of print and cursive, upper and lower case, or irregular sizes, shapes, or slant of letters.
- Unfinished words or letters, omitted words.
- Inconsistent position on page with respect to lines and margins and inconsistent spaces between words and letters.
- Cramped or unusual grip, especially holding the writing instrument very close to the paper, or holding thumb over two fingers and writing from the wrist.
- Talking to self while writing, or carefully watching the hand that is writing.
- Slow or labored copying or writing - even if it is neat and legible

Dysgraphia: Strategies

- Encourage students to outline their thoughts. It is important to get the main ideas down on paper without having to struggle with the details of spelling, punctuation, etc
- Have students draw a picture of a thought for each paragraph.
- Have students dictate their ideas into a tape recorder and then listen and write them down later.
- Have them practice keyboarding skills. It may be difficult at first, but after they have learned the pattern of the keys, typing will be faster and clearer than handwriting.
- Have a computer available for them to organize information and check spelling. Even if their keyboarding skills aren't great, a computer can help with the details.
- Have them continue practicing handwriting. There will be times throughout a student's life that they will need to be able to write things down and maybe even share their handwriting with others. It will continue to improve as long as the student keeps working at it.
- Encourage student to talk aloud as they write. This may provide valuable auditory feedback.
- Allow more time for written tasks including note-taking, copying, and tests.
- Outline the particular demands of the course assignments/continuous assessment; exams, computer literacy etc. so that likely problems can be foreseen.

  Give and allow students to begin projects or assignments early
- Include time in the student's schedule for being a 'library assistant' or 'office assistant' that could also be used for catching up or getting ahead on written work, or doing alternative activities related to the material being learned.
- Instead of having the student write a complete set of notes, provide a partially completed outline so the student can fill in the details under major headings (or provide the details and have the student provide the headings).

- Allow the student to dictate some assignments or tests (or parts thereof) a 'scribe'. Train the 'scribe' to write what the student says verbatim and then allow the student to make changes, without assistance from the scribe.
- Remove 'neatness' or 'spelling' (or both) as grading criteria for some assignments, or design assignments to be evaluated on specific parts of the writing process.
- With the students, allow abbreviations in some writing (such as b/c for because). Have the student develop a repertoire of abbreviations in a notebook. These will come in handy in future note-taking situations.
- Reduce copying aspects of work; for example, in Math, provide a worksheet with the problems already on it instead of having the student copy the problems.
- Separate the writing into stages and then teach students to do the same. Teach the stages of the writing process (brainstorming, drafting, editing, and proofreading, etc.). Consider grading these stages even on some 'one-sitting' written exercises, so that points are awarded on a short essay for brainstorming and a rough draft, as well as the final product.
- On a computer, the student can produce a rough draft, copy it, and then revise the copy, so that both the rough draft and final product can be evaluated without extra typing.
- Encourage the student to use a spellchecker and, if possible, have someone else proofread his work, too. Speaking spellcheckers are recommended, especially if the student may not be able to recognize the correct word (headphones are usually included).
- Allow the student to use cursive or manuscript, whichever is most legible
- Encourage primary students to use paper with the raised lines to keep writing on the line.
- Allow older students to use the line width of their choice. Keep in mind that some students use small writing to disguise its messiness or spelling.
- Allow students to use paper or writing instruments of different colors.
- Allow student to use graph paper for math, or to turn lined paper sideways, to help with lining up columns of numbers.
- Allow the student to use the writing instrument that is most comfortable for them.
- If copying is laborious, allow the student to make some editing marks rather than recopying the whole thing.
- Consider whether use of speech recognition software will be helpful. If the student and teacher are willing to invest time and effort in 'training' the software to the student's voice and learning to use it, the student can be freed from the motor processes of writing or keyboarding.
- Develop cooperative writing projects where different students can take on roles such as the 'brainstormer,' 'organizer of information,' 'writer,' 'proofreader,' and 'illustrator.'
- Provide extra structure and use intermittent deadlines for long-term assignments. Discuss with the student and parents the possibility of enforcing the due dates by working after school with the teacher in the event a deadline arrives and the work is not up-to-date.
- Build handwriting instruction into the student's schedule. The details and degree of independence will depend on the student's age and attitude, but many students would like to have better handwriting.
- Keep in mind that handwriting habits are entrenched early. Before engaging in a battle over a student's grip or whether they should be writing in cursive or print, consider whether enforcing a change in habits will eventually make the writing task a lot easier for the student, or whether this is a chance for the student to make his or her own choices. Beware of overload, the student has other tasks and courses.
- Teach alternative handwriting methods such as "Handwriting Without Tears."
- Writing just one key word or phrase for each paragraph, and then going back later to fill in the details may be effective.
- Multisensory techniques should be utilized for teaching both manuscript and cursive writing. The techniques need to be practiced substantially so that the letters are fairly automatic before the student is asked to use these skills to communicate ideas.

- Have the students use visual graphic organizers. For example, you can create a mind map so that the main idea is placed in a circle in the center of the page and supporting facts are written on lines coming out of the main circle, similar to the arms of a spider or spokes on a wheel.
- Do papers and assignments in a logical step-wise sequence. An easy way to remember these steps is to think of the word POWER.
- P - plan your paper
- O - organize your thoughts and ideas
- W - write your draft
- E - edit your work
- R - revise your work, producing a final draft
- If a student becomes fatigued have them try the following:

➢ Shake hands fast, but not violently.
➢ Rub hands together and focus on the feeling of warmth.
➢ Rub hands on the carpet in circles (or, if wearing clothing with some mild texture, rub hands on thighs, close to knees)
➢ Use the thumb of the dominant hand to click the top of a ballpoint pen while holding it in that hand. Repeat using the index finger.
➢ Perform *sitting pushups* by placing each palm on the chair with fingers facing forward. Students push down on their hands, lifting their body slightly off the chair.

- Allow student to tape record important assignments and/or take oral tests.
- Prioritize certain task components during a complex activity. For example, students can focus on using descriptive words in one assignment, and in another, focus on using compound sentences.
- Reinforce the positive aspects of student's efforts.
- Be patient with yourself.

Dysgraphia Activity Example

Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
Dysgraphia: Signs and Symptoms • Students may exhibit strong verbal but particularly poor writing skills. • Random (or non-existent) punctuation. Spelling errors (sometimes same word spelled differently); reversals; phonic approximations; syllable omissions; errors in common suffixes. Clumsiness and disordering of syntax; an impression of illiteracy. Misinterpretation of questions and questionnaire items. Disordered numbering and written number reversals.	**<u>Dysgraphia: Activities</u>** **<u>Improve Fine Motor Coordination</u>** These are just a few activities you can try at school, but there are several that are great for your child's development. Activities to help your child find a love early for writing and learning always lead to strong academic achievement. Activities like those listed below will help the child develop better control of fine movements in the hand. • Playing with small fridge magnets. The child can arrange them in a line, circle or any other shape. • Making shapes with matchsticks • Making a tower with coins • On a piece of paper, draw small circles. The child is asked to place one stone inside each circle. • Pouring liquids into small containers • Pickup sticks game (You can do it with spaghetti). Hold

• Generally illegible writing (despite appropriate time and attention given the task). • Slow or labored copying or writing - even if it is neat and legible • Inconsistencies: mixtures of print and cursive, upper and lower case, or irregular sizes, shapes, or slant of letters.	a bundle of spaghetti upright and drop it. The spaghetti will fall over each other. The game is to pick up one piece at a time without disturbing the position of any other pieces. • Picking up small pieces of colored paper and gluing them for a craft activity. • Gluing pulses, or sequins on to the outline of a simple shape or picture. • Sorting small colored Lego pieces according to their colors. • Pasting stickers or shapes on a paper where the outline is already drawn. • Simple sewing - Use a large needle and draw a line on the cloth to follow. • Arranging seeds, beads or small Lego pieces in a straight line. • Mix rice and pulses. Ask your child to pick out the pulses. • Transferring rice from one container to another • Doing a sequence of actions to a beat- ex. clap twice, and slap your thigh twice **All Shapes and Sizes** A great place to begin is to let your child draw and color with pencils, pens, crayons and markers of all shapes and sizes. You can start your child out with a fat marker that will help them grip it better and eventually help them work down to a small broken piece of crayon. The smaller the object, the harder they have to work those muscles to refine their skills.  **Super Sorting Pie** I love this Super Sorting Pie from Amazon and I use it in my center all the time with the kids that come to me for help with handwriting. Remember, an important piece of the puzzle is to not only help your child to write their letters, but to also help him or her hold their pencil correctly for better handwriting.

	Kids have a tendency in the beginning to grasp pencils and crayons with their whole palm like a knife, but activities that allow them to use their index finger and thumb will strengthen those muscles for writing. That is why the Super Sorting Pie works so well because it allows kids to grip the fruits and place them in the pie with tongs that are similar to tweezers.  **O: BEADS AND COINS**: Kids Fine Motor activities using beads, coins and letters These are just a few activities you can try at home, but there are several that are great for your child's development. Activities to help your child find a love early for writing and learning always lead to strong academic achievement. 

• Cramped or unusual grip, especially holding the writing instrument very close to the paper, or holding thumb over two fingers and writing from the wrist. • Students may exhibit strong verbal but particularly poor writing skills.	**Pencil Grip** A pencil grip fits over the pencil to position the thumb, index and middle finger correctly. Grasping the pencil properly lets your child write more neatly and more quickly without her hand muscles getting so tired. There are many types of pencil grips, so it's important to know what your child's specific needs are. If she wraps her thumb around her index finger, for instance, there's one with built-in guards. The guards may make it easier for her fingers to remain in the correct position. You can find pencil grips at office supply stores, but they may not provide enough finger support for kids with dysgraphia. To find the right pencil grip for your child, you may need to look in online catalogs aimed at occupational therapists. 

Student writes letters incorrectly	• Ask students to practice drawing as much as possible both inside and outside the classroom such as: straight line, circle, zigzag line. • Provide a model letter with direction arrows for students to draw as many times as possible in the air, on the ground, on the board and in their book. • Lead students to write in a grid, step by step. • Ask students to write on the board and provide corrections. • Ask students to use small stones, beans, or corn to make the shape of letters they already learned, as homework or during the break.
Student spells many words incorrectly and give wrong meanings (know little vocabulary)	• Ask them to learn more words (writing, reading). • Use flash cards. • Use gestures to explain the meaning of the words. • Teach them how to identify synonyms (words that mean the same) and homonyms (words that sound the same) of each word to build students' vocabulary. • Ask students to play word building games and to explain the meaning of the word they just formed
Student does not write phrases, sentences and articles well (their ideas are not broad and clear).	• Ask students to practice filling in gaps in phrases. • Ask students to write short sentences (subject, verb and object) describing activities and environments around them. • Ask students to put words in the correct order to form a phrase and sentence, and to read the completed sentence. • Use the three-level questions (memory, understanding, and critical thinking) and ask students to form sentences to answer the questions. • Frequently ask students to give reasons for each answer. • Frequently ask students to read texts with pictures and short sentences and then move to read more difficult articles from newspapers, magazines. . . • Make students accustomed to using the dictionary so that they are able to find words and their meaning. • Provide clear corrections on all tasks assigned to students and immediately correct wrong answers provided by students.

Problem: Autism Spectrum Disorder (ASD)

Autism Spectrum Disorder: Signs and Symptoms

Symptoms of autism spectrum disorder

The main features of autism spectrum disorder (ASD) are problems with social communication and interaction.
Signs of ASD in pre-school children

Spoken language

- delayed speech development (for example, speaking less than 50 different words by the age of two), or not speaking at all
- frequent repetition of set words and phrases
- speech that sounds very monotonous or flat
- preferring to communicate using single words, despite being able to speak in sentences

Responding to others

- not responding to their name being called, despite having normal hearing
- rejecting cuddles initiated by a parent or carer (although they may initiate cuddles themselves)
- reacting unusually negatively when asked to do something by someone else

Interacting with others

- not being aware of other people's personal space, or being unusually intolerant of people entering their own personal space
- little interest in interacting with other people, including children of a similar age
- not enjoying situations that most children of their age like, such as birthday parties
- preferring to play alone, rather than asking others to play with them
- rarely using gestures or facial expressions when communicating
- avoiding eye contact

Behaviour

- having repetitive movements, such as flapping their hands, rocking back and forth, or flicking their fingers
- playing with toys in a repetitive and unimaginative way, such as lining blocks up in order of size or colour, rather than using them to build something
- preferring to have a familiar routine and getting very upset if there are changes to this routine
- having a strong like or dislike of certain foods based on the texture or colour of the food as much as the taste
- unusual sensory interests – for example, children with ASD may sniff toys, objects or people inappropriately

Signs and symptoms of ASD in school-age children

Spoken language

- preferring to avoid using spoken language
- speech that sounds very monotonous or flat
- speaking in pre-learned phrases, rather than putting together individual words to form new sentences
- seeming to talk "at" people, rather than sharing a two-way conversation

Responding to others

- taking people's speech literally and being unable to understand sarcasm, metaphors or figures of speech
- reacting unusually negatively when asked to do something by someone else

Interacting with others

- not being aware of other people's personal space, or being unusually intolerant of people entering their own personal space
- little interest in interacting with other people, including children of a similar age, or having few close friends, despite attempts to form friendships
- not understanding how people normally interact socially, such as greeting people or wishing them farewell
- being unable to adapt the tone and content of their speech to different social situations – for example, speaking very formally at a party and then speaking to total strangers in a familiar way
- not enjoying situations and activities that most children of their age enjoy
- rarely using gestures or facial expressions when communicating
- avoiding eye contact

Behaviour

- repetitive movements, such as flapping their hands, rocking back and forth, or flicking their fingers
- playing in a repetitive and unimaginative way, often preferring to play with objects rather than people
- developing a highly specific interest in a particular subject or activity
- preferring to have a familiar routine and getting very upset if there are changes to their normal routine
- having a strong like or dislike of certain foods based on the texture or colour of the food as much as the taste
- unusual sensory interests – for example, children with ASD may sniff toys, objects or people inappropriately

Autism Activity Examples

Specific problems/Signs and symptoms	*Strategy, Techniques, Activities and Materials*
• preferring to communicate using single words, despite being able to speak in sentences • preferring to avoid using spoken language	**ASD: Activities** **Activity 1:** **I Spy Bottle** – Here's a simple activity that can aid your toddler's cognitive development and help him focus better. The captivating colors and the fascinating shapes inside the bottle are sure to grab your child's attention. Ensure that the contents of the bottle are as colorful as possible. Involve your child in the selection of the bottle contents. **You Need:** • An empty plastic bottle or jar • Water • Corn syrup • Little trinkets like hair clips, beads, buttons etc • A pack of gillter dust • Arcylic paint Alphabet tiles • A sheet of paper **Directions**: Begin by asking your child to write the letters A-Z on a sheet of paper. Now, start putting all the aforementioned contents into the bottle. Fill half the bottle with colored water and the other half with corn syrup. Seal the lid with hot glue and shake the contents well. There! Your I spy bottle is ready. Ask your kid to look for all alphabets in the bottle and strike them off on the sheet as and when he finds them.
• speech that sounds very monotonous or flat	**Activity 2:** **Ice Painting** – With a fun science experiment like this, your child is bound to be intrigued! This activity will enhance your kid's ability to identify and distinguish between colors. It will also improve his observational skills and knowledge about certain concepts of science. **You Need:** • An ice tray • Acrylic paint Craft stick Sheet of paper • Water • Foil **Directions:** Mix the paints that your kid wants to use with a little water, and pour them into individual compartments of the ice tray. Place the craft sticks in each of the compartments and use a foil to cover the tray and support the sticks. Gently place the tray in the freezer and let it freeze for 2-3 hours. Now remove the ice paints and let your child enjoy swirling and making patterns with the colored cubes over a sheet of paper.

• little interest in interacting with other people, including children of a similar age, or having few close friends, despite attempts to form friendships	**Activity 3:** **Edible Jewelry** – What's better than a pretty necklace that your kid will not just enjoy wearing, but also eating? This activity will improve your child's hand and eye coordination as well as her fine motor skills. **You Need:** • Licorice candy stick • Colorful candy or cereal with holes in the middle **Directions:** Hand a licorice stick to your child and ask her to string the candy or cereal pieces into it, one at a time. Once the licorice stick is covered with the candy or cereal, knot the ends of the stick. **Activity 4:** **The Matching Game** – This activity is a fun way to enhance your child's learning and physical motor abilities. You can alter the activity depending on what your child is learning at school. **You Need:** • A pack of colorful clothespins • Numbers, alphabets, fruits or vegetable placards with matching stickers **Directions:** On a table, place about 10-15 placards with different images of fruits, vegetables, animals etc. Label each of the clothespins corresponding to the images on the placard. Ask your child to clip the clothespin correctly to its matching placard. **Activity 5** http://raisingchildren.net.au/articles/autism_spectrum_disorder_play.html http://raisingchildren.net.au/articles/rough_and_tumble_play.html This short video is about rough-and-tumble play like chasing and wrestling. These are good things for teacher or parents to do with their c. You can have fun together and strengthen your bond at the same time. As well as being good exercise, rough play helps children learn how strong they are. You should always be gentle with young children so they don't get hurt. Rough-and-tumble play: ages and stages **Babies and toddlers** enjoy exciting movement, as long as they feel safe. Toddlers and babies like to be bounced on their parents' knees or lifted into the air. It's best to be gentle with young children, though, to avoid any accidental injury. **Toddlers** love playing chasey or tiggy, spinning around and dancing. This kind of active play works best when children are wide awake and

	not expected to go to bed or sit quietly any time soon. **Primary school children** are the biggest rough-and-tumblers.

Problem: Language Processing Disorder (APD)
Language Processing Disorder: Signs and Symptoms • Has difficulty gaining meaning from spoken language • Demonstrates poor written output • Exhibits poor reading comprehension • Shows difficulty expressing thoughts in verbal form • Has difficulty labeling objects or recognizing labels • Is often frustrated by having a lot to say and no way to say it • Feels that words are "right on the tip of my tongue" • Can describe an object and draw it, but can't think of the word for it • May be depressed or having feelings of sadness • Has difficulty getting jokes
Language Processing Disorder: Strategies • Speak slowly and clearly and use simple sentences to convey information • Refer to a speech pathologist • Allow tape recorder for note taking • Write main concepts on board • Provide support person or peer tutor • Use visualization techniques to enhance listening and comprehension • Use of graphic organizers for note taking from lectures or books • Use story starters for creative writing assignments • Practice story mapping • Draw out details with questions and visualization strategies

Language Processing Disorder (APD) Activity Examples	
Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
Language Processing Disorder: Signs and Symptoms • Has difficulty gaining meaning from spoken language • Exhibits poor reading comprehension • Shows difficulty expressing thoughts in verbal form	**Language Processing Disorder:** **<u>Activity - 1</u>** **Challenges understanding language = Challenges using language** Because language is such a vital part of communication, activities to improve language skills in children with auditory processing disorder are important to the parenting and teaching toolbox so that they can gain the skills needed to lead the most fulfilled life possible. There is no on singular method for treating this disorder, and often the successes are very dependent on the individual child. The following

• Has difficulty labeling objects or recognizing labels • Can describe an object and draw it, but can't think of the word for it	games and activities are designed to help kids with APD to improve language skills and build confidence in their abilities to communicate more effectively.  **Red Light/Green Light – Homework Help** Take a blank notecard and draw three large circles. Color one red, yellow, and green. Any time you are helping your child with homework (or having other detailed conversations), encourage him to use this Red Light/Green Light card. When he feels overwhelmed with the words you are using, have your pointer go to the red light on the card. This is your signal to stop, take a short break, and review the points until your child feels ready to give you the green light to continue. He can use the slow -down circle, the yellow, in the same way, letting you know he needs
• Shows difficulty expressing thoughts in verbal form • Has difficulty gaining meaning from spoken language • Exhibits poor reading comprehension	**<u>Activity 2</u>** **Talking Mirror** Children with APD often struggle even more to process what they hear when they have their faces turned away from the speaker. Help your child make more auditory connections by encouraging eye contact – building on those skills of a visual learner. Take a list of vocabulary words, spelling words, or even a short and silly poem. Face your child and one word at a time, speak the word in a slow and exaggerated tone, making sure to enunciate clearly and move your mouth to match the sounds. Your child then repeats this word back to you, trying to match not only the actual word and how you said it, but the expression on your face as well. Don't be a afraid to get a little silly with it – crinkling your nose or raising your eyebrows to make more emphasis. Encourage your child to look in the mirror when she talks, to, as it helps build body language awareness. **<u>Activity 3:</u>** **I Went to Grandma's**

This classic game helps kids with APD practice memory building skills important to communication. Begin the game by saying:

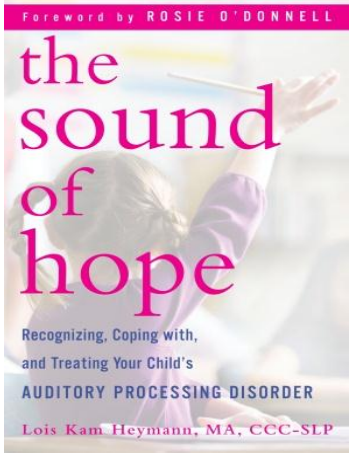
- I went to Grandma's and in my suitcase I packed _____.
- Then your child takes a turn and says:
- I went to Grandma's and in my suitcase I packed [the object you listed] and _____.

The goal is to keep building the story by going back and forth and seeing how far you can get adding onto the list. Just make sure to play the game slowly. For kids with APD, these kinds of auditory games cannot be rushed.

More Activities to Improve Language Skills in Children with APD

- Try some of the listening games we shared yesterday that are great for kids with kinds of capabilities and disabilities. Listening is a crucial part of language development.

  - Use a tape recorder and record yourself telling your child's favorite story, giving instructions for how to do something, or anything else your child might want or need to hear repeatedly.
- Make a collage with your child of letter sounds. Choose a target letter sound, such as /t/, and then search in a magazine for words that begin with that letter. Cut them out and add them to the collage.
- Add some great resource books to your own library. Three of my top favorites for understanding APD and using it to help improve language skills include:
  - The Listening Child: What Can Go Wrong: What All Parents and Teachers Need to Know About the Struggle to Survive in Today's Noisy Classroom, by Stephen Prescod
  - When the Brain Can't Hear: Unraveling the Mystery of Auditory Processing Disorder, by Teri James Bellis
  - The Sound of Hope: Recognizing, Coping with, and Treating Your Child's Auditory Processing Disorder, by Lois Kam Heymann

	 Image Courtesy of www.listenlovelearn.com Auditory processing disorder can bring many challenges to your family. Children need to learn to navigate language and build communication skills through intentional activities and opportunities for enrichment and purposeful learning. When we can add in some games, utilize activities that strengthen listening skills, and build the other learning style strengths, we are taking those small steps in the right direction.
• Can describe an object and draw it, but can't think of the word for it • Has difficulty labeling objects or recognizing labels	**Activity 5** **PROBLEMS WITH VISUAL PROCESSING** The sensory organ of the visual system is the eye. The eye and the brain communicate and work together to help us interpret our physical surroundings using sight, or, what we see. This happens through interpretation of light. Light rays follow a path through many different structures of the eye, finally reaching the visual cortex in the brain. Here, the object is identified and given meaning. This includes details regarding color, three dimensional depth perception, where the object is in space, memory of the image, and gives the image context in the environment. **PROBLEMS WITH VISUAL PROCESSING** Imagine that the visual system is a bike wheel. At the center of the wheel is the ability to see. All of the spokes coming off the center are the many different aspects of vision, including visual discrimination, visual acuity, visual memory, visual form, visual motor abilities, etc. There are many functions of the visual system that help our children grow, learn, and develop. These all individually play an important role. From a sensory processing perspective, issues with the sense of vision may interfere with some children's ability to successfully engage and participate in their environments. A child may be highly distracted by the visual stimuli around him. He may be overwhelmed by the many colors in the room, the posters or art on the walls, and the movement of others around him. The movement of the picture on the television catches his attention. He

	may see activity outside the window or want to count the tiles on the floor that are different colors and textures. **OUR FAVORITE VISUAL ACTIVITIES FOR KIDS** Most children develop a strong visual system simply through engaging in play activities that allow for visual exploration in their everyday environments. There are many activities that can help promote the development of a healthy visual system, including: I spy Puzzles Word search and word scrambles Scavenger hunts

Problem: Visual Perceptual/Visual Motor Deficit
Visual Perceptual/Visual Motor Deficit: Signs and Symptoms • May have reversals: b for d, p for q or inversions: u for n, w for m • Has difficulty negotiating around campus • Complains eyes hurt and itch, rubs eyes, complains print blurs while reading • Turns head when reading across page or holds paper at odd angles • Closes one eye while working, may yawn while reading • Cannot copy accurately • Loses place frequently • Does not recognize an object/word if only part of it is shown • Holds pencil too tightly; often breaks pencil point/crayons • Struggles to cut or paste • Misaligns letters; may have messy papers, which can include letters colliding, irregular spacing, letters not on line
Visual Perceptual/Visual Motor Deficit: Strategies • Avoid grading handwriting • Allow students to dictate creative stories • Provide alternative for written assignments • Suggest use of pencil grips and specially designed pencils and pens • Allow use of computer or word processor • Restrict copying tasks • Provide tracking tools: ruler, text windows • Use large print books • Plan to order or check out books on tape • Experiment with different paper types: pastels, graph, embossed raised line paper

Visual Perceptual/Visual Motor Deficit:

Activity Examples

Visual Perceptual/Visual Motor Deficit: Signs and Symptoms	***Strategy, Techniques, Activities and Materials***
• Does not recognize an object/word if only part of it is shown • Misaligns letters; may have messy papers, which can include letters colliding, irregular spacing, letters not on line	**Activity-1:** **VISUAL MEMORY SKILLS IN THE CLASSROOM** **Quick tip: Visual Word Scramble** Choose a spelling word that your students have already learned and mastered. Scramble the letters. Depending on their age, show the class **one** 4-7 letter word scramble at a time. **Remember; start them BELOW their comfort level, then build up.** You may use the white board or letter cards or prewritten scrambled words for this, but only allow your students to look at each word scramble for **one second per letter**. For example, show them N K D I for only four seconds. (Side benefit: if kids aren't paying attention they'll miss it!) Students write the scrambled letters down, and then see if they can write which spelling word it is.

Bonus: for even more of a challenge, make this an auditory memory task. Instead of showing students the letters, have them listen to you say them out loud (one letter per second). If your students are advanced enough you can even challenge them to visualize the letters and unscramble the words in their minds. Caution: I recommend you make sure students can do this with unscrambled words first. And test it on yourself, too. It really gets those brain cells moving!

Visual Scanning Activities for Kids

Sight Word Blast Off Game from There's Just One Mommy~ In this activity, encourage your kids to scan the page with just their eyes. Prompt them to

	keep their head still as they move their eyes to scan for letters and words. **Activity-2:**  Seek and Sort Color Game from Where Imagination Grows~ Scanning for objects is a great way to practice visual motor skills. The challenging part for her was placing the sticks on the card when there's more than 2 popsicle sticks. As the card became more crowded, she had to work hard at keeping her fingers and hand off the sticks that were already on the card. Sometimes she got frustrated and I had to encourage her to use her thumb and index finger only and tuck in the rest of her fingers.

Problem: Attention Deficit Hyperactivity Disorder (ADHD)

Attention Deficit Hyperactivity Disorder: Signs and Symptoms

- Inability to sit still; squirms in seat
- Easily bored and distracted
- Doesn't listen, or seems not to process what is being said
- Difficulty in following even basic instructions
- Appearance of poor memory
- Prone to losing items, including school work and personal items
- Talks quickly and incessantly
- Difficulty in completing tasks
- Ineffective organizational skills
- Impatience
- General restlessness
- Anxiety
- Insomnia
- Large and frequent emotional swings
- Emotional outbursts
- Low tolerance of people, situations, and surroundings
- Prone to anger

- Hot temper
- Unstable personal relationships

ADHD: Causes of Signs and Symptoms

- SMOKING
- DIET & GUT HEALTH
- BRAIN INJURY
- GENETICS

ADHD: Strategies

1. Understand the struggle a student with ADHD has and provide an ordered, safe, predictable classroom environment.
2. Establish a courteous, working relationship with the student's parents. Learn about their child's strengths, weaknesses, interests and achievements outside of school. Ask what teaching methods have been most effective with their child. Communicate often and send encouraging notes home.
3. Make time to speak to the student individually. Be respectful and express interest in his or her success in school by asking how he or she learns best.
4. Decide together on a sign or a code that you can use to remind the child to be on task. For example, make eye contact and touch your ear or pick up a particular object. Or, you could hold up one or two fingers.
5. Make classroom rules clear and concise. Discuss them orally and post them for easy reference. Explain the consequences for misbehavior in understandable terms and enforce them consistently. Avoid power struggles.
6. Use a point system, tokens, stars, or other methods to reinforce appropriate behaviors.
7. Notice and provide feedback on any improvement in the areas of behavior and academics. Avoid criticizing the child in front of others.
8. Give directions in simple, concrete terms. Simplify instructions, tasks and assignments. Have the child complete one step before introducing the second step.
9. Divide lessons into relatively short segments and use a variety of teaching aids such as films, tapes, computer programs and small group work to reinforce the child's learning.
10. Provide the ADHD student opportunities to display his or her skills, talents and/or leadership ability.
11. Prepare for transitions by providing a warning when a change is to occur. A musical clue may be helpful. Try playing classical music or a recording of nature sounds during work time.
12. Have all of the students stand and stretch, run in place, or do an exercise or movement activity when deemed necessary.
13. Color code paper for each subject. If available use off white, tan or light blue colored paper for written assignments.
14. Create schedules, outlines, lists, and/or a homework assignment book to help the student keep organized as well as to increase home/school communication. Tape a copy of the class schedule to the child's desk.
15. Modify required homework to accommodate students who are severely impacted with ADHD. Avoid busy, redundant assignment.
16. Direct young ADHD children to trace their handprints on the front and back of a folder to carry with them wherever they go. Have them place their hands on top of the traced ones to help them remember to keep their hands to themselves.
17. Pause before asking questions or ask the inattentive child a question to gain his or her focus. Use the student's name or interests in neutral ways during discussions.
18. Walk around the room and pat the child gently on the shoulder or tap the place in the child's book that is being read to help him or her stay on task.
19. Seat the ADHD child in close proximity to you and in the area that has the least amount of

distractions and stimulation, i.e.doors, windows and active students. Or, sit the child by the pencil sharpener and let him or her get up and sharpen a pencil as often as needed.

20. Watch for signs of increasing stress in a hyperactive child. You may want to reduce the workload or provide an opportunity for the child to release some energy. For example, have the student deliver an "important letter" in a sealed envelope to another teacher or school secretary who understands the child's need to move.
21. Provide opportunities for physical activity. Choose the hyperactive child to hand out papers or do other classroom jobs that can help release pent up energy and contribute to his or her feeling of self-worth.
22. Encourage the child to use self-monitoring techniques to help focus. For example, allow the him or her to rub velcro or another object attached to the underside of his desk or provide a soft ball for a student to squeeze.
23. Allow a student who seems to be sensitive to fluorescent light to wear a visor or baseball cap in class. Turn off the group of lights nearest the windows or dim the classroom lights.
24. Be flexible and allow a child with the ADHD disorder to stand up or squat in his chair if it helps the student complete assignments. Or, let him or her sit on the floor by you or on a large ball if that helps the child do the work. An air filled pillow or a quiet stationary exercise bike with a desk attached could also be used.
25. Furnish two desks facing each other or side-by-side for one ADHD student. The child can move freely back and forth or lounge between the desks as long as he or she stays on task and in the designated area.
26. Provide a cubicle or quiet area for the ADHD student to use when overwhelmed by classroom activity.
27. If necessary, furnish a specific area marked off by tape that is only his or her space that no one else can enter. In it the student can stand up, sit on the floor, or move around to complete assignments. However, the child must be quiet and remain in the area unless given permission to leave.
28. Encourage sensitivity as the child interacts with peers. If he or she lacks social awareness, it might be helpful to say something like, "Mary looked unhappy when you spoke to her. What is a kinder way to ask for something?" If the student interrupts peers often, remind the child to listen first before talking.
29. Have older students or volunteer parents serve as tutors for these students.
30. Establish a collaborative relationship with the special education teacher, school psychologist, school counselor, administrator and/or other specialist in the school to ascertain the best placement for the child with ADHD.

Attention Deficit Hyperactivity Disorder (ADHD)
Activity Examples

Specific problems/Signs and symptoms	***Strategy, Techniques, Activities and Materials***
Attention Deficit Hyperactivity Disorder: Signs and Symptoms • Easily bored and distracted • Appearance of poor memory	**ADHD: Activities** **Activity-1** **Flashcards:** As an underlying symptom of ADHD, Child with gifted with a less-than-stellar memory. Trouble with short term memory is a common issue for those suffering from ADHD. Children find that things that don't stimulate my overactive mind are

• Difficulty in following even basic instructions • Easily bored and distracted • General restlessness • Easily bored and distracted	harder to remember than things that do. For example, because child who is very visual person, have trouble remembering names, but if the child see a face, it sticks like glue. Children don't purposely forget names, however if that name is not immediately associated with a face, it is hard to give that name any weight, which makes it harder for them to remember. There are ways to combat this though. One lesson idea perfect for developing memory skills is flashcards, especially for learning crucial concepts such as multiplication tables **Example:** When got home from school, my mother would use flashcards to teach me my multiplication tables and, still to this day, I can rattle off "9×6 is 54" at the drop of a hat. It helped to get the constant reinforcement of visual cues with these otherwise unexciting math problems. This method not only applies to math problems, but can also be used to memorize historical dates, historical figures, vocabulary words, and spelling. **<u>Activity- 2</u>** **Role Playing Activities:** Some children constantly tap their feet, fidgeting with fingers, fidgeting with clothes, staring outside at cars driving by, and looking for any excuse to get out of seat. All the pent-up energy needed to be expressed somehow, and as long as child to sit in their seat, They struggle to be productive. This can be changed by teachers giving children assignments which required interaction with others and movement around the room. All of a sudden children's attention was on the task at hand because the stimulation children required was being satisfied. Role playing activities are a great way to get your students up and moving around in a similar way, while still learning. In literature classes, this kind of role playing can be used to give visual representations of the story being studied, in math classes' simulation games where students act out the roles of business people buying and selling items can teach complex concepts. If a lesson seems boring and dry for you to teach, chances are that lesson is not sticking with your students, **especially** not with your ADHD students, and you should add some movement and interaction.
• Impatience • Low tolerance of people, situations, and surroundings	**Activity 3** **Classroom Debates:** Another symptom of ADHD is the tendency to blurt out answers before being called upon or before a question is done being asked. I stated earlier that creative assignments are perfect opportunities for ADHD students to shine and find that praise they miss in more rigid

	academic activities. However sometimes structure has to be introduced to help ADHD students learn to not only wait their turn, but to take their time weighing their decisions and answers. The perfect way to instill this structure and improve your ADHD students' knowledge of particular subjects is to stage classroom debates. In structured classroom debates students get the opportunity to discuss classroom subjects, learn more about lesson concepts, and develop patience and critical thinking skills. As a teacher, you should actively participate in the debate to step in when a student is out of line, whether by what they say or how and when they say it.

Chapter 8

Individualized Education Plan

Objective: The objective of an Individual Education Plan is to describe a set of strategies to address the particular educational needs of the child or young person.

Introduction:

The Individualized Education Plan (IEP) is a written plan/program developed by the schools' special education team with input from the parents and specifies the student's academic goals and the method to obtain these goals. The IEP is meant to address each child's unique learning issues and include specific educational goals. It is a legally binding document. The school must provide everything it promises in the IEP.

The IEP is meant to be a collaborative effort, written by the whole IEP team, which includes the special education teacher, a representative of the Ministry of Education, a general education teacher, and the psychologist and/or any specialists who provide services, such as the speech language pathologist.

8.1. IEP elements:

IEPs are designed to meet kids' unique needs. That means that every IEP will look different. But by law, all IEPs must contain the following elements:

- **Child's present level of educational performance (PLOP)**: This is a thorough description of your child's current abilities, skills, weaknesses and strengths. It's the part of the IEP that explains how your child's learning issues affect his ability to learn the general education curriculum. PLOP (also sometimes called PLP or PLAAFP) includes details on how your child handles academic subjects and every day or "functional" activities, like socializing.

  PLOP should be based on teacher observations and objective data, like test results. It's important that PLOP is not simply copied "as is" from one year's IEP to the next. Each year child matures and masters skills. And each year the work becomes more challenging. So his/her performance and needs will change.

- **The results of child's evaluations and tests**: This should include all the relevant assessments.

- **Special education and related services to be provided**: The IEP spells out what kinds of support and services child will receive. If child is going to have speech therapy, for instance, it will say how many minutes a week he will receive this therapy.

- **Accommodations and modifications**: These help child learn the general education curriculum. Accommodations are changes in how a child shows what he has learned. They can help your child work around his learning issues. For example, he may be given extra time on tests. Modifications are changes in what is taught to or expected of a student. Some IEPs have what's called "modified promotional criteria." This defines the percentage of grade-level expectations a child must meet to move on to the next grade.

- **Supplementary aids and services**: These are supports to help a child learn in the general education classroom. They might include a one-on-one aide, highlighted classroom notes, equipment or assistive technology, such as software.

- **Annual educational goals**: These should be realistic, achievable and measurable. The IEP lists the academic and functional skills that the IEP team thinks the child can achieve by the end of the year. Annual educational goals should help your child participate in the general education classroom. If child has multiple or severe disabilities, the IEP must also contains short-term goals. These are also called objectives or benchmarks.

- **A description of how your child's progress will be measured and reported to parents**: The IEP must explain how the school will track child's progress toward goals. And it must describe how the school will share those results with parents.

  For instance, one goal might be that your child be able to read at a third-grade level. The IEP will specify how that will be tracked - informal and formal assessments, for instance - how often those results will be reported to parents. If these interim reports show that child's progress has stalled, parents and the IEP team may discuss new interventions.

- **Least Restrictive Environment (LRE)**: An explanation of how much child will participate in general education classes and extracurricular activities: Participation at the fullest level possible is required, which is called the least restrictive environment.

- **The date the IEP will go into effect**: The IEP must state when services will begin, how often they will be provided, where they will be provided, and how long they will last.

- **A transition plan**: This kicks in when child turns 16. Transition planning includes services and support to help a student graduate from high school and achieve post-high school goals. So depending on child's age and situation, his/her IEP might also include a transition plan.

- **Extended school year services**: Some students receive special education services outside of the regular school year, such as during the summer or, less commonly, during extended breaks like winter break. So depending on child's age and situation, his/her IEP might also include an extended school year services.

It is intended to spell out how the school authority will address each of the deficits or needs that have been identified in the Evaluation Report. It lays out how the student's program will be provided, who will provide services and where those services will be provided, designated to provide education in the Least Restrictive Environment (LRE).

Often the IEP is written before the meeting and provided to the parent at least a week before the meeting so the parent can request any changes before the meeting. At the meeting the IEP team is encouraged to modify, add or subtract any parts of the plan they feel together are necessary.

The IEP will focus only on the areas that are affected by the disability(ies). The IEP will provide a focus for the student's learning and designate the time for the student to successfully complete the benchmark objectives on the way to mastering the IEP Goal. The IEP should reflect as much as possible what the student's peers are learning, which provides an age appropriate approximation of the general education curriculum. The IEP will identify supports and services the student needs for success.

8.2. IEP Format:

While there are many formats for IEP, however, most IEPs contain some or all of these elements, typically in this order:

- Part A
  - Name
  - Date of birth
  - Sex
  - Address
  - Mother tongue/Language(s)
  - Significance information
  - Associated condition
  - Goal
  - Staff responsible
- Part B
  - Skill activity
  - Current level/Baseline
  - Objective
  - Teaching material needed
  - Teaching procedure
  - Evaluation
  - Remarks

8.3. INDIVIDUALIZED EDUCATION PLAN

MANUAL

The Individualized Education programs are developed specifically to meet the educational and training needs of each child. As two children with disabilities may not have similar abilities and needs, and, as majority of the children with intellectual disabilities require services from more than one discipline such as inclusive education, special education, speech pathology and audiology, psychology, physiology, occupational therapy and medicine, it is essential that a comprehensive service program is developed for each child, based on his/her needs, including the appropriate input from various disciplines. Development of such an IEP is an important component of diagnostic prescriptive process.

The IEP has two sections, part A and B. Part A consist of general information about child, person initiating the program and the overall goals for the child. Part B consists of specific programming for a skill or behavior.

GUIDELINES FOR FILLING UP PART A

1. Name: give the child's full name and pet name if any in brackets.
2. Date of Birth (age): given as in the records.
3. Sex
4. Address: give the present address.
5. Mother tongue languages spoken: it is essential that the child is exposed to one language consistently therefore record the details of the child's mother tongue as well as other language spoken by the child. Circle the mother tongue.
6. Regn No: give number of the registration in the institute/school.
7. Class/roll no: In case if a special school give the class group of the child and the roll number.

8. Date of writing the IEP: IEP is generally written on a particular day when the team meets and decides ion the program for the child. Write the date of such a meeting.
9. IEP No: each child will have number of IEPs following one after the other. Write the number of the particular IEP.
10. Significant information of the child with disability. Includes information on i) the degree of retardation, ii) associated conditions such as visual, hearing or orthopaedic disabilities, medical conditions such as epilepsy, hyperkinesis and behavior problems, iii) family background of the child, iv) strengths and weakness of the child and v) medicine taken if any.
11. Goals: mention the overall goals set for the child after assessment, and the order of priority if there and more than one goal.
12. Staff responsible: the name of the staff member, whoever will be responsible for carrying out and coordinating the IEP should be mentioned here.

GUIDELINES FOR FILLING UP PART B:

Part B consists of the specific program for the child with precise instruction to carry out the program.

13. Skill/activity: mention here, the skill on which the child with disability is to be trained for example feeding skill, dressing skill, or writing skill and so on. If it is a behavior which is to be modified, mention the name of the behavior, for example, head banging, eye poking or body rocking and so on.
14. Current level baseline: write in behavioral terms what exactly the persons with disability is able to do in the given skill or behavior for example, if the skill is combing hair, the current level can be "picks up comb holds it appropriately". Places the comb on the head but does not comb the hair in one direction uniformly. Cannot make the partition in the hair.
15. If it is behavior, mention what provokes the behavior how exactly the person with disability behaves and for how long.
16. Objective: mention in the behavioral terms what is the objective. Mention the (a) condition, (b) behavior, (c) level of performance and (d) dead line. To illustrate, an example is given below.
    (a)When asked (b) the child (name of the child) points to the appropriate picture of the fruit named. (c) 8 out of 10 times correctly and (d) in 3 months.
17. Procedure: give step by step procedure for meeting the objective. Do not have ambitious direction. The step must be specific and clear. Remember to mention the reinforcers to be used and when.
18. Materials needed: write the materials needed for developing the particular skill or improving the particular behavior.
19. Evaluation: leave the column blank when the IEP is written after the specific duration when the child is evaluated for progress or problems, fill this column by noting down the observation. This in turn forms the baseline or current level for the next IEP to be written.

To quantify the progress of the child, performance may be ranked from 1 to 7 as shown below:

Below base line = 1
No progress = 2
25% progress = 3
50% progress = 4
75% progress = 5
100% progress = 6
100% progress = 7

Circle the appropriate number. To get the percentage of progress measure by comparing with the objective, how many times the child able to do. Find out the percentage of marks.

Skill development in speech and language, motor activities for daily living and academic areas can be written in this format as also the problem behaviors to be corrected. Thus the format is of use for special educators, speech pathologists, psychologists and physiologists.

20. Problems encountered/remarks: write here clearly, the problems faced while carrying out the program which may be specific to the child and the situation.

8.4. SAMPLE
INDIVIDUALIZED EDUCATION PLAN

Part A

1. Name: Sambo Sam
2. Date of birth (Age) :
3. Sex: male
4. Address:
5. Mother tongue/ language(s): Khmer
   Spoken by the child with ID
6. Registration No:
7. Class and roll: Primary I
8. Date of filling IEP:
9. IEP No: 01 + 02
10. Significant information: severely ID
    about the child
11. Associated conditions: abnormal gait & attends physiotherapy.
    and referrals, if any
12. Goal: improving motor skill
    - Bathing by self
    - Brushing by self
    - Expressive language
    - money & time concept
13. Staff responsible:

INDIVIDUALIZED EDUCATION PLAN

Date of programing:

Date of evaluation:

Staff responsible: Leena

Part B

Skill: brushing teeth (self-help skill)

Present level/ he follows simple instruction. He can hold the brush appropriately and can unscrew the cap of toothpaste. Takes brush to mouth.

Objectives: the child will be able to brush his teeth using brush and paste in the morning on waiting up and in night after dinner, with 80% accuracy in a period of 3 months.

Material needed: tooth paste, brush, water tap & mirror.
Procedure:

1. A stimulating situation can be created for the child by associating other activities with brushing e.g. "you will get your milk to drink only after brushing" if possible peers (brother and sister) will be asked to brush along with the child.
2. Stand behind the trainee and hold the brush along with him in font of a mirror. Provide physical prompt in brushing, following the sequence of front upper and lower teeth, left and right is upper and lower teeth together and then with mouth open, lower & upper teeth. Gradually fade the prompt. Modeling by peers and others would enhance learning faster. Appreciate him at every attempt and encourage him.
3. Assist the child to bend a little forward and tell him to spit. Initially physical prompt and modeling can be provided and later faded gradually.
4. Remember to reward the child for each attempt.

Evaluation

1 2 3 4 5 6 7 78%

Remarks: after few days the child shows interest to brush his teeth after every meal.

INDIVIDUALIZED EDUCATION PLAN

Date of programing:
Date of evaluation:
Staff responsible: Leena

Part B

Skill: functional word skill (expressive language and recreational skill)

Present level/ he follows simple instruction. He can speak few words, play soccer and watches soccer matches in television.

Objectives: when asked, the child will be able to name different material used in playing soccer, with 80% accuracy in a period of 3 months.

Material needed: soccer ball, net, shoes, socks, sport clothes, sport magazines, etc.

Procedure:

1. Take the child near the soccer field before playing and ask him to identify and name the articles initially tell him the name of them and ask him to repeat by showing the particular article provide verbal prompt and then verbal cueing and gradually fade it.
2. During recreation time shows colored sports magazines and tell the name of different material (ball, …) used in soccer.
3. During play time ask him to pass the articles and give the chance to him to name them. Also ask him to tell verbally what he wants to get.
4. While keeping the materials in the field ask the child to name the material once again.
5. Tell the parents, while watching soccer on TV to ask the child the name of the sport article.
6. In art and draft class, assist the child to draw the picture of ball, and ask him to name.
7. Remember to reward the child for each attempt.

Evaluation

1 2 3 4 5 6 7 78%

Remarks: and the child once fell down in the ground and got injures. The training was only at home for 10 days.

Chapter 9

Lesson Plan for Group Teaching

Objective: The objective of this chapter is to understand and learn as how to develop and implement lesson plan in in pre-primary and primary schools.

9.1. Definition:

A lesson plan is a teacher's detailed description of the course of instruction for a lesson. A daily lesson plan is developed by a teacher to guide class learning. Details will vary depending on the preference of the teacher, subject being covered, and the needs of the students. There may be requirements mandated bypassed the school system regarding the plan. A lesson plan is the teacher's guide for running a particular lesson, and it includes the goal (what the students are supposed to learn), how the goal will be reached (the method, procedure) and a way of measuring how well the goal was reached (test, worksheet, homework etc.)

9.2. Format for a lesson plan:

While there are many formats for a lesson plan, most lesson plans contain some or all of these elements, typically in this order:

- Name of the School
- Date and time
- Grade/Year
- Names of Teacher
- Number of students
- Age range
- Area/Domain of activity
- Task/Topic/Activity
- Current level
- Specific objective
- Material used
- Motivation
- Teacher's activity
- Students' activity
- Evaluation
- Remarks

9.3. SAMPLE

Lesson plan for Group Teaching

Name of the school _____Class _____ Date _____

Name of the Teacher_____ Age range ___Time _____No. of children _____

Area/Domain: **Curriculum**

Task/Topic/Activity: **Identification of numerical numbers 1 & 2**

Current Level

_____

_____

_____

_____

_____

_____

Specific objective: When asked/required, students will identify the numbers 1 and 2 with 80% accuracy in 30 mints**.**

Or

Specific objective: After 30 minutes of teaching, student will be able to do the task with 80% accuracy**.**

Class room arrangement:

Materials used: Flash cards, ice-crèam sticks and different objects

Motivation: Teacher will wish the students and tell the importance of learning numbers

Sl. No.	Teacher's activity	Students' activity
1	Teacher will show the students no. 1 flash cards	Students look at flash card
2	Teacher show the flash card say this is one	Students will see
3	Teacher ask the student to repeat	Students will repeat no. 1
4	Teacher show the flash card 2	Students will see
5	Teacher will say this is 2	Students will observe
6	Teacher ask the student to repeat	Students will repeat no. 2
7.	Teacher will give the flash card to all the students	Students will take the flash card
8	Teacher will ask the students to look at her what she is doing	Students will observe
9	Teacher place the 4 ice-cream sticks on the table	Student will look at the Teacher
10	Teacher will take one ice-cream stick and place on the flash card (1)	Student will look at the demonstration of the Teacher
11	Teacher will the value of 1	
12	Teacher will take one ice-cream stick and place on the flash card (2)	Student will look at the demonstration of the Teacher
13	Teacher place balloons	
14	Teacher will take 2 balloons and say these are 2 in number	Students listen and look at the Teacher activity
15	Teacher will place flash card 1 in front of each student	Student will see
16	Teacher will ask the student to place one balloon on the flash (2)	Student will do the activity
17.	Teacher will place flash card 1 in front of each student	Student will see
18	Teacher will ask the student to place two balloons on the flash (2)	Student will do
19	Teacher will make practice with different objective by the students	Students will practice numbers1 and 2 by different objects
20	Teacher will say good and will clap for them	Students will say thank you

Evaluation:

Teacher's signature

Chapter 10

Classroom Management

Objective: The objective of this chapter is to understand and learn how to implement various strategies to manage children with disabilities in pre-primary and primary schools.

10.1. Definition:

Classroom management refers to the wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during a class. When classroom-management strategies are executed effectively, teachers minimize the behaviors that impede learning for both individual students and groups of students, while maximizing the behaviors that facilitate or enhance learning. Generally speaking, effective teachers tend to display strong classroom-management skills, while the hallmark of the inexperienced or less effective teacher is a disorderly classroom filled with students who are not working or paying attention.

While a limited or more traditional interpretation of effective classroom management may focus largely on "compliance"—rules and strategies that teachers may use to make sure students are sitting in their seats, following directions, listening attentively, etc.—a more encompassing or updated view of classroom management extends to everything that teachers may do to facilitate or improve student learning, which would include such factors as behavior (a positive attitude, happy facial expressions, encouraging statements, the respectful and fair treatment of students, etc.), environment (for example, a welcoming, well-lit classroom filled with intellectually stimulating learning materials that's organized to support specific learning activities), expectations (the quality of work that teachers expect students to produce, the ways that teachers expect students to behave toward other students, the agreements that teachers make with students), materials (the types of texts, equipment, and other learning resources that teachers use), or activities (the kinds of learning experiences that teachers design to engage student interests, passions, and intellectual curiosity). Given that poorly designed lessons, uninteresting learning materials, or unclear expectations, for example, could contribute to greater student disinterest, increased behavioral problems, or unruly and disorganized classes, classroom management cannot be easily separated from all the other decisions that teachers make. In this more encompassing view of classroom management, good teaching and good classroom management become, to some degree, indistinguishable.

10.2. Classroom management Techniques:

Effective teachers are passionate about educating their students. They want to spend their time teaching, not dealing with classroom disruptions. Here are some classroom management techniques to help teachers settle problems, or prevent them from occurring, so that they can spend more of the classroom hour on teaching and learning.

1. **Differences between girls and boys:**
   Boys and girls can have different 'behaviour tendencies' because of who they are. These are not definitive but there can be patterns/trends. Discussing unique Cambodian nuances/factors and why.

- Boys tend to me more active and like to move a lot – this makes them seem more 'naughty' when they are often just bored, tired or restless and need a change of activity or a 'break'. A break is not necessarily extended play but can be a quick; stretch, game, action to allow them some time to move and then resettle.

- The activity in boys can make them rush more and cause them to be more excitable and 'rough' but this is not necessarily their intention. They may bump into or step on another child more easily in their rush and determination.
- Girls can have a tendency to talk more than boys and want to talk with their friends at inappropriate times. This can mean that they take longer to stop talking or be quiet at the appropriate time.
- Girls can be more timid and afraid to share their opinion and give answers in class- so they may behave in a more reserved way and need to be encouraged to engage and participate effectively (ask questions etc.).
- The routine of 'toilet use' especially as for girls (protection when younger and embarrassment when older) needs to be carefully and appropriately handled to support girls.

2. Defining discipline:

Discipline as a concept is often confused with punishment. Punishment is '*the infliction or imposition of a penalty as retribution for an offence*' and generally involves a severe retribution or extreme consequence that results in fear and even abuse. Discipline however is '*training that corrects, moulds, or perfects the mental faculties or moral character*. *From the Latin for the word 'pupil'*.' It comes directly from Latin disciplina "*instruction given, teaching, learning, knowledge*".

Discipline is more about the training of a student or child in the behaviour that is appropriate and expected. It is more about 'teaching' and 'mentoring' or 'guiding'. This is thus a process and involves understanding and growth with appropriate consequences for both the positive and negative. It involves correcting children through moulding and shaping and mentoring.

Children need to understand that their behaviour has consequences, both positive and negative. Our actions and behaviour have consequences and these can be positive or negative depending on the behaviour choices we make. If we act in a way that is kind, patience, good then there will be positive consequences but if we act in ways that are aggressive, impatient, naughty then they will have sad and negative consequences.

3. Rewards and Sanctions:

Rewards are the positive consequences/benefits from good behaviour and sanctions are the negative consequences/punishment for poor behaviour. Students often are able to provide ideas for what kind of rewards and sanctions they would find appropriate. They can help teachers to develop creative ways to ensure APPROPRIATE consequences for behaviour, whether positive or negative. When you create rules with your students, also ask them to share ideas for reward or punishment. (You may not use them all but it can provide a very helpful discussion, especially for understanding, and some ideas may be perfect!)

Using the language of 'CHOICE' can be very powerful and help students to recognise that consequence are a result of their good or bad choices. It empowers them and allows them as sense of control while ensuring responsibility for the behaviours they make.

NOTE… they must be:

- Appropriate – for children, as well as age and sex of children
- Safe
- Consistent
- Be about the behaviour not the child

There should also be 'levels' of consequence (with increasing degrees of severity) to ensure:

a) Relatively small or excited behaviours are not addressed too strongly.
b) Students can redeem themselves and don't have to end up in a downwards spiral.
c) Teachers have options and support
d) Students can recognise that there are levels of unacceptability and severity that they are responsible for

4. **R**ECOGNITION**, A**SK for FORGIVENESS, **R**ESTITUTION, **R**ECONCILIATION (**RARR**):
The RARR is a process of correction to follow to help children address their mistakes and make them right. It is important for children to understand that their actions have consequences and that they are responsible for ensuring those are addressed and where appropriately corrected. Walking children through this process helps them to take responsibility for their behaviour and learn how to resolve conflict and broken circumstances and relationships.

The process is as follows:

a) **R**ECOGNITION – helping the child to recognise what was not right about their behaviour or actions and the impact it has on the other(s). Ensuring the child understands what they have done that it inappropriate and why; with emphasis on the value of the other.
b) **A**SK for FORGIVENESS – the child should then 'say sorry' to the people who have been affected by his/her actions. They need to make a direct apology.
c) **R**ESTITUTION – 'restitution' means 'the restoration of something lost or stolen'. In this context it is the 'making right' of a situation. When a child has acted in a way that has a negative impact on others it is important for them to 'make the situation right again'. They have to 'fix' the issue and recompense for the negative impact of their behaviour.

   If this is not done then 'saying sorry' becomes meaningless. It becomes a 'password' to cover negative behaviour and actions but is empty and has no impact for both the person affected by the negative action and the one performing it.
   - This is what a 'sanction' should be. It is not a punishment but it is 'making right'.
   - For example, in a situation where a child hits or harms another child they should be expected to do something that would compensate/make up for this harmful action. This could be; carrying the child's books for a day/week, being responsible for getting the child water for the day/week, they give the child a shoulder massages (for a period of time or multiple time)…etc.
   - It is this step that is critical in the bridge to reconciliation and that actually helps trust be rebuilt. It demonstrates the sincerity and genuineness of the 'sorry' and gives the opportunity for relationship to be rebuilt.

d) **R**ECONCILIATION – the opportunity for the harmed party/person to respond and trust again. This does not always happen and can take time but it is our ultimate goal. That relationship is restored to health (as much as possible).

   An example: A child takes/grabs another child's notebooks and rips pages (or the entire of it)- damaging the notebook and some or all of its content. The teacher explains to the child what is wrong and why and the impact of this on the other child. 'It is unkind and is destroying someone else's property and hard work. It has also destroyed that work so they do not have it to study and revise from and this is unkind and means they have lost something they need to be successful.' The child is then expected to say sorry and make a sincere apology to the other child. Following this, the child who destroyed the notebook (perhaps with their parents if a new notebook needs purchased) has to re-write (in their lunch break or after school) the notes for the other child – replacing what was damaged.

The process should be followed with the child individually and dealt with privately (not in front of many children) but the children should be aware that the situation IS going to be dealt with and there are consequences. Dealing/walking through this process privately does help to avoid a situation of confrontation of the wills- if the child refuses to follow the process through with those they have impacted. The language of 'choice' should be used to help the child make the right choice and respond as expected. If the child does (continue to) refuse then this should be escalated.

As children get older/used to this process then the person who has been wronged (negatively impacted) can be asked to offer a suggestion for 'making it right'. Children can offer suggestions of an action/task that may 'make up for' or 'make right'. This of course is more effective because it is more meaningful for the child who has been hurt and increases/improves the chances of true reconciliation (restored relationship). This is more effective for restoring trust but care must be taken to ensure it is not 'revenge' or 'vindictive' – it must be appropriate.

5. **Classroom/behaviour Management Systems:**
Usually we need a 'system' to support rewards and sanctions so that we can be consistent and so that we ensure we give rewards other than just 'praise'. It also provides and 'incentive' or 'carrot' for students and helps them learn to work towards a goal. They learn what it is to earn a prize and how consistency is important, as well as team work and the importance of responsibility (accountability) to the group/team/class. This also helps to ensure a sense of equity/equality and fairness.

Example of whole class systems for tracking behaviour:
- Points/stars to a total (different for different ages)
- Smiley face/happy face and points (can be used as above or even as a reminder)
- Groups or half classes and points (helps with competitiveness/group work/large class sizes)

6. **Praise the positive child first:**
This can be part of 'redirecting' and is the first step before sanctioning/removing points. Naturally when we see/witness bad behaviour we respond to that and speak/act to the negative behaviour. This draws attention to the negative behaviour and highlights it rather than distracting from it.

Every child wants to be encouraged or praised and so in a situation where low/medium negative behaviour presents it is best to first try to praise the child who is behaving well next to (or close to) the one who is misbehaving. This is a 'positive framing' and reminds the child and indeed entire class in a positive way to behave appropriately and positively. Saying things like 'Kong you are sitting so nicely- well done!', 'Lin you are listening so well and showing me you attention- well done!' etc. In many cases the child with the negative behaviour will want to receive this attention and praise too so when they hear the other child praised then they want to be praise too and so they correct their behaviour/actions. When this happens it is important to re-inforce this with immediate and specific praise to that child for their correct behaviour. (e.g. 'Well done Chan you are sitting so beautifully.') This can be particularly effective for boys as it appeals to their competitive nature.

7. **Thinking Chair:**
The 'thinking chair' is a provision to 'calm' an individual and give them some space to reflect on their behaviour and pause so that it does not escalate/become more disruptive. The 'thinking chair' removes the child from the immediate context they are in and gives them some 'time out' to think

and clam down and ideally regain control of their behaviour. HOW the chair is used is very important for it to be effective and appropriate.

- It is not punishment
- It is more about 'thinking' and 'calming' – more of a 'calming technique'
- It has to do with HOW you approach it:
  I. we don't label the child
  II. we separate behaviour from the who the child is
  III. we use the language of CHOICE
  IV. we use the language of 'time/thinking/reflect/space'
  V. we train them to self- select

8. Calming techniques:

Calming techniques are the same as 'energizers' but with the goal of calming children to focus rather than make them active/engaged. These may be used after play time or if the children have got very excited over something or with a particular child who is losing self-control (due to excitement or aggression).

- Meditation
- Counting slowly to 10 (using fingers if unable to count, just unfolding/closing one at a time across both hands)
- Body/self-hug (either normal one or q crossed arms on shoulder to rest head)
- Breathe in …1,2,3,4,5….and out (multiple times, hand on diaphragm)
- Sleeping Lions game – everyone puts their head on the table and tries to be as still as possible (a sleeping lion) and the teacher moves around and the winner is the one who lasts the longest being quiet and still. (the quietist/one who is most still)
- Heads Down, Thumbs Up game – 2 or 3 children are chosen to stand at the front of the class and remainder of the children put their heads on the table and thumbs up and close their eyes. The 2 or 3 children who are chosen move around the class and put down the thumbs of 2/3 children (one each) and then return to the front of the class. Then all the children lift their heads and those who had their thumbs put down try to guess/identify the individual child who put their thumbs down. If they get it right then they switch and become the person to put the thumbs down on the next round.
- Read/tell them a story

Classroom management, especially with Pre-Primary and Primary age students, never ends. It is an ongoing process, but once the foundation is laid, it only takes occasional reminders.

Chapter 11

Management of behaviors of concern

Objective: The objective of this chapter is to understand and learn how to develop and implement a behavior management plan to manage behaviors of concern in children with disabilities in pre-primary and primary schools.

11.1. Definition:

"Behaviour(s) of Concern", as described in the research and professional literature, are behaviours that are worrisome, disruptive, intimidating, troublesome and/or threatening to others that may be presented through a student's appearance, spoken or written words, or specific actions. Examples include, but are not limited to:

- Behaviours that regularly interfere with classroom environment or management
- Notable change in academic performance, e.g., poor or inconsistent preparation
- Notable change in behavior or appearance
- Impairment of thoughts – verbally or in writing
- Overly-aggressive behaviour toward others; inability to set limits or re-direct focus
- Poor decision-making and coping skills
- Inappropriate, strange, or unusual behaviours
- Low frustration tolerance
- Overreaction to circumstances
- Lack of resiliency
- Written or verbal statements endorsing violence; unusual interest in violence
- Written or verbal threats, direct or indirect (to self or others)
- Lack of empathy and concern for others; inability to care
- Anger management problems
- Appearance of being overly nervous, tense, or tearful
- Expression of suicidal thoughts or feelings of hopelessness

11.2. Management of behaviours of concern:

In management of behaviours of concern program behaviours of concern are clearly defined, the data is gathered before and during the intervention program, the evaluation of the intervention is made and in cases of failure, the intervention procedures are modified. There are five major steps in implementing a management of behaviours of concern program. They are:

1. Identification of behaviours of concern;
2. Defining target behaviours;
3. Behaviours recording;
4. Functional analysis; and
5. Intervention procedures.

1. Identification of behaviours of concern:

The parent, the teacher or the guardian may come with complains about the child's behaviour. The first task of the therapist is to obtain a list of the behaviours of concern shown by the child with a disability. This can be done by the use of behaviour checklist or behaviour observations.

2. Defining target behaviours of concern:

This involves the following three steps.

- The behaviours of concern identified have to be defined in observable, objective and measurable terms.

- A hierarchy of behaviours of concern shown by the children should be made depending on the severity of the problem and then need of the particular child or caretaker.

- Selecting target: The goals of intervention have to be clear. The behaviors of concern to be modified first are selected and are known as target behaviours. Attempts to manage all the behaviours of concern simultaneously may be unsuccessful. Two or three behaviours of concern may be handled first according to the hierarchy of behaviours of concern made.

3. Behaviour recording:

Maintaining behaviour records is very essentials in management of behaviours of concern. This is important for monitoring change in the target behaviours as well as for evaluating the effectiveness of ongoing intervention. Recording of target behaviours should be done before intervention (baseline data) and continuously throughout the intervention period.

Observational Recording in most commonly used with the children with disabilities. The type of observational recording used depends on the type of behaviour being recorded. The frequency and duration of the behaviours should be recorded at fixed intervals. The details of these components are given below:

- **Frequency**: The target behaviour has to be counted every time it occurs.

- **Duration**: The duration of the target behaviour is recorded in seconds, minutes or hours, eg, crying – 4 minutes or child sitting in the class – 9 minutes.

- **Interval recording**: The total period of observation is divided into equal intervals of time and it is noted whether the target behaviour occurred during each of the periods. This gives an indication of both the frequency and duration of the observed behaviour as well as the sequence of events. However, in this method, continuous recording is difficult and precise measurement of frequency and duration is not possible.

- **Time sampling**: Because of the difficulties involved in continuous baseline recording, time - sampling of target behaviours is used. One way of sampling is to observe the child at the end of a fixed time interval. This will depend on the frequency of the target behaviour as well as the time at the disposal of the recorder.

4. Functional Analysis:

The relation between a behaviour and the immediate social environment in which it is presented, is analysed. Functional analysis identifies those aspects in the environment which trigger a problem or those which increase the possibility of a behaviour of concern being repeated. In short, functional analysis involves a systematic enquiry into the '**ABC**' of a behaviour as follows:

- **A** - **Antecedents** or events immediately before the behaviour and environmental setting in which it occurs.
- **B** - **Behaviour**, its frequency, duration and intensity.
- **C** – **Consequences** or events following behaviour.

5. Intervention procedures:

After recording the baseline measures and analyzing the antecedents and consequences of behaviour, the behaviour management has to be planned. All therapeutic procedures involve either changing antecedents or changing consequences.

An example of changing antecedents is illustrated in the case of Dara. When Dara disturbs his classmates by pinching those seated close to him in the classroom, one way of changing the antecedents is to make Dara sit next to the teacher or to make him sit alone to decrease his behavior of concern.

An example of changing consequences is shown in Dara's case. Whenever he threw objects during tantrum, he was immediately pacified by his mother. This positive consequence resulted in an increase in Dara's tantrum behaviour. The management procedure used to stop this behaviour of concern involved advising Dara's mother to ignore the child (withdraw the positive consequences of crying the child) or use restrictive intervention.

11.3. Techniques for decreasing behaviors of concern:

The following techniques have been found to be useful in decreasing behaviors of concern.

- **Restructuring the environment**:
  The occurrence of any behaviour is partly a function of its present and past antecedents. This is called as 'stimulus control'. This is a powerful tool in decreasing undesirable behaviour. For instance, if a child is very distractible in a classroom and is talking to his/her peers, spending little time on the task in hand, his/her "off the task" behaviour can be reduced by isolating him/her or placing a screen around him/her. This reduces distracting stimuli in the classroom situation. Thus if it becomes evident during functional analysis that the behaviour of concern occurs only in one environmental setting and not in others, then restructuring the environment will reduce the likelihood of occurrence of the target behaviour. Restructuring the environment has to be combined with a program of positive reinforcement of appropriate behaviours and withholding of reinforcement if the behaviour of concern occurs in the new environment (Differential reinforcement).
- **Extinction**:
  It is possible to reduce the frequency of a behaviour by not presenting the immediate reinforcer of the behaviour. This process is called extinction. For example, a 8 year old child had persistent tantrums of loud screaming when he was asked to read. This resulted in the teacher abandoning the task with him. The functional analysis suggested that the boy's tantrums were being reinforced (teacher abandoning the task) by being allowed to escape from distasteful task to his screaming. The extinction program for him involved non-presentation of the reinforcement on screaming, i.e., continuing the task of reading despite the tantrum.

- **Restrictive Intervention Strategies**:
  This means introducing consequences for a behaviour that reduce the future probability of that behaviour. During functional analysis the punishing stimulus for a particular child in a particular situation has to be elicited. Its effectiveness will be evident only on its use. Punishment procedures should be administered immediately and consistently following the behaviour of concern. The common type of restrictive intervention procedures are: Time out, Response cost, Over-correction, Restraint and Aversion.

  - **Time out**:

This means time-out from positive reinforcement. When the behaviours of concern are hazardous or self-injurious, procedures like extinction may be undesirable. Hence, punishment procedures like time-out are used. Time-out is used in various ways. If the reinforcer concerned is a praise or social attention, timeout involves either removal of the child away from the dining table or meal plate. Time-out could be used in any situation where reward is being presented. The reward is removed during the occurrence of behaviour of concern.

- **Response cost**:
  This procedure is used with individuals who are on token program for teaching adaptive behaviours. When behaviour of concern occurs, a fixed number of tokens, stars or pints are deducted from what the individual has already earned. This procedure can be used as punishment for aggression, abusive language or late arrival at the classroom.

- **Over-correction**:
  This involves two separate procedures. 1. Restitution, and 2. Positive practice. For most undesirable behaviours, both procedures may be used but in some self-stimulatory behaviours only positive practices can be used. Restitution means restoring the disturbed to more than the normal condition, and positive practices involve practicing appropriate modes of responding in situation in which the individual normally misbehaves. If a child keeps eating indiscriminately whatever rubbish he finds on the ground (Pica) restitutional over-correction would involve a prolonged period (20 minutes) of teeth, mouth and hand washing with soap or antiseptic whenever the behaviour occurs. Positive practice which is done usually after restitution involves a prolonged practice (20 minutes) of appropriate ways of handling rubbish like sweeping, mopping, throwing out the garbage, etc.

- **Restraint:**
  Physical restraint is effective in reducing the behaviours like physical aggression and self-injurious behaviour. The restraint can vary according to the individual such as restraining in a chair, holding the child's arms down tightly to his side for a short period, holding the child's head tightly between the trainer's palms, keeping the child's head between his knees etc.

- **Aversion**:
  This method is generally used only when all other training methods have failed to control behaviours of concern. Life threatening or self-injurious behaviours like severe head-banging, persistent vomiting and biting behaviours are controlled by aversive stimuli. Faradic aversion (Battery operated mild shock) is administered immediately following the behaviour of concern.

  Contingent aversive chemical stimuli like strong pungent odours (ammonia), sour or bitter tasting substances can be presented instead of shock in young children.

All restrictive intervention strategies in general should be used in combination of with a Differential Reinforcement programs for concurrently rewarding desirable behaviours.

- **Differential Reinforcement**:
  Differential Reinforcement program involves positive reinforcement for the occurrence of appropriate behaviours specified in advance (DRA), absence of the undesirable target behaviour for a specified period of time (DRO), occurrence of behaviours which are incompatible with the target

behaviour to be reduced (DRI), and the occurrence of low rates of the undesirable target behaviour being recorded.

Differential Reinforcement of an adaptive or desirable behaviour should always be added when a punishment is being used for decreasing a behaviour of concern. Otherwise the behaviours of concern tend to get maintained because of the lack of adaptive behaviours and skill deficits.

Case Illustration: Management of behaviors of concern:

Dara is a 9 year old boy. He was brought one year ago with the complaints of inability to chew food, looking sideways and not maintaining eye contact, lack of bowel control, not feeding by self, restlessness, screaming, fitting others, poor speech development and being uncooperative for any activity.

History revealed that Dara was born out of full term, normal delivery and his milestones of development were delayed. He occasionally indicated bowel and bladder needs if mother was present around. Detailed psychological assessment revealed that the child had an I.Q. of 23 and a diagnosis of severe intellectual disability with autistic features was made. On special educational assessment, it was found that Dara was totally dependent in all activities, including self-help skills and was classified under custodial group. Medical examination did not reveal any significant abnormality and the aetiology could not be ascertained.

The management plan included training Dara in self-help skills, language skills, socialization skills and management of behaviors of concern. It was planned to give priority to management of behaviors of concern before starting other intervention programs so that the child would be more cooperative and respond better to training.

A detailed behavioral assessment revealed that the child had the following behaviors of concern: hyperactivity, screaming loudly when irritated, aversion to new places, fear of strangers, crying continuously and clinging on to mother, beating whoever is around him when he is forced to do any activity and throwing temper tantrums.

Initially three target behaviors were taken up for management namely crying excessively, beating others and improving eye to eye contact. The parents were trained to do baseline recording of the target behavior on a structured chart at home which included the duration and frequency of target behavior.

On functional analysis it was gathered that Dara was fond of music, icecreams, biscuits and outings. It was also gathered that both parents were overindulgent and overprotective towards the child and the father was inconsistent in disciplining the child. Dara's parents were found to yield to his demands whenever he cried for long.

The parents were advised to ignore the child whenever he cried and screamed and not to yield to his demands (extinction). The parents were also advised to physically restrain him whenever he beat others or punish by depriving him of the reinforcers (time out). The mother was asked to reward Dara by hugging or kissing (positive reinforcement), whenever he made attempts (even partial) to look at her when he was called (shaping).

Dara was continuously evaluated by recording frequency and duration of the target behaviors. He has shown 50% reduction in crying behaviors, 75% reduction in beating others and 50% improvement in eye to eye contact. Dara will continue to be on behavior management and he

is being taken up for improving his communication skills (speech and language) and self-help skills.

11.4. Techniques for increasing desirable behaviors:

The following techniques have been found to be useful in increasing desirable behaviors.

Reinforcement:

Behavior is often determined by its consequences. We tend to continue a particular behavior if its consequences are pleasant. Parents and teachers make children learn by encouragement, praise and rewards. This is known as reinforcement. Reinforcement is defined as any event which when followed by a behavior. Reinforcer does not always mean 'something nice' or 'pleasant'. It is event which increases the probability of a particular behavior.

There are three types of reinforcers:

1. Primary reinforcer: these are reinforcers which are essential for life. Exmaple: food, drink, sleep, etc.
2. Secondary reinforcer: these are events or objects which have the property of a reinforcer because of pairing with a primary reinforcer. Example: money, points, etc.
3. Social reinforcer: these are events or objects which have significance at the emotional level. Example: attention, praise, smile, hugging and so on.

Secondary or social reinforcers are more convenient, easily available, acceptable and less subject to satiation compared to primary reinforcers. In the case of severely intellectual disabled children primary reinforcers are more effective than other reinforcers.

Methods of selecting reinforcers:

1. Ask the child directly.
2. Ask the parents, siblings or the caretakers.
3. If the above two methods are not useful, offer a variety of reinforcers like food or drinks to the child and see what he selects more often. (Indirect preference technique).
4. In children who have no particular preferences, observe the child and see what he does most often. Then use this preferred, high frequency activity as a reinforcement for eg. Wandering 'off seat' behavior or stereotyped behavior.

Presentation of reinforcers:

Four important aspects should be followed while presenting reinforcement.

1. **Contingency**: reinforcement should be given only when the desired behavior occurs.
2. **Immediacy**: reinforcement should be given soon after the desired behavior occurs.
3. **Consistency**: the behavior should be reinforced every time it occurs, especially during the initial stages of a training programme.
4. **Clarity**: the child should be clearly aware that reinforcement has been given.

Schedules of Reinforcement:

Reinforcement may be given following every appropriate response. This is a continuous schedule of reinforcement. On an intermittent schedule the reinforcement is giving following certain responses only.

The first type is effective in establishing new behaviors. However, the second one is more natural and resistant to extinction. Reinforcement programmes must be planned in advance and strictly for the desired results.

Types of schedules:

There are four types of schedules of intermittent reinforcement.

1. Reinforcement can be given following a certain number of responses. This is fixed ratio schedule.
2. Reinforcement can be given after a few number of responses which can vary. This is variable ratio schedule.
3. Reinforcement can be given after specified lapse of time every 15 seconds. This fixed interval schedule.
4. Reinforcement can be given at varying interval of time at the end of 15 sec. or 20 sec. or 10 sec. This is variable interval schedule.

Use of different reinforcement schedules results in different responses. Variable ratio and variable interval schedules produce greater resistance to extinction than fixed schedules but they are more difficult to deliver systematically and accurately.

Steps in implementing a reinforcement programme:

1. Specify the goal: eg. Dara will look at the therapist's face and have eye to eye contact when the therapist calls his name and talks to him.
2. Identify the reinforcer: eg. Dara likes chocolates, cool drinks, toys and being kissed.
3. Teach the behavior: When eg. Dara is called, if he looks at the therapist's face or eye to eye even for a second, immediately give him a chocolate or kiss him as reinforcers.
4. Fade out the reinforcement: eg. Once the child learns to look more and more steadily into the therapist's eyes gradually fade out the edible reinforcers and use praise and kiss as reinforcers.

It is better to start with short sessions of 5-10 minutes with 10-20 trials per session. Several short sessions can be taken in a day.

Multiple reinforcements should be used with intermittent deprivation of the reinforcers to prevent satiation if the child gets tired of the same reinforcer. As treatment progresses, intermittent schedules of reinforcement (variable ratio or variable interval schedule) can be gradually adopted to avoid extinction of learnt behaviors.

Chapter 12

Evaluation and Promotion Procedure

Objective: The objective of this chapter is to understand and learn the evaluation procedure and criteria of promotion of student in pre-primary and primary schools.

Evaluation procedure:

As far as possible, with appropriate accommodations and modifications, the children with disabilities will be taught existing general curriculum in Pre-Primary and Primary schools.

Also, depending upon the current level of functioning of the child, the Functional assessment checklist for programming may be used for children in special education schools. Teachers will be required to read each item carefully, and from the performance scale, select the appropriate code, such as, Yes (+) means the child can perform the item with no help, Occasional Cueing (**C**) means the child needs to be given clues which require 'thinking' by the child to perform the given task, Verbal Prompting (**VP**), Physical Prompting (**PP**), No (**-**) means one has to completely do the task for the child, Not Applicable (**NA**), and Not Exposure (**NE**) means lack of opportunity to learn.

Scoring:

Items marked **Yes** or (**+**) or Occasional Cueing (**C**) are counted as point, while the others such as **PP**, **VP**, **NE** are noted but not counted as points in the domains of Personal/Activities of Daily Living, Social, Academics and Occupational. As the ultimate aim is that of achieving independence in a given activity area, those activities the child performs independently or with Occasional Cueing only will be considered for quantifying into scores.

Scoring Recreational Activities:

The items listed under recreational need not to be counted for quantification and promotion as these items are interest based. The grades as noted below illustrate the involvement of recreational activities in the child.

A = Takes initiative and participate effectively.
B = Participates when other initiates.
C = Involves self but not aware of rules.
D = Observes with interest.
E = Not interested (indifferent)
NE = Not exposure

Criteria of promotion of student:

With appropriate accommodations and modifications, the exiting promotion criteria will be followed for children with disabilities in Pre-Primary and Primary schools.

And for children who are taught using Functional assessment checklist for programming, the achievement of 80% of items in the Functional Assessment Checklists will be considered for promotion from one level to the next higher level. For example, the children who achieve 80% of the items in Pre-Primary checklist will be promoted to the Primary-I level.

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Annexes

Documents attached to this Manual include:

1. Training Facilitator's Guide, consisting of:
    - Training plans for training to teachers;
    - Lesson Plans for training to teachers

2. Flow charts, methods and techniques for teaching reading skill in Khmer language:
    - Teacher's guide for teaching reading skill in Khmer language at primary level

3. Tool Kits (10) for Teaching Khmer Language Lessons in grade 1

Ministry of Education, Youth and Sports

And

Save the Children

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