World Bank Group: Education Global Practice

Toolkit for **MASTER TRAINERS** in Preparing Teachers for **INCLUSIVE EDUCATION FOR CHILDREN** with Special Needs

Making Inclusion Work

Master Trainers Material

Module 2: Including Children with Autism

सत्यमेव जयते
Ministry of Human Resource Development
Government of India

UKaid
from the British people

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Cover and inside illustrations in this series of training modules by Navleen Kohli

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FOREWORD

The Right of Children to Free and Compulsory Education Act (2009) mandates free and compulsory elementary education to all children in the age group of 6-14 years. Sarva Shiksha Abhiyan (SSA) is the key vehicle for implementation of RTE Act. One of the important components of SSA is Inclusive Education of Children with Special Needs (CWSN). The thrust of SSA is on providing quality inclusive education to all children with special needs. However, inclusion implies equal opportunities and full participation of ***All*** children with special needs in school activities. For this, the environment has to be disabled-friendly and barrier free (77.37 percent of schools under SSA are now barrier-free). Necessary support services are needed; over 20 thousand resource persons have been appointed and close to 800 non-governmental organizations are involved in this area. More and more children are being provided with much needed assistive devices and technologies, large print and Braille books to facilitate their inclusion in regular classrooms. Over 2.3 million children with special needs are now enrolled in schools in SSA.

The critical link to making inclusion of CWSN happen in schools and classrooms is the teacher. Hence, capacities of the teachers need to be built up on those pedagogical practices that would address the needs of all children with special needs, especially those with high level support needs in a mainstream classroom. One of SSA's goals is to ensure that there are enough trained teachers to respond to and address the challenge of inclusion.

This series of five training modules on *Making Inclusion work* is a tremendous contribution to SSA's ongoing efforts to prepare teachers to work with children of all abilities. Geared towards master trainers, the modules provide practical information on effective inclusion of CWSN, especially of children with autism spectrum disorder, cerebral palsy, deafblindness and hearing impairment in mainstream inclusive environments. They aim to build awareness of the challenges faced by children with these disabilities and share tested approaches in addressing these challenges. The modules are full of practical advice on how to create a classroom culture based on the principles of diversity, belonging and respect for individual differences.

I am very pleased to dedicate this to the teachers of the country who have an immense role in making school a welcoming place for all children, including these with special needs.

(PRAKASH JAVADEKAR)

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Foreword

In 2000, the Government of India embarked on a massive endeavor to universalize elementary education. The *Sarva Shiksha Abhiyan*—the Government's Education for All programme—has supported efforts to ensure that *all* children ages 6-14 have access to free and compulsory education throughout the country—in villages, towns, cities and mega cities. All children regardless of social economic background, gender, and abilities have the fundamental right to schooling. SSA has a zero exclusion policy. The scale of the challenge was immense; in 2001 there were 205 million children of elementary schooling age.

Fifteen years down the road, and in close partnership with State governments and communities across India much has been achieved. Access to schools has been nearly universalised and almost 98 percent of habitations have access to a school within a kilometre. SSA today covers more than 1.5 million schools and 4.5 million teachers have been added. One of the strongest pillars of the SSA programme continues to be the focus on equity, and progress has been significant. An equal number of girls and boys now attend school. The proportion of children from schedule castes and scheduled tribes enrolled in elementary schools now mirrors the SC and ST proportion in the general population. At this juncture it is critically important to work together to secure these tremendous gains for future generations, while continuing to make more progress on access, equity and quality of education.

Since the adoption of the RTE in 2009, SSA has been increasingly focused on ensuring access to quality education for Children With Special Needs (CWSN). Despite concerted efforts and progress, far more needs to be done to ensure that children with disabilities are effectively included in the education system. Data also indicate that identification processes need to be strengthened as only 1.22 percent of all children have been identified as CWSN.

SSA supports a multi-pronged strategy for the inclusion of CWSN. Some children are enrolled in Special Schools, others with severe disabilities are home schooled, and yet others go through a school readiness programme to prepare them for transition into a mainstream classroom—the ultimate goal of SSA. However, preparing children to fully participate in an inclusive education environment is only one part of the challenge. The school's physical environment has to be disabled-friendly and barrier-free (82 percent of schools in India are now barrier-free). Necessary support services are needed; over 20 thousand resource persons have been appointed and close to 800 non-governmental organization are involved in this area. More and more children are provided with much needed assistive devices, large print and braille books

and other technologies that allow children with special needs to be fully included in regular classrooms across India.

The critical link to making inclusion of CWSN truly a reality in schools across India is the teacher. One of SSA's goals in 2015 was to ensure that there are enough teachers to respond to the challenge of inclusion and that they have training, teaching-learning materials and academic support structure at the cluster, block and district levels.

This series of five training modules on *Making Inclusion Work* is a tremendous contribution to SSA's ongoing efforts to prepare teachers to work with children of all abilities. Geared toward master trainers, the modules provide practical information on effectively including CWSN, especially children with autism spectrum disorder, cerebral palsy, deafblindness and hearing impairment, in mainstream inclusive environments. They aim to build awareness of the challenges faced by students with these disabilities and more important, share tested approaches—tips and advice from experts in the field—to addressing these challenges. The modules are full of practical advice on how to create classrooms where all children participate and are given opportunities to thrive and learn from each other.

I am very pleased to dedicate this to the teachers of the country who can make schools a welcome place of joy and learning for children with special needs.

Acknowledgements

The World Bank is pleased to support Government of India efforts to include children with disabilities into regular classrooms. As part of broader, long-standing support to *Sarva Shiksha Abhiyan* (SSA), the World Bank helped produce the *Toolkit for Master Trainers in Preparing Teachers for Inclusive Education for Children with Special Needs: Making Inclusion Work.* The series of teacher training resource material comprises five modules addressing the inclusion of children with disabilities, particularly focusing on children with autism, cerebral palsy, deaf-blindness, and hearing impairment. The work was possible with funding from the United Kingdom's Department for International Development.

The toolkit was developed though a highly collaborative process, drawing on the extensive knowledge of domestic and international experts in pedagogy. A Writers' Workshop in December 2014 brought together 13 experts from various institutes, including EdCil, Rehabilitation Council of India, National Council of Educational Research and Training, as well as Non-Governmental Organizations (NGO) to conceptualize and prepare early drafts of the resource material. We would like to acknowledge the immense contributions of all the participants: Prof. Sudesh Mukhopadhyay, Prof. Anupam Ahuja, Ruma Banerjee, Merry Barua, Bharti Baweja, Anupriya Chaddha, Dr. Indu Chaswal, Dr. Varsha Gathoo, Prof. Judith Hollenweger Haskell, Uttam Kumar, Bhushan Punani, Dr. Vandana Saxena, Anamika Singh, and Vinay Singh. Despite busy schedules, they all found time to contribute to this important initiative.

The work also benefited from the sharing of knowledge from international experience. We would like to thank Amada Watkins of the European Agency for the Development of Special Needs and Inclusive Education, Filomena Pereira, Ministry of Education, Portugal, Aleksandra Posorac, Country Sector Coordinator, World Bank-Philippines, Michael Rosanoff, Autism Speaks, and Charlotte McClain-Nhlapo, Disability Advisor to the World Bank Group.

The modules would not have been possible without the technical leadership of Dr. Renu Singh, who was instrumental in making this collaborative process a success. Dr. Singh worked closely with experts to develop, write and edit all five modules. We would also like to acknowledge the contributions of Ms. Navleen Kohli, who with her colourful illustrations helped enhance each module. Ms. Mamata Baruah also provided excellent support to help organize workshops.

This module focuses on making inclusion work for children with autism. We are particularly thankful Ms. Merry Barua, Ms. Indu Chaswal and Renu Singh for their contribution to this

module. It was primarily designed as a training resource for master trainers to then train teachers on how to identify—and successfully remove—barriers to learning, development, and participation faced by many children with autism in classrooms across India. We fully recognize the spectrum of children with autism. We also are keenly aware of numerous students with autism who not only finish primary school, but excel and go on to university and become successful citizens.

In this module, the focus is on providing comprehensive information about autism, and on how all stakeholders, particularly teachers, can respond effectively to address the needs of each individual child. Each unit of this module includes activities that master trainers can utilise to build awareness, foster reflection and help the teacher understand that that children with autism are not a homogeneous group, where "one solution fits all." It is critically important for teachers to try out different strategies to find those what work best for them, and for the child in his/her classrooms. Every child is unique and different; each has different abilities, learns in different ways, and at a different pace. Inclusive barrier-free environments with a comprehensive support system should be created in every school. Material in this module aims to provide support to the class teacher to ensure that every child with autism is provided an inclusive learning environment to reach their full potential.

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OVERVIEW

An inclusive classroom is one in which all students are welcomed and differing learning needs are supported in a meaningful and responsive learning environment. A key aspect of moving beyond enrolment to ensuring full participation of children with special needs is by positively affecting teacher beliefs and attitudes towards students with disabilities.[1] Many teachers rate themselves as under-skilled to meet the demands of an increasingly diverse classroom with specific reference to children with disabilities.

This training package on including children with autism is aimed towards capacity building of master trainers, who will in turn train regular school teachers to provide an inclusive learning environment for children with autism. Teachers find it very challenging to address specific learning and social needs of students with autism.

OBJECTIVES

Enhance teachers' knowledge about the characteristics of children with autism

Enhance their understanding of social and academic challenges faced by children with autism in school

Enable teachers to learn strategies that can create enabling environments for enhancing participation of students with autism specific

Enable teachers to learn skills for curriculum transaction including teaching strategies, to support children with autism in mainstream schools.

TABLE 1: OVERVIEW OF MODULE

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
Unit I: Understanding Students with Autism		
1. To understand what is autism 2. To understand the impact of autism, including the unusual behaviours of students with autism	Exercises, presentations, discussions and brainstorming	Teachers will be able to: • Identify characteristics of language, communication and social behaviours in children with autism

1 While the authors of this module would emphasize that children with disabilities must not be categorized as different and need to be considered "children first", this module utilizes the term "Children with Special Needs (CWSN)" since it is the term that continues to be used by policy documents in India.

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
3. To develop an understanding and acceptance of the diversity within this group		• Recognise and perceive unusual behaviours and mannerisms as indicators of sensory dysfunction in children with autism
Unit II: Challenges Faced by Students with Autism in the Classroom and Beyond		
1. To understand the barriers that a child with autism may face within learning environments-social, communication and sensory 2. To develop understanding of the impact of autism on learning process	Exercises, presentations, discussions and brainstorming	Teachers will understand how existing classroom situations can act as barriers and challenge the participation and learning of the student with autism. They will be able to describe ideal situations and barriers in the: • Physical environment and infrastructural requirements • Interactions, activities • Instructional processes and assessment
Unit III: Creating Enabling Environments		
1. To develop an understanding of required visual, structural and social supports in the environment to address diverse learning needs 2. To change perceptions and attitudes towards providing supports – including teacher and peer supports – to enhance learning 3. To foster understanding of environments that support assistive and augmentative modes of communication 4. To understand how to provide positive behaviour supports to develop motivation and learning	Exercises, presentations, discussions and brain storming	To develop an understanding of essential changes required in teacher attitudes and the environment, in teacher behaviour and student behaviour, to support learning for students with autism Teachers will be able to: • Describe how to use positive supports • Use situation-based assistive devices for learning, communication and socialisation • Support students using Alternative Augmentative Communication (AACs) • Describe and suggest ways to use students' strengths for learning and socialisation • Explain ways to use peer mediation • Describe ways to make their own communication more effective
Unit IV: Curricular Transaction and Pedagogic Strategies		
1. To gain practical knowledge of modifying teaching –learning process for effective teaching of students with autism 2. To develop educational plans to optimise the learning of the students with autism 3. To gain experience and training in preparing teaching- learning materials related to the contents of the educational plan	Brainstorming, presentations and demonstrations with samples	At the end of the unit, the teachers will be able to: • Assess the current level of performance • Understand curriculum adaptation and accommodations and ways to develop it • Learn teaching strategies for children with autism in an inclusive environment • Understand the importance of evaluation and ways to evaluate the learning's of children with autism

Unit I : Understanding CHILDREN with AUTISM

TABLE 2: OVERVIEW OF UNIT I

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
Unit I: Understanding Students with Autism		
1. To understand what is autism 2. To understand the impact of autism, including the unusual behaviours of students with autism 3. To develop an understanding and acceptance of the diversity within this group	Exercises, presentations, discussions and brainstorming	Teachers will be able to: • Identify characteristics of language, communication and social behaviours in children with autism • Recognise and perceive unusual behaviours and mannerisms as indicators of sensory dysfunction in children with autism

1. WHAT IS AUTISM?

Autism and Autism Spectrum Disorder are both general terms for a group of complex lifelong developmental disabilities that typically appear during the first three years of life. It is indicative of impairments, primarily in the areas of social skills, language and communication. The name autism is derived from the Greek word Autos, meaning self. The term describes conditions in which a person is removed from social interaction and self-absorbed or "lost in their own world". Autism is used in this unit to mean the Autism Spectrum Disorders (ASD).

What Causes Autism?

The cause of autism is not yet known. It is generally accepted that autism involves differences in the development and function of the brain. Researchers are currently investigating theories that look at the connection between autism, genetics, and medical problems such as viral infections. Others are investigating the relationship between environmental causes of autism, such as exposure to chemicals, allergens or vaccines. To date, researchers have not conclusively proven a link between any of these areas and autism.

Major Characteristics

While considering the educational needs of children with autism, it is important to remember that it is a spectrum. Within this group there are children with varied abilities.

It is important to remember that every child is unique. For instance, some children may experience multiple learning difficulties but others may have no significant learning difficulties. In 1998, Lorna Wing coined autism as a 'Triad of Impairments' which defined the condition. According to Wing, within the category of developmental difficulties, there were a cluster of features, which provide the basic characteristics that suggested autism. The basic difficulties in the Triad were qualitative difficulties in social interactions, in language and communication and an inflexibility of thought and behaviour (imagination). Current thinking also classifies behavioural characteristics associated with autism into four major groups. These are:

1. Qualitative difficulties in social interaction
2. Qualitative difficulties in social communication
3. Restricted repertoire of interests, behaviours and activities
4. Unusual sensory responses in autism

ACTIVITY

What is 'autism'?

Objective: To explore how teachers understand the term 'autism"

Instructions:

- Ask these four questions:
  - *Who are the children you would classify as autistic?*
  - *Do children with autism communicate?*
  - *Are children with autism very good with math?*
  - *Do children with autism have intellectual disabilities?*
- Get responses from the teachers and write them on the board. Do not correct them or have a discussion at this stage.

2. SOCIAL INTERACTION

Understanding social situations typically requires an understanding of language and non-verbal communication, which are areas of difficulty for children with autism. They may not notice important social cues and information during social interactions and in reading the non-verbal behaviour of others. People with autism typically also experience difficulty in the use of non-verbal behaviours and gestures to regulate social interaction. Social development and social behaviours are varied across the spectrum, especially in the area of interpersonal skills. There may be many children who appear **aloof** and seem to be living in a world of their own. There are some children who form the **passive** group and in this group, the child accepts social approaches from others but seldom or never initiates any interactions. He may become involved as a passive participant in part of a game. Another group is the **active but odd group.** Children of this group make active approaches to others in social interactions but make that contact in strange ways, including: pushing others, disrupting games, hugging other children very tightly and wanting to sit and play only with one child.

Other social difficulties include:

- Limited understanding of emotions;
- Lack of spontaneity in sharing enjoyment, interest and achievement;
- Lack of understanding of social conventions including maintaining topics, judging the interest level of another person in a conversation;
- General difficulty in understanding simple unwritten social rules that others learn naturally by imitation of the social environment. Examples include maintaining appropriate physical distance in a social interaction, waiting for their turn in a shop, using polite language, understanding privacy and thereby behaving appropriately, such as closing the toilet door, covering oneself and coming out after a bath, touching oneself in private, etc.; and,
- Difficulties in peer interactions. They generally feel comfortable in the company of much older or younger children.

2.1 Theory of the Mind

There are three dominant psychological theories which attempt to provide a cognitive explanation of autism:

Theory of the Mind: The ability to understand and interpret the mental states of other people. Mental states refer to thoughts, beliefs, desires, intentions, etc. It also includes the ability to use this information to interpret what people say, understand their actions and predict or imagine what will happen.

Executive Function: The ability of the brain to plan, organise and perform sequences to achieve a predetermined goal (Discussed in section 5 of Unit II).

Lack of Central Coherence: The limited ability of making sense of an entire situation, person or object (as a whole) and attending to parts or irrelevant and unimportant aspects (Discussed in section 6 of Unit II).

The theory of mind explains some of the aspects of social behaviours that are perplexing for children on the spectrum and difficult for those around them to understand. The inability of a child with autism to employ a theory of mind may have implications in a range of the behaviours observed in children and young people on the spectrum such as difficulties faced in:

- Empathising
- Appreciating the perspective of others
- Forming and sustaining relationships
- Social prediction
- Social curiosity
- Interpreting the intentions of others
- Predicting and understanding the consequences and the impact of behaviour on others

AN EXAMPLE

Minni places a ladoo in a kitchen basket and goes outside to play. While she is playing, her mother enters the kitchen and moves the ladoo into a bowl without Minni witnessing this switch. When Minni returns to the kitchen, she look for the ladoo. Where does she look?

If this question is posed to a group of people, most people will answer, **in the kitchen basket.** This is because they have the ability that helps them to think from Minni's perspective. But in such a situation, a student with autism may answer, **in the bowl**, because according to him/her, it is now in the bowl and s/he cannot put himself in Minni's shoes and do not fully grasp that Minni will not know what mother has done.

ACTIVITY

Understanding the Theory of the Mind

Instructions:

Teachers will take the Sally Ann test[2] to understand how we take perspectives and how limited perspectives affect behaviour.

Materials required:

- Copies of the Sally Ann test and instructions. See annexure 3.
- One-minute video "Special Education Social Attribution Task" (Available online: http://www.teachertube.com/video/social-attribution-task-243099)
- One-minute video "Wildebeest from Bird box Studio" (Available online: http://birdboxstudio.com/)
- Read the instructions and show both videos.
- Teachers will be asked to consider how an Impaired Theory of the Mind will affect the student's interpretation of language, use of language and in making friends.

Note: Emphasise the importance of taking a perspective and how a limited perspective affects behaviours.

3. SOCIAL COMMUNICATION

All children with ASDs experience language and communication difficulties, although there are considerable differences in language ability among individuals. People who DO NOT have autism but have difficulties in, say, speech are able to use other ways of communicating. However, people with autism have a fundamental impairment in communication, which goes beyond just speech difficulties. Some individuals are non-verbal and need alternative modes to communicate; there may be others who can have some amount of functional communication. Some may have extensive language or vocabulary but may have difficulties in the social use of language. They may also have difficulty in using speech in an appropriate manner for effective social communication. Initiating a conversation, sustaining it by maintaining the topic, listening to others and making sense of the level of interest of the others in the conversation are some of the challenges faced by them. Many of them start a conversation but within minutes, it turns into a monologue and others lose interest in it. Other deviances with the language include difficulties understanding abstract language, literal interpretation of words and lack of prosody (intonation).

Therefore, a person with autism may find it difficult to understand the meaning of "It is raining cats and dogs" and on hearing or reading this, he may think and expect cats and dogs to be pouring in the rain. "A magnificent palace in the heart of the city" may not be as easy to understand as "a big palace in the centre of the city". Difficulty in understanding language literally prevents them from understanding the intended meaning. For example, the teacher approaches Rohan, (a child with autism) who is standing outside his class, and says, "Don't you want to go back to your seat and finish your work?" Rohan may say "No" because he does not understand what the teacher intends to say ("Go and finish your work"). Many individuals with autism may find it difficult to understand jokes, proverbs or sarcasm. Sometimes children with autism in a class may feel offended and get angry when their friends are just trying to have a friendly, harmless fun time by joking or leg pulling.

2 The Sally–Anne test is a psychological test, used in developmental psychology to measure a person's social cognitive ability to attribute false beliefs to others.(William & Perner, 1983)

There will also be difficulties in using as well as understanding facial expressions, body postures and other communicative gestures.

ACTIVITY

Developing an understanding of variations in the language and social behaviours

Instructions:

- Divide the teachers in groups of five.
- Give each group a copy of one case study.
- Ask the teachers to read the case example and then enumerate four behaviours that are indicative of some difference in relating to social environment or communicating.
- Monitor the activity with the teachers.
- After five minutes, ask one representative from each group to present on the board the four behaviours they have identified.
- Next, ask them if they know students with similar difficulties.
- Listen to their stories.
- Introduce relevant terms.

CASE STUDIES

Group 1:

Sonu is a five-year- old boy. He started going to a play school at the age of three. Even after one year, his teachers reported that he did not remain in his seat for more than five minutes. As of now, he sits only when he is given puzzles or blocks to play with. Otherwise, he runs away. He enjoys playing around other children, likes to be chased on the playground and extends his hand in response only when others greet him. Otherwise, he prefers to be alone. Sonu does not have speech.

Group 2:

Amit is a seven- year-old boy. He prefers to stay aloof and rarely goes near other children. The teacher has to call out his name several times and then he gives her a look. He loves listening to nursery rhymes and repeats what others say in a parrot-like manner. When the teacher asks, "Have you completed your work," Amit repeats, "Have you completed your work?"

Group 3:

Tanu is a twelve-year-old girl. She can operate a computer – turns it on, opens her favourite games, plays very quickly and correctly. At school, she can add, subtract and multiply large numbers without any paper and pencil. However, she is unable to count five pencils out of many presented to her. She pushes children and laughs, sometimes runs away with a ball when others are playing a game. Tanu also hits other children for no apparent reason. Her speech is not fully developed. She expresses discomfort such as wanting to go to the toilet or someone teasing her by shouting or pushing.

Group 4:

Tarun is a thirteen-year-old boy who can read books, newspapers, magazines, catalogues, menus, etc., very well. Tarun is unable to answer simple "what, who, where" questions related to what he is reading. He refers to all the students of the school, drivers and security guards as his friends. He uses very bookish and formal speech.

Group 5:

Aman is a five-year-old boy. He attends school. His teachers report that he never makes eye contact and simply sits alone, trying to spin objects like sharpeners, coins and bottle caps that he carries in his pocket. Any attempts made by the teacher to get his attention seem to upset him and he screams. He takes his teacher's hand and directs it towards the door, indicating a need for the toilet. He also likes to arrange the teacher's notebooks in a neat pattern.

RELEVANT TERMS

Prosody: Lack of prosody in autism refers to limited use as well as understanding of tonal variations and voice inflections.

Pronoun reversal: The use of pronouns (I and you) in a reversed manner. Rather than saying, "I want a biscuit," a child with autism may say, "You want a biscuit" when he wants someone to give him a biscuit.

Echolalia: Involuntary repetition of speech heard from another person.

Note: the teachers may even mention other characteristics that are related to inflexibility and rigidness. Do not discuss these characteristics in this session but come back to the example when doing learning characteristics.

4. RESTRICTED REPERTOIRE OF INTERESTS, BEHAVIOURS AND ACTIVITIES

One of the many characteristics of children with autism is the inability to play or engage in imaginative activities. Their interests, play, and activities may appear repetitive. Most of them resist change. In a class they may not like their seat, the student sitting next to them or a teacher being changed. Other behaviours that arise out of such rigidities may be:

- Prefers to hold objects/toys in hand. Keeps lining or stacking things unnecessarily. Likes to listen to and/or watch the same thing over and over.

- Wants to talk about the same thing or ask the same questions over and over again.
- Engages in repetitive behaviours (hand flapping, spinning body, rocking self or twisting fingers).
- May laugh a lot without apparent reason.

Many students with ASDs may also demonstrate challenging behaviours, such as aggression, destruction, screaming, self-injurious behaviours and/or tantrums. Given that most individuals with ASDs are not able to effectively communicate their thoughts and desires, it is not surprising that they rely on their behaviour to communicate specific messages.

5. SENSORY RESPONSES IN AUTISM

"Autism cuts me off from my own body, and so I feel nothing. Autism also can make me so aware of what I feel that it is painful."

- Donna Williams,
Somebody Somewhere: Breaking Free from the World of Autism

5.1 Understanding and Responding to Environment through the Sensory Channels

We perceive the world through our five senses: sound, sight, smell, touch, and taste. There are two additional sensory channels often not mentioned:

(i) **The Vestibular System:** responsible for balance and movement

(ii) **The Proprioceptive System:** responsible for creating body awareness

All these sensory channels must work in coordination for a person to perform daily activities and in learning and interpreting what one experiences. For example, a child with autism is unable to focus on what the teacher is saying because certain background noises (e.g. the sound of the gentle breeze, footsteps in the corridor outside or the sound that the pencils in the class make when the students write in their notebooks) are more prominent to them than the teacher's voice.

RELEVANT TERM

Sensory processing: a person's ability of receiving information from the senses, organising it, interpreting and making a meaningful response. Almost every autobiography by a person with autism has described some distortion of one or more of the sensory channels to the brain - seeing, hearing, smelling, tasting, balance, co-ordination and movement. They have talked about both extremes of hyper- and hyposensitivity.

Children with autism usually differ from others in their sensory experiences. Responses to sensory stimulation may range from hyposensitivity to hypersensitivity. In some cases, one or more of the child's senses is either under-reactive or over-reactive. Environmental stimuli

may be disturbing or even painful to individuals with ASD. This may apply to any or all types of sensory input. Touch may actually be so painful that individuals shy away from physical expressions of affection; rough fabrics may be particularly irritating. Loud or high-pitched sounds, even if they are at a distance or virtually inaudible to others, may be extremely distressing. Many children with autism react strongly to the smell, taste, and texture of foods, causing them to exist on an extremely limited and bland diet[3].

ACTIVITY

Learning and responding when senses are not in sync

Questions:

- What are the sensations available now? Sounds, visual, smells, touch, tastes
- Can you feel your socks touching your feet? What if you did?
- Does your own breathing sound disturb you? What if it did?
- Why do you shake your legs or hands when they get numb?
- Hold a glass of water in front of a teacher. Then blindfold her and ask her to take the glass. Ask how could you do it?
- Similarly, ask another teacher to close their eyes, then stick a bindi on their forehead, or bend and touch their toes. Ask how he/she managed to do it without seeing the body parts?

Instructions:

1. Write their answers on the board in short phrases or single words.
2. Give the teachers objects such as a pencil dipped in greasy material like glue, oil or cream and ask them to write with it.
3. Give the teachers a pencil with an extremely rough surface, e.g. wrapped in sandpaper, and ask them to write with it.
4. Ask them to write with sand or paint on their fingers.
5. Play loud music or a sound that has been recorded on a mobile phone, such as that of a washing machine, birds chirping, and then give rapid instructions in a soft voice: touch head, clap hands, give me a pen, open the door, etc.
6. Ask how they felt when the above exercise was done.
7. Why was it easier to write with a finger versus the pencils presented?
8. Introduce sensory difficulties as hyper- or hyposensitivity (Also see Annexure 2).
9. Introduce possible sensory defense mechanisms:
    - **Flight:** escape or avoidance from certain activities
    - **Fright:** causes anxiety, crying and withdrawal into self
    - **Fight:** results in inappropriate behaviours like pushing others to maintain proximity

3 The "Common Difficulties with Sensory Systems: Observable Behaviours" hand-out in Annexure 2 of this manual includes a list of both hyper-and hypo-reactive behaviour indicators.

10. Emphasise that over or under stimulation can lead to:

- Hand flapping
- Head banging
- Hand biting
- Rocking body
- Hyperactivity
- Clumsiness
- Self-talk
- Difficulties in activities of daily living
- Motor planning issues in hand wringing, colouring, etc.

Sensory Integration Dysfunction Behaviours seen in school: As a result of sensory integration difficulties, children with autism might display behaviours such as:

TABLE 3: SENSORY INTEGRATION DYSFUNCTION BEHAVIOURS

AUDITORY
• Responds negatively to unexpected or loud noises • Holds hands over ears • Humming or making sounds all the time
VISUAL
• Hesitates going up and down steps • Avoids bright lights • Stares intensely at people or objects • Avoids eye contact • Reading difficulties due to visual perception difficulties • Difficulty in copying from the board • Head tilted to on one side
TASTE/SMELL
• Avoids certain tastes/smells that are typically part of children's diets • Routinely smells non-food objects • Does not seem to smell strong odours
BODY POSITION
• Takes physical support by leaning on other people, furniture, objects, even in familiar situations • Seems to have weak muscles, tires easily, has poor endurance • Walks on toes • Difficulty in eye-hand co-ordination and therefore in colouring within boundaries, writing on a line, cutting, etc.

MOVEMENT
• Keeps falling and getting hurt • Avoids climbing or jumping • Avoids playground equipment like swings and slides • Seeks all kinds of movement and this interferes with daily life
TOUCH
• Avoids standing in a line • Avoids getting messy with glue, sand, finger paint, tape • Is sensitive to certain fabrics and clothing • Touches people and objects at an uncomfortable level • Avoids going barefoot, especially in grass or sand • Has decreased awareness of pain or temperature
ATTENTION, BEHAVIOUR AND SOCIAL
• Jumps from one activity to another frequently and it interferes with play and completing work • Has difficulty paying attention • Disruptive behaviours during recess and playground time • Seems anxious

Unit II : CHALLENGES FACED by STUDENTS with AUTISM in the CLASSROOM and Beyond

TABLE 4: OVERVIEW OF UNIT II

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
Unit II: Challenges Faced by Students with Autism in the Classroom and Beyond		
1. To understand the barriers that a child with autism may face within learning environments-social, communication and sensory 2. To develop understanding of the impact of autism on learning process	Exercises, presentations, discussions and brainstorming	Teachers will understand how existing classroom situations can act as barriers and challenge the participation and learning of the student with autism. They will be able to describe ideal situations and barriers in the: • Physical environment and infrastructural requirements • Interactions, activities • Instructional processes and assessment

The various characteristics of children with autism, mentioned in the earlier section, create many challenges for teachers and students with ASD and their peers in the teaching-learning process in school environments and classrooms.

1. SOCIAL INTERACTION

Children with ASD often have difficulties in peer interactions. They generally feel comfortable in the company of much older or younger children. Pupils on the autism spectrum do not easily understand the skills involved in finding a friend and maintaining the friendship. Teaching these skills and understandings is difficult because they depend on social judgments that change with different situations. Pupils on the autism spectrum may believe that anyone can be their friend. Such pupils are open to exploitation by others, who may pretend to befriend them for their own purposes. The behaviours and emotional reactions of pupils on the autism spectrum may cause other pupils to tease or bully them. Children with ASD may:

- Lack of spontaneity in sharing enjoyment, interest and achievement.
- Lack of understanding of social conventions including maintaining topics, judging the interest level of another person in a conversation.

- General difficulty in understanding simple unwritten social rules that others learn naturally by imitation of the social environment.
- Limited perspective, which effects behaviours and understanding of:
  - Other people's emotions and intentions
  - Negotiating friendships
  - Literal understanding of language
  - Inability to understand that sharing information is important
  - Altering what they say depending on who they are talking to
  - Using appropriate body language
  - Engaging with topics that don't interest them
  - Making small talk with strangers or acquaintances
  - Realising, by the person's facial expressions or body language, that someone is bored or annoyed with them
  - Knowing when and how to leave a situation that makes them feel uncomfortable
  - Listen if they are made to look at the person who is speaking
  - Engage in physical contact or be in close proximity to others
  - Work and play with others
  - Take turns and share equipment

Pupils on the autism spectrum may:

1. Actively avoid others
2. Stand too close or too far away when interacting
3. Say or do things of a personal nature which cause offence, without being aware of this
4. Fail to follow a topic and make comments that may be perceived as irrelevant
5. Fail to adjust social behaviour or language to the age, gender and so on of the people they are with
6. Not understand when they have caused physical pain, as this requires empathy with another person, and they do not feel the pain themselves
   - Find it difficult to accept other people's points of view
   - Shout out the answers in class
   - Be unresponsive to typical social rewards
   - Need different motivators from other students, good to have motivators that are linked to their interests

2. COMMUNICATION

- Making themselves understood or finding people who understand them
- Using language for social reasons

- Lack of comprehension of common words and instructions
- Inability to understand jokes, sarcasm, tone of voice
- Understanding facial expression and gestures
- May ask repeated questions when:
  - A child has a problem understanding the answer if only told orally
  - The pupil enjoys hearing the words or talking about the topic as a special interest
  - The pupil is feeling anxious about the event
  - It's a topic of conversation that has worked for the pupil previously

Communicating emotions: Children on the autism spectrum (even those with good speech and language skills) often find it difficult to express their feelings and emotions. Students on the autism spectrum experience emotions like anybody else, but may not be able to identify their nature or intensity, share them with others, or show these in their body language or facial expressions. The way in which students express themselves can appear odd or challenging and affect both them and how others perceive them. Many children with autism have a limited range of facial expressions, so it can be very difficult for teachers to judge how they are feeling. For some students, anxiety can result in the temporary loss of the ability to speak at all. It is extremely important that all schools staff help such students express what they feel and communicate what they want, once they are calm.

3. RESTRICTED REPERTOIRE OF INTERESTS, BEHAVIOURS AND ACTIVITIES

Children may have difficulties in learning and behaving flexibly. For example, they may find it very difficult to think through a problem and generate strategies. This may make it difficult for a child to plan, organise themselves and cope with new and unfamiliar situations.

They often have difficulties:

- Applying skills in different settings
- Doing several things almost simultaneously
- Recalling relevant information when stressed
- Making a choice or deciding
- Managing emotions aroused by the situation.

Unpredictability causes anxiety: The world can already be a very confusing place for students on the autism spectrum. They find it helpful and comforting if important elements stay the same from day to day.

Ritualistic and checking behaviours: Many students on the autism spectrum develop specific routines and rituals to **provide structure** and **predictability**, especially during times of uncertainty or anxiety. The insist on sameness, resist change and maintain an inflexible adherence to a non-functional routine. Changes create challenges and there is resistance to change or managing a change to an expected routine is difficult.

Special interests: Children on the spectrum often have a restricted range of interests and preoccupation with one specific interest or object. (This can also be accompanied by a range of repetitive and stereotypic mannerisms, such as hand flapping, finger flicking, rocking, spinning, walking on tiptoes, spinning objects.) Some may have an area of special interest or an activity which they pursue with great vigour. Engaging in this familiar activity can make them feel safe, and they can develop great skills and knowledge. The engage in special interests because the activities are predictable, under their control, hold interest for them, and are within their ability.

Most students on the autism spectrum also find it difficult to appreciate that, at school, they must follow the school's agenda.

4. SENSORY RESPONSES IN AUTISM

Unorganised sensory input creates a traffic jam in the brain, making it difficult to pay attention and learn. To be successful learners, the student's senses must work together. This is known as sensory integration. A person diagnosed with autism finds it difficult to filter out non-essential information, background noises or visual distraction and focus on what is essential. For further information, see Annexure 1 on "Questions for an Inventory of Sensory Factors" and Annexure 2 on "Common Difficulties with Sensory Systems: Observable Behaviours".

5. EXECUTIVE FUNCTION DIFFICULTIES

Executive Function is one of three dominant psychological theories that attempts to provide a cognitive explanation of autism. According to this theory, children on the autism spectrum have impairments in a range of executive functions or in ability of their brain to plan, organise and perform sequences to achieve a predetermined goal. Theses abilities lie in the brain's frontal lobes of the cortex, which receives feedback from the outcome of the sequences performed. If a goal has not been met, the brain re-plans, rethinks, and. reorganises the sequences. In other words, people learn from mistakes and self-correct their actions to achieve success. Their flexibility allows them to reach the goal by planning and preplanning.

Executive function is a collection of cognitive mechanisms that are implicated in a range of areas such as:

- Behaviour that is involved in developing and working towards a goal
- Systematic problem solving
- Flexibility of thought and behaviour
- Controlling inappropriate impulses and self-control
- The guiding of behaviour by mental models or internal representations

Children may face difficulties in planning and executing tasks as well as problem solving. As a result of these difficulties, a child with autism may not be able to plan and execute a task, especially when it involves several steps.

ACTIVITY

Understanding executive function difficulties

1. This activity uses an interactive method in which teachers are asked questions such as:

QUESTIONS

At what time do you have to reach the workplace?
How much time does it take to reach the workplace?
If you are late for two consecutive days, what will you do on the third day and how?

2. Teachers put responses on the board
3. Introduce the term executive function and relate it to a student's behaviour.
4. Discusspossible educational implications of executive function difficulties:
   - Pupils are disorganised
   - Get stuck during work that involves sequences
   - Commit the same mistake again and again and are not able to self-correct
   - Slow in following instructions
   - Unable to complete work within the assigned time

Understanding the difficulty in executive functioning helps a teacher to organise and plan activities for students with autism. Teachers need to clearly explain to students what steps to follow in an activity. Teachers also need to understand why reprimanding or scolding children with autism will not teach the students the desired behaviour.

6. LACK OF CENTRAL COHERENCE

Lack of central coherence is also one of the three dominant psychological theories that attempts to provide a cognitive explanation of autism. Central coherence is the ability to understand the general meaning of information rather than focusing on each individual detail. For example, when someone tells us something or when we read something, even if we do not remember each individual word, we can remember its general meaning. When listening to a song, we can usually recognise whether or not we have heard it before. Also, when listening to a piece of music, we can usually tell whether it's a song that's sad, upbeat, relaxing, tense, etc. However, individuals with autism lack central coherence. As a result, they tend to focus on the small details rather than the bigger picture. For example, when listening to a song, they may hear or focus on each individual note and word. However, they would be unable to get a feel for the song as a whole. The lack of central coherence helps to explain the difficulties ASD children have in interpreting their environment.

RELEVANT TERM

Lack of central coherence: the limited ability of making sense of an entire situation, person or object (as a whole) and attending to parts or irrelevant and unimportant aspects. Students with autism are also referred as individuals who 'focus on details' or as 'detailed thinkers'.

This is sometimes a strength as it leads to expertise in selected areas. A central coherence deficit may be able to explain why some children with autism can have exceptionally good memories, or why they may pay very close attention to detail.

ACTIVITY

Understanding lack of central coherence

Central coherence could be assessed by showing a child two embedded figures: a simple shape and a complex diagram that includes the simple shape. A simple example is the two figures below: a triangle and pram. The shape of the triangle is embedded in the picture of the pram. Children with autism are likely to be faster and more accurate in locating the embedded triangle, since they tend to focus on small details, while ignoring the bigger picture.

1. Show the pictures below: triangle and pram.
2. Ask the teachers: what do you see?
3. Tell them that a child with autism may see the triangle not the pram in picture 2 (cognitive details)
4. Discuss implications on education:
   - Selected attention
   - Distractibility towards irrelevant stimuli during work
   - Need for same things and activities

6.1 Challenges Due to Lack of Central Coherence

Learning is specific to general associations: People with autism may make specific and unusual associations. Some examples are:

- Whenever someone speaks about a boy's grandmother, he say, 'B-2 Vasant Kunj', the\name of the place where she lives.
- A child refuses to enter a bathroom that had a different tap from the one in his home.
- A child plays only with parts of objects like spinning the wheels of a car and not doing anything else with it.

Difficulties with multiple perspectives: Most children with autism learn better during individual work or small group sessions. Group learning is difficult because it involves multiple perspectives such as:

- Listening to the teacher
- Attending to the tools/task
- Looking at others/proximity to others
- Waiting
- Many aspects of a single topic
- Listening and looking together

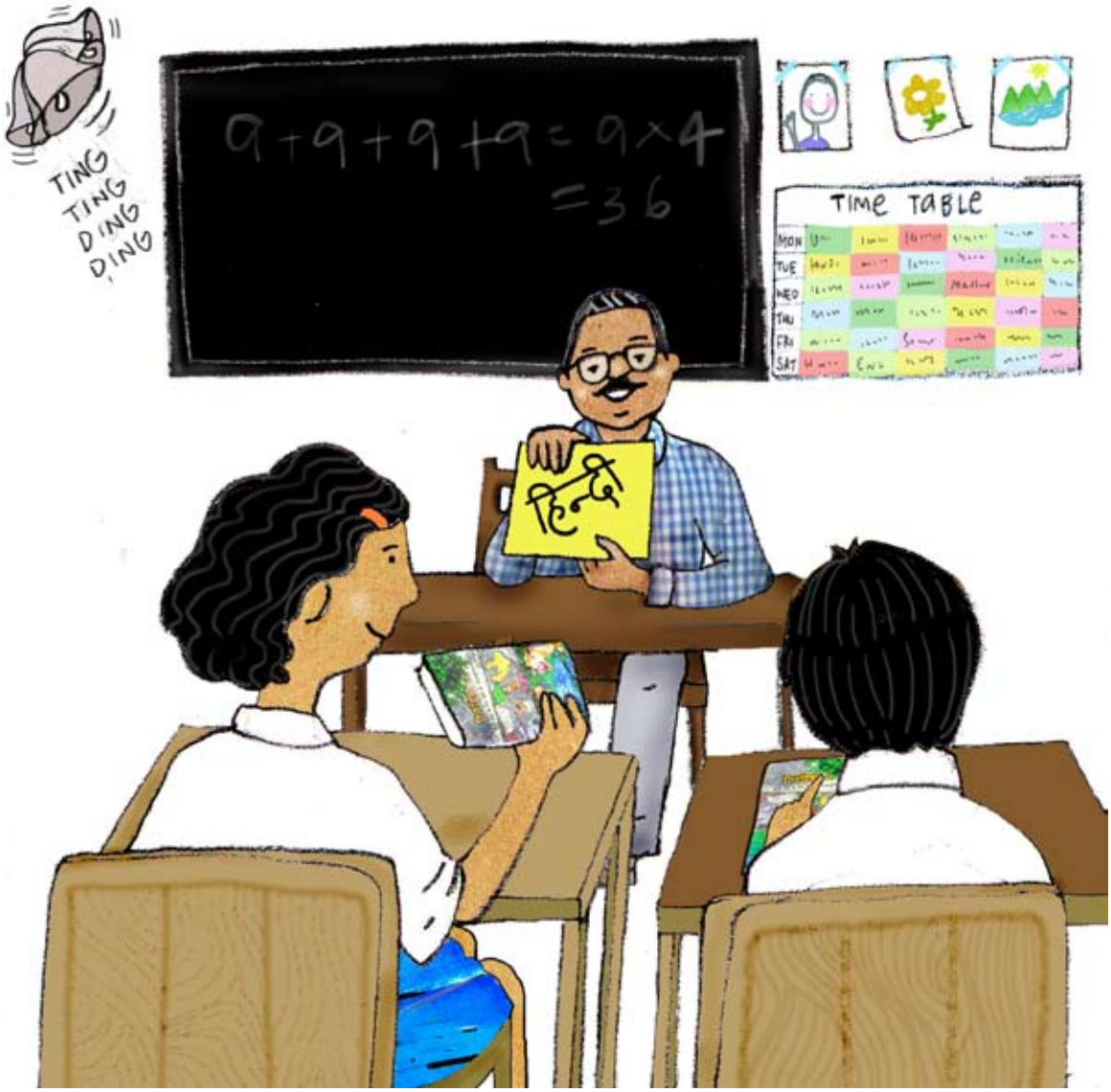
Attention and Distractibility: Students with autism often demonstrate unusual patterns of attention. They often have difficulty paying attention to relevant cues or information in their environment and may focus on an insignificant part of the environment, to the exclusion of what is important. For example, the teacher gives the child something to write. There are two pencils in his pencil box. The child cannot pay attention because he is totally distracted by one of the pencils having a broken point. Some children are unable to work or listen to the teacher because they get so fascinated, for example, by the moving branches of trees visible through the classroom window, pencil boxes, sharpeners, erasers or pictures in a book.

7. LEARNING CHARACTERISTICS AND CHALLENGES THEY POSE

Students with ASD have psycho-educational profiles that are characterised by uneven patterns of development. Studies indicate that there may be difficulties in many cognitive functions, yet not all are affected. Considering these characteristics can be very helpful for students with autism if appropriate adjustments are to be made in their educational programs. It is not unusual for them to forget previously learned concepts and skills. Similarly, students with ASD may be able to demonstrate a skill in one setting or on one task, but not others. What may seem like noncompliance or stubbornness may be a manifestation of neurological and/or learning differences.

Some learning characteristics of ASD are as follows:

Visual versus auditory learning: Students with autism are visual learners and learn better when things are presented in a visually clear manner. Temple Grandin, a woman with autism, describes in her book *Thinking in Pictures* how she tries to form visual pictures in her mind to conceptualise abstract concepts. For example, many children in schools find it easier to follow a visual pictorial timetable to understand the sequence of activities coming up.



Prompt dependence: Students with autism have difficulty integrating information received from the surroundings and have limited ability to prioritise relevant aspects in a situation. This results in their inability to combine ideas very easily. Therefore, they start looking for cues from their surroundings to initiate and carry forward tasks.

Mainstream teachers who have students with autism in their classrooms often complain that the child demands individual attention all the time. This is probably because the child requires some prompt from the teacher to initiate work and go through it.

Excellent rote memories: Some children with autism can have extraordinary visual, auditory, visual-spatial memories. Therefore, they may memorise chunks of material without necessarily understanding the concept.

Many students with autism do very well in the primary classes due to rote memories, but as the studies become more abstract and require problem solving based on the earlier concepts, they start having problems. They may be able to memorise tables, do divisions, multiplications, etc. but not understand the concept of percentages and averages.

Impulsivity: Students with autism are often extraordinarily intense and persistent in seeking what they are interested in. This could be a favourite item, topic or a self-stimulatory

behaviour. The impulsivity can be very intense and involuntary. Teachers may have difficulty in controlling these impulses.

Excessive anxiety: Due to differences in thinking, students with autism may not be able to understand expectations from others and vice versa. As a result, the environment becomes unpredictable leading to extreme anxiety. This increases at times when there are sudden changes in their routines.

Generalisation problems: Students with autism may learn a skill in one situation but have difficulty using these skills in different situations. For example, a child learnt to brush teeth using a green brush but could not perform the same with a different brush. Similar situations are encountered by teachers and parents. Many situations, like answering on a sheet versus notebook, colouring with a pencil versus crayon, etc., could be difficult to handle.

Concrete versus abstract thinking: Individuals with autism, regardless of their cognitive levels, have difficulty in understanding symbolic and abstract concepts. For example, a high functioning 15-year-old student was asked to explain "Do not cry over spilt milk". He said it means that one should not shed tears when he spills milk; instead, he must take a rag and clean it up so that he can get fresh milk and drink it in a clean place. Another young boy with autism says that he is so good with computers because as a computer programmer, he has to follow the black and white rules of computer operations and there are no confusions anywhere.

Sensory difficulties come in the way of learning: As mentioned earlier, the unusual sensory perceptual experiences of children with autism can lead to focusing on irrelevant things, distractibility, unusual mannerisms and inattention.

ACTIVITY

Using children's strengths to reduce difficulties in learning

1. Divide teachers into groups of three.
2. One teacher will note down the interaction in 10-20 words.
3. The second teacher has to give instruction to the third teacher in a language that she cannot understand (make up a meaningless utterance).
4. Ask the second teacher to use some aids.
5. Ultimately all aids will be visual: object, sign or picture.

The activity stresses that difficulty or limitation in auditory learning can be compensated by visual supports.

THINGS TO REMEMBER

- Learning happens when children's strengths are used
- Strengths are very good visual and rote memories, which can be enhanced with visual learning
- Challenges with learning styles: learning is specific to general associations and transfer of skills is difficult
- Uneven skills: may be good with one concept versus others

Note: Not all children may have such skills.

ACTIVITY

Understandingl earning challenges and implications on classroom outcome

1. Divide teachers into groups of five or six.
2. Ask each group to read the following case study.

CASE STUDY

Saima is eight and has been coming to school for four years. From the age of two, she started reading and now reads fluently. When she joined school, her teacher found that she often did not understand what she was reading. When in grades one and two, she was very good at answering questions on the small passages that they read in the classroom. After four years, now that the questions are not so direct, her answers are often incomplete or not connected to the question asked. She may pick up an irrelevant chunk from the lesson and write that as an answer. When the teacher asks her to briefly tell the class about a passage that they have read, she repeats the entire passage word for word.

In addition, the teacher feels Saima does not pay attention when she is being spoken to. When the teacher is speaking to her, Saima looks away from the teacher. Even when the teacher tells her to 'pay attention' to what she is saying, Saima continues to look in another direction or looks out of the corner of her eyes.

3. Ask them to reflect on Saima's difficulties based on what they have understood about autism.
4. Each group should list their understanding of the difficulties on a slip of paper.
5. Make columns on the board. Think of each column as representing different aspects of challenges that students face, e.g. communication, social, sensory, abstract understanding, organisational issues, motor issues, etc.
6. One person from each group reads out their group's list. As an item is read out, put it into a column. Use a different coloured chalk/marker for each column.
7. As columns fill up, ask teachers what area of challenge they think the column represents.
8. Discuss overlaps and misses.
9. Ask trainees if they know any children who face similar situations.

DISCUSSION QUESTIONS

- Why does Saima write an answer that is irrelevant to the question?
- Why does she repeat the passage instead of giving a gist?
- She was good at answering passages earlier but not now. Is it due to lack of application?
- When Saima looks away, is she being rude and disrespectful.

RELEVANT TERMS

Hyperlexia is characterised by an intense fascination with letters or numbers or, in younger people, an ability to read far beyond their age. People with hyperlexia may have difficulty understanding verbal language and interacting and socialising with others. (see http://www.autism.org.uk/about-autism/related-conditions/hyperlexia.aspx)

Pragmatic speech is the language used to communicate and socialize. People with pragmatic speech issues may say inappropriate or unrelated things during conversations; tell stories in a disorganized way; and have little variety in language use (see http://autism.about.com/od/autismterms/g/pragspeech.htm)

Sensory processing refers tothe way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses. Whether you are biting into a hamburger,riding a bicycle, or reading a book, your successful completion of the activity requires sensory processing or "sensory integration." (See: http://www.spdfoundation.net/about-sensory-processing-disorder/)

Language processing is the cognitive processing of spoken or written language. This ranges from the construction of spoken or written messages to the abstract meaning of language. The ability of those with ASD to acquire language is impacted by the way their brain processes language. Since you cannot change the way the brain of a person with autism processes language, you cannot change the way the person with autism learns and produces language (See: http://www.autismmind.com/Brain_Speech_srk/Language_First_cnk/)

ACTIVITY

Understanding learning difficulties due to behaviour challenges

The objective of this activity is to help teachers to identify sensory processing needs, student responses due to literal understanding, challenges in following group instructions, need for routines to provide predictability, difficulty dealing with unstructured time, challenges in communication, understanding others' perspectives and social rules:

1. Divide trainees into groups of five or six, different from the earlier groups.
2. Ask each group to read the following case study.

CASE STUDY

Tapan is a nine-year-old. He is in grade three at his school. When Tapan arrives at school, he goes and sits at his place in class. But after a while, he keeps getting out of his chair. He runs, jumps and flaps his hands; sometimes he also makes a noise. The teacher orders him to sit down. Tapan sits, and then stands up again. Sometimes the teacher gets exasperated and demands: "Why are you standing again?" Then Tapan starts biting his hand or hitting his head on the table.

The teacher asks all the children to take out their EVS book. Tapan does not take his book out. The teacher reprimands him for being disobedient and once again tells him to take his book out. All the children laugh. Then Tapan takes his book out.

Most days, the boy sitting next to Tapan pours water on his chair. The seat bottom of Tapan's pants gets wet and the other boys laugh. The teacher thinks that Tapan has relieved himself in his pants. She scolds him for being 'stupid' and relieving himself in his pants.

Sometimes Tapan hits the boy who sits next to him. The boy complains to the teacher, who then shouts at Tapan. One day when the teacher was standing next to his desk and shouting at him, Tapan hit the teacher. His parents were called in and warned about his violent behaviour.

During break, Tapan wants to stay in class. The teacher demands to know why he wants to stay in the class when all the children are on the playground. Tapan does not answer the teacher's question. The teacher orders him out on the playground. During the post-lunch classes, Tapan bangs his head on the table and sometimes tears up his and the other boys' notebooks.

When Tapan goes for art class, the art teacher has him sit with a different group of students. During art class, Tapan mostly stays in his chair.

3. Ask them to reflect on Tapan's difficulties based on what they have understood about autism and the earlier discussions.
4. Have each group list their understanding of the difficulties on a slip of paper.
5. Make columns on the board. Think of each column as representing different aspects of challenges that students face, e.g. communication, social, sensory, abstract understanding, organisational issues, motor issues, etc.
6. Have one person from each group read out their group's list. As an item is read out, put it into a column. Use a different coloured chalk/marker for each column.
7. As columns fill up, ask teachers what area of challenge they think the column represents.
8. Discuss overlaps and misses.
9. Ask trainees if they know any children who face similar situations.

DISCUSSION QUESTIONS

- Why do you think Tapan runs, jumps, flaps his hands?
- Why does Tapan bite his hand and bang his head when the teacher asks, "Why are you standing again?"
- Why did Tapan hit the teacher?
- Is Tapan a 'violent' child or a 'disobedient' child or is the environment the cause of his behaviour?
- Why do you think he bangs his head after recess?
- Why does Tapan not complain to the teacher about the boy who pours water on his chair?

ACTIVITY

Learning difficulties due to communication challenges

Objective: To help teachers identify when challenging situations are due to impulsivity, difficulties in self-regulation resulting in repeated mistakes, and in social communication (e.g. asking for help, initiating interaction in inappropriate ways and organising self).

1. Divide participants into groups of five or six, different from the earlier groups.
2. Ask each group to read the case study.

CASE STUDY

Azad enjoys number work. He is usually one of the first to finish his classwork. When the teacher asks a math question, Azad wants to answer. Even when the teacher asks another child a question, Azad gives the answer. The teacher has reprimanded him for this several times, but Azad continues to answer when a question is posed to others in the class. When a written class exercise is given, on some days he just sits without completing his work. If he does not understand a question, or a problem set by the teacher, he never asks for help. While other students sometimes raise their hands to ask for the teacher's help, or ask a friend, Azad just sits and leaves his work incomplete. Other students do not offer to help him either. Sometimes Azad starts singing till the teacher comes to him and reprimands him for singing. When the teacher tells him, "You can raise your hand and ask for help," Azad repeats, "Ask for help." But he still does not ask for help when he gets stuck. During class tests, he sometimes gets stuck and often ends up not answering the rest of the questions. So even when he knows a subject well, he often does poorly.

3. Ask them to reflect on Azad's behaviour based on what they have understood about autism and the earlier discussions.
4. Have each group list their understanding of the exhibited behaviour on a slip of paper.
5. Make columns on the board. Think of each column as representing different aspects of challenges that students face, e.g. communication, social, sensory, abstract understanding, organisational issues, motor issues, etc.)
6. Have one person from each group read out their list. As an item is read out, put it into a column. Use a different coloured chalk/marker for each column.
7. As columns fill up, ask teachers what area of challenge they think the column represents.
8. Discuss overlaps and discuss.
9. Ask trainees if they know any children who face similar situations.

DISCUSSION QUESTIONS

- Why does Azad answer even when the teacher tells him not to?
- Why does Azad start singing when he gets stuck?
- Why does Azad not ask other students for help?
- Even though the teacher tells him to ask for help, Azad does not ask for help and only repeats the teacher's instruction "Ask for help". Why?
- Why does he get stuck when answering questions during exams?

After participants have discussed these questions in small groups, ask them to reflect on the activities and discussion held in this session.

REFLECTION AND SUMMARY

- What understanding do they now have of the experience of the student with autism in the classroom?
- What do they think they can do to facilitate inclusion and learning?
- What practices have they used so far that they will not use any more, or rethink their uses?
- Is there anything they will now start doing that they have not done so far?

Unit III: CREATING an Enabling ENVIRONMENT

TABLE 5: OVERVIEW OF UNIT III

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
Unit III: Creating an Enabling Environment		
1. To develop an understanding of required visual, structural and social supports in the environment to address diverse learning needs 2. To change perceptions and attitudes towards providing supports – including teacher and peer supports – to enhance learning 3. To foster understanding of environments that support assistive and augmentative modes of communication 4. To understand how to provide positive behaviour supports to develop motivation and learning	Exercises, presentations, discussions and brain storming	To develop an understanding of essential changes required in teacher attitudes and the environment, in teacher behaviour and student behaviour, to support learning for students with autism. Teachers will be able to: • Describe how to use positive supports • Use situation-based assistive devices for learning, communication and socialisation • Support students using Alternative Augmentative Communication (AAC) • Describe and suggest ways to use students' strengths for learning and socialisation • Explain ways to use peer mediation • Describe ways to make their own communication more effective

The general principal to be followed for creating enabling environments should be to adapt the setting to the needs of the individual student with autism rather than making the child fit the setting.

1. SOCIAL INTERACTIONS: STRATEGIES FOR TEACHING

According to the Alberta Learning Resource on Teaching Children with Autism[4], given that children with autism develop social interest but do not possess the social skills necessary

4 Alberta Learning. *Teaching Students with Autism Spectrum Disorders.* Alberta, Canada. 2003.

to successfully initiate or maintain interactions, they need to be provided with a **framework for social interaction.** This framework will provide them with what we expect of them in a specific situation and can help them anticipate what comes next. By **teaching key social rules,** children will develop and understand the basic rules associated with a given social situation which will help the student to adapt to the social context, and may prevent increased anxiety and reduce the reliance on inappropriate coping behaviours.

Using story strips: Story strips can communicate a specific expected behaviour.

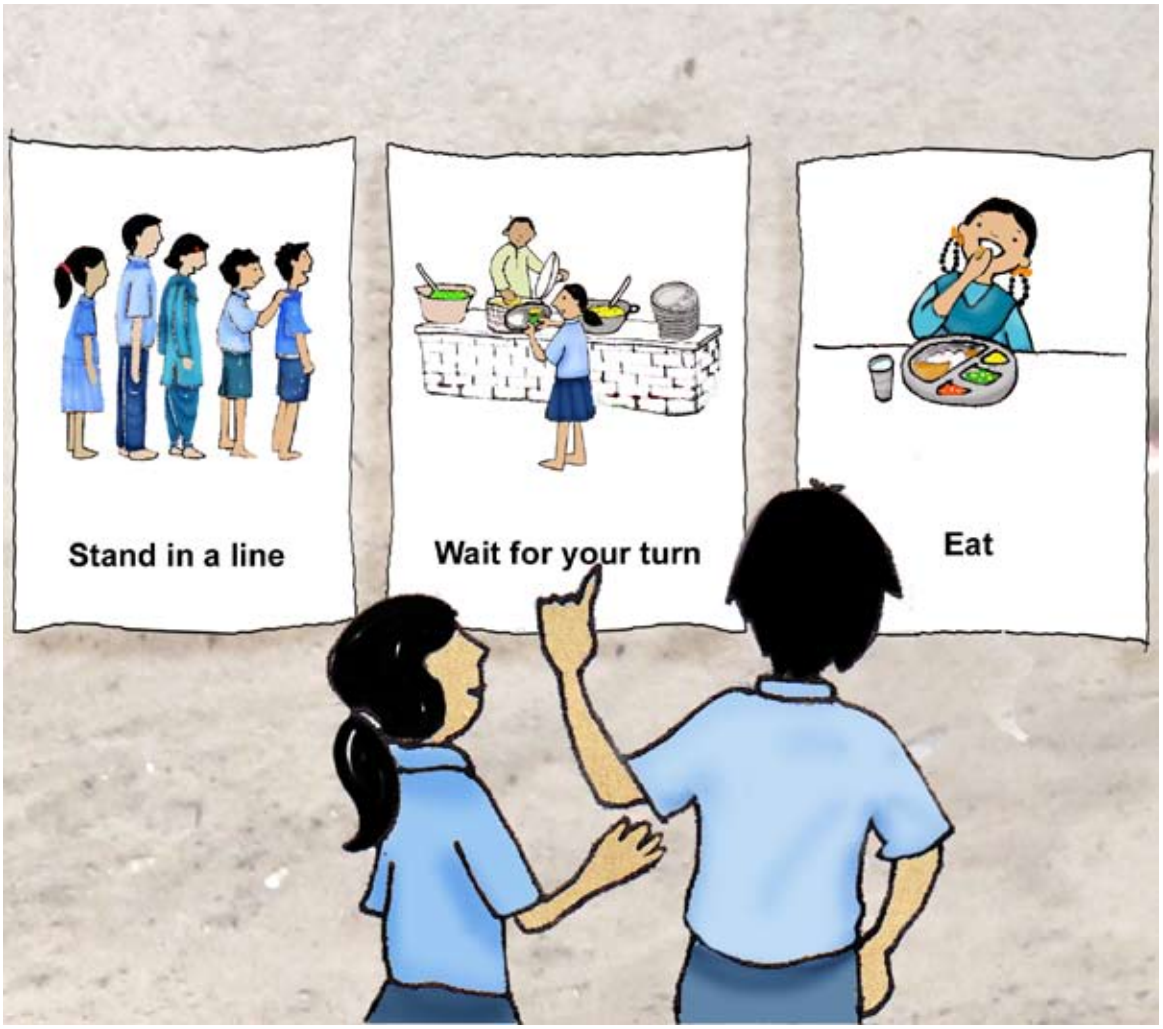
Example 1: Homework time: *"It is time to sit and work. Time to be quiet."*

Example 2: Eating a meal: *"Sit in the chair. Now it is time to eat. When you are finished, you can have a cookie!"* A reward after completing the expected behaviour can be very motivating.

Targeting specific skills: Students with autism also have difficulty learning social skills incidentally or by simple observation and participation. It is generally necessary to target specific skills for explicit instruction and provide support to encourage students to consistently use them.

The following social skills are generally considered to be critical to social success and should be taught directly and explicitly:

- Tolerating others in one's work and play space
- Imitating actions and vocalisations of others
- Engaging in parallel activities with others
- Sharing materials
- Using eye contact to initiate and maintain interactions
- **Waiting:** Visual cues such as objects, pictures, and written words can provide concrete information to make waiting less abstract and more specific to the situation



- **Taking turns within the context of a familiar activity:** This can be taught through the use of social stories as well as a picture or pictograph to cue the child. It may also be necessary to provide some instruction and rehearsal in turn-taking activities.
- **Transitions:** Using social stories and providing warnings with visual cues, such as symbols that are understood by the student, can help the student make the transition from one activity to another. Transitions can be particularly difficult if the student has not completed the activity; the student may need to be prepared for the possibility of having to finish later.
- **Finishing**: It may help to teach students to use environmental cues, such as observing and following the behaviour of other children. It may also be necessary to use a timer and a method for checking their own work.
- **Initiating:** Social stories combined with photographs or pictures can be particularly useful for teaching a student how to approach others, ask for something, get into a game, say hello, and leave a situation if upset.
- **Being flexible:** Visual systems can be used to explain changes in a concrete way. If sequenced schedules or picture routines are used, a specific picture or symbol can be removed or crossed out, and another put in its place.
- **Being quiet:** Visual supports and gestures may be helpful in teaching the specific behaviours for being quiet and teaching rules for specific situations.

2. SOCIAL INTERACTIONS: STRATEGIES TO FACILITATE COMMUNICATION

Communication goals should emphasise the functional use of language and communication in various settings. Instruction should emphasise:

- Paying attention
- Imitating
- Comprehension of common words and instructions
- Using language for social reasons and not just to have basic needs met
- Functional communication

Social stories: a useful strategy for teaching social skills

One of the most helpful methods for teaching social skills is the use of social stories, a strategy developed by Carol Gray. A social story is a description of a social situation that includes the social cues and appropriate responses, and is written for a specific situation for the individual student.

The story can be used for a variety of purposes, including:

- Facilitating the inclusion of students in regular education classes
- Introducing changes and new routines
- Explaining reasons for the behaviour of others
- Teaching situation-specific social skills
- Assisting in teaching new academic skills

Example: My Turn on the Computer:

- If I wait for my turn on the computer, the other kids like me better. (Perspective)
- Everyone likes to have a turn on the computer. (Descriptive)
- When other kids are using the computer, I will try to be quiet and wait. (Directive)
- When I am finished on the computer, other kids can use it. That is okay, because I know I can use it the next day. (Descriptive/Affirmative)
- When I wait for my turn on the computer, everyone will be happy. (Perspective)

The three basic approaches for implementing a social story are:

For a student who reads independently, the story is read twice by an adult, followed by the student reading it back. Then the student reads it daily.

For a student who does not read, the story may be recorded on a cassette tape or any other device with a signal (e.g., bell) to turn the pages. The student is taught to "read" the story, and reads it daily.

Similarly, for a student who does not read, symbols, drawings, or photographs can be included in the story to support meaning for the student.

Expanding the communication skills of students with ASD is one of the greatest challenges for teachers. The following are general suggestions for assisting with communication:

- Reduce your speech to **single words** or **two-word phrases** supported by pictures, photos, symbols or objects (e.g. 'tidy', 'story', 'snack', 'lunch now').
- Use a picture card system to provide the student with a means to communicate his/her needs and a way to interact with his/her surroundings. Some examples of cards which should be kept easily accessible are:

Gray, Carol. *The New Social Story Book: Illustrated Edition.* Arlington, TX: Future Horizons, Inc, 2000.

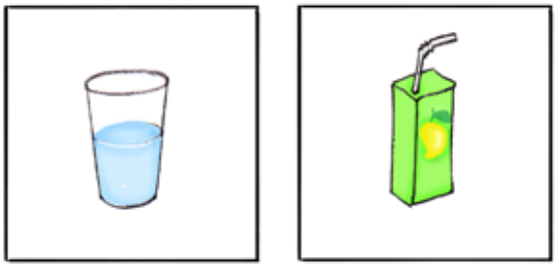
Basic: **yes, no, I don't know, stop** and **bathroom** cards

Emotions: **happy, sad, angry** cards

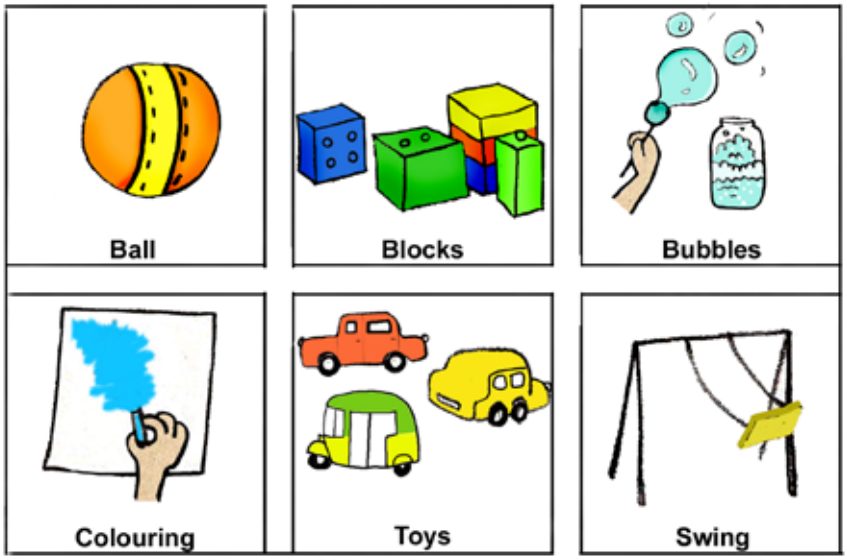
Health needs: **"I don't feel good", headache, earache** cards

- Use a pictorial feelings scale: Another useful tool is our feelings scale. Have someone point to the face that best explains how they feel. Useful when determining if a person is sick or hurt.
- Encourage use of cards to make requests: Make the picture cards available to a person learning to communicate (see example of card book below). Teach him to bring you a picture to express one of his needs. Any attempt to communicate which is initiated by the person learning this skill must be enthusiastically received. If someone holds up a picture card with a pizza on it and a caretaker drives him out to pick up pizza, that connection and reward for communicating is very powerful.

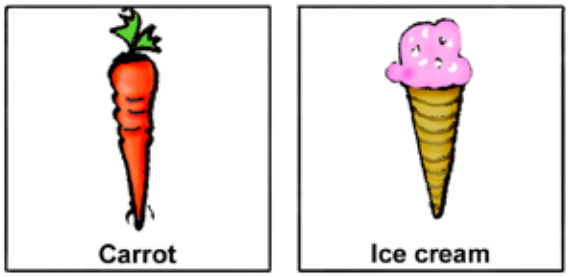
- Display pictures of food and drink. These can be made of cardboard "choice board" with picture cards attached. When you know someone wants a drink, hand him the corresponding card (cup, juice box - *be consistent*). Have him look at the picture. Say "drink." Have him give you the drink card. Reinforce this repetitively several times before giving him the drink. It is easiest to teach these skills when someone is highly motivated, and that often involves food!



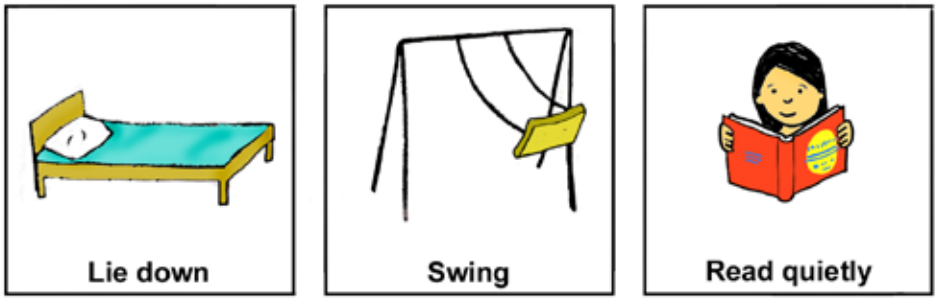
- Display pictures of activities in a play area. These can be displayed on a board, a strip or even in a notebook. Using the above explanation, help the person build his own activity schedule.



- *Making Choices:* To teach choice making, start by offering two items simultaneously to someone with a clear preference for one over the other. Offer something like ice cream together with something the individual clearly doesn't like, such as carrots. Again, do this repetitively. Say: "You choose."



Once the concept of choosing is understood, you can begin to offer more subtle choices. Choice boards for learning coping skills can be very helpful.



Other ideas for choosing: Choices for mealtime or snack; choices to redirect behaviour

Be creative! The list of possibilities is endless.

Other approaches to facilitate communications:

- Map single words onto the most meaningful aspect of the activity or situation. (You can use a longer sentence but increase the volume or emphasis on key words.)
- Use long pauses (count five to ten seconds) to allow students to process and respond to instructions.
- Use gestures such as pointing, rather than speech, to show the student what to attend to or what to do.
- Create opportunities for the student to initiate contact with staff and their peers.
- Create opportunities for the student to communicate during work activities (e.g. offer a choice which the student has to indicate).
- Focus on developing interaction and communication in the environments in which students participate.
- Model speech by speaking in full sentences.
- Use vocabulary appropriate to students' comprehension levels. For students with severe communication disabilities, choose familiar, specific, concrete words and repeat as necessary.

- Use language that is clear, simple and concise. Figures of speech and irony may confuse students with communication difficulties.
- Give students ample time to process information. It may be necessary to speak slowly or pause between words.
- **Teach listening:** Students with ASD often need structured lessons on how to listen. Break listening down into components and reinforce each component. For example, teach students to face the speaker, keep their eyes on the speaker (which does not necessarily mean they must make eye contact) and place their hands in a planned position. Praise or otherwise reward each step.
- **Develop oral language comprehension:** Accompanying spoken language with relevant objects, pictures, photographs and other visual supports can help students comprehend meaning. Many students with ASDs use reading to support oral comprehension rather than the reverse. This makes reading skills even more critical for these students.
- One effective way to facilitate functional communication is to provide controlled choices. Visual supports can be particularly useful for communicating a range of available choices.

ACTIVITY

Understanding challenges in communications

Objectives: To help teachers identify challenges in communication and ways to address them appropriately and to make teachers aware of Alternative and Augmentative Communication (AAC) modes.

Instructions:

1. Stand in the middle of the passage formed by the chairs in the room with a table at the end, so that there is no space for a person to pass without pushing you.
2. Ask for a volunteer. Tell the volunteer: "You cannot speak. You cannot use gestures. You have 30 seconds to go pass me and place the pen on the table." (Ensure there is no other path to get to the table).
3. Stay still and firm in your position. When the volunteer, not finding any other way to get to the table, starts pushing past you, rebuke her sharply for her misbehaviour e.g. "What is this? Why are you pushing? Don't you have any sense? You are behaving like a wild child!"
4. When the volunteer stops, confused and unsure, relax your position and ask, "How are you feeling?" The volunteer will say any of these: "confused, embarrassed, upset, angry, strange."

DISCUSSION QUESTIONS

- Why did you shout at the volunteer?
- How might it feel for someone who is not able to communicate using speech or gestures?
- This was just an 'exercise' for the volunteer and though the volunteer felt upset and confused, this was merely a short-lived exercise. But for individuals who cannot communicate in typical ways (i.e. using speech or gestures), this is the reality of their lives and a lifelong experience.
- What else could the volunteer have done other than pushing?

REFLECTION AND SUMMARY

- What are the different ways one can communicate?
- What are examples of alternative and augmentative modes of communication? Low tech and high tech?
- Critical importance of alternative and augmentative communication for many learners
- Need for consistency across environments

For a more detailed discussion on alternative and augmentative communication, see section on "Use of Assistive Devices, ICT and Other Resource Support to Meet the Specific Needs of CWSN" in Module 1 Inclusive Education.

3. IMPLICATIONS FOR INSTRUCTION FOR RESTRICTED REPERTOIRE OF INTERESTS, BEHAVIOURS AND ACTIVITIES

In planning instruction, teachers need to consider the 'problematic behaviour' and try to understand what function it serves for that particular student. Rather than attempting to control or eliminate all 'problematic behaviours', successful teaching strategies often focus on making environmental adaptations to decrease inappropriate behaviours, and/or helping students learn more appropriate behaviours that will serve the same function. Many of the odd, stereotypical behaviours associated with ASD may be caused by other factors, such as hypersensitivity or hyposensitivity to sensory stimulation, difficulties understanding social situations, difficulties with changes in routine and anxiety.

The instructional plan needs to incorporate strategies for:

- Expanding students' interests
- Developing skills across a variety of functional areas
- Helping students monitor their level of arousal or anxiety
- Preparing students for planned changes
- Facilitating ways to calm down and reduce anxiety

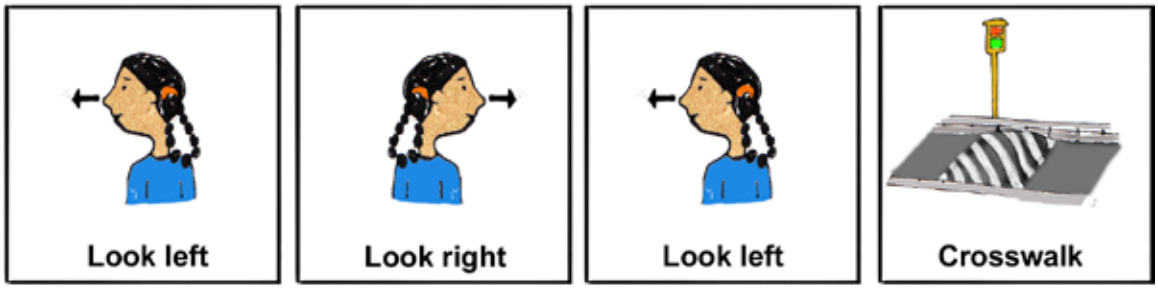
Story strips can be a helpful way to stop inappropriate behaviour.

Story strips can be used to teach many safety skills such as do not climb, do not touch the iron, or how to cross the street safely.

"Do not climb the bookshelf"

"Do not run near the pool"

"When you hear the fire alarm, exit the school"



"Look left-right-left before crossing the street".

3.1 Solving a Behaviour Issue

An important step in addressing a behaviour issue is to better understand the nature of the behaviour. Asking the following questions may help:

- What are the underlying difficulties that might cause this problem?
- In what situations, or at what times, does this behaviour occur?
- How often does this behaviour occur?
- What does this behaviour mean from the child's perspective?

- How does the pupil's behaviour differ from that of other children of the same age?
- Is this a behaviour that is important to change?
- What might be confusing to the student about this situation?
- What new skill could the child learn to better handle this situation?

Suggested approach to addressing a behavioural issue:

Step 1: Identify the problem behaviour and the possible communication intent

- What usually happens before the behaviour occurs?
- How does it inhibit the child with his learning?
- What are the consequences?
- When and where does the behaviour occur?
- What else is happening?
- Who else is there?
- What are the cues that tell you the underlying reasons for the behaviour?

Describe the frequency, intensity and duration of the behaviour incident; this will help you analyse the characteristics of the behaviour and indicate possible solutions.

Step 2: Develop teaching strategies to address the behaviour and ease communication

- What skills can you teach to eliminate the need for this behaviour? How can the environment be altered so that the child better understands the situation?
- Talk to the child and his/her parents about his/her behaviour.
- Analyse the information you have gathered (if serious, consult a psychologist).
- Observe the child and identify an alternative and more appropriate behaviour.
- Give reward.
- Provide interesting activities to engage the child.

Step 3: Adapt the classroom to support the child's understanding and sense of security

- Change distracting stimuli.
- Provide a place for the child to take a break.
- Offer choices.
- Plan predictable routines.
- Introduce calming moments into the class routine.
- Help the child to manage his/her behaviour by using social stories and shape behaviour toward appropriate outcome.
- Plan a crisis strategy when things get out of hand and know the triggers which can upset. Never confront the child; offer "time out" space.

Use strategies and structures to make a situation more visually clear:

- Use schedules, timetables or calendars that help to show when something will happen.
- Use accessible pictorial or written rules to remind a child what he/she should do.
- Physically arrange the classroom to show where something should happen.
- Provide a checklist using objects of reference, photographs or a written list to help the pupil follow directions independently.

Step 4: Replace inappropriate with appropriate behaviours:

- Teach the child to communicate; in difficult situations, for example, the child needs to be able to ask for help, to take a break, to express emotions such as fear or anger.
- Teach social skills, which will help the child initiate, sustain or escape anxious social situations, such as going to a quiet place, completing a calming activity or using relaxation techniques.
- Teach specific play and leisure skills which might occupy his interest.
- Develop behaviour targets which shape the child's behaviour toward more appropriate behaviour.

For more on strategies to encourage positive behaviour, see Module 1: Inclusive Education (Unit III)", section 6 on understanding behaviour management. Note: teachers should refer to learnings from Module 1 when going through this section.

ACTIVITY

Accommodations for students with autism

Objective: To enable teachers to describe situations where accommodations are required, despite the invisibility of the condition. Teachers will be able to explain why positive behaviour supports will have long term impact versus use of punishment. Teachers will be able to describe the use of schedules, visuals and social stories.

Instructions:

1. Divide participants into new groups of five or six.
2. Ask each group to reread the case study about Tapan (used in a previous activity on page 34) to revisit how the environment is experienced by him.

CASE STUDY

Tapan is a nine-year-old. He is in grade three at his school. When Tapan arrives at school, he goes and sits at his place in class. But after a while, he keeps getting out of his chair. He runs, jumps and flaps his hands; sometimes he also makes a noise. The teacher orders him to sit down. Tapan sits, and then stands up again. Sometimes the teacher gets exasperated and demands: "Why are you standing again?" Then Tapan starts biting his hand or hitting his head on the table.

The teacher asks all the children to take out their EVS book. Tapan does not take his book out. The teacher reprimands him for being disobedient and once again tells him to take his book out. All the children laugh. Then Tapan takes his book out.

Most days, the boy sitting next to Tapan pours water on his chair. The seat bottom of Tapan's pants gets wet and the other boys laugh. The teacher thinks that Tapan has relieved himself in his pants. She scolds him for being 'stupid' and relieving himself in his pants.

Sometimes Tapan hits the boy who sits next to him. The boy complains to the teacher, who then shouts at Tapan. One day when the teacher was standing next to his desk and shouting at him, Tapan hit the teacher. His parents were called in and warned about his violent behaviour.

During break, Tapan wants to stay in class. The teacher demands to know why he wants to stay in the class when all the children are on the playground. Tapan does not answer the teacher's question. The teacher orders him out on the playground. During the post-lunch classes, Tapan bangs his head on the table and sometimes tears up his and the other boys' notebooks.

When Tapan goes for art class, the art teacher has him sit with a different group of students. During art class, Tapan mostly stays in his chair.

3. Ask them to list specific steps for making accommodations for Tapan in the classroom.
4. Make columns on the board. Think of each column as representing different aspects of supports/interventions that can be provided to ensure effective inclusion, e.g. communication supports, physical changes, visual schedules, visual cues, other assistive devices, sensory support, teacher tone of voice, quality of language used by teacher, and peer mediation.
5. Have one person from each group read out the group's suggestions. As a suggestion is read out, put them into a column or columns. Use a different coloured chalk/marker for items in each column.
6. As columns fill up, ask the teachers what kinds of support they think each column represents.

DISCUSSION QUESTIONS

- What can be done to help Tapan stay in his chair? How can a teacher's communication/language/ behaviour help Tapan remain sitting?
- What approaches can enable Tapan to take out his books during relevant class times?
- Is Tapan really 'violent' or is hitting an effort to communicate?
- What role can other students play in supporting Tapan and vice versa?
- What can the teacher do to support peer mediation?
- Does Tapan need any communication support? What kinds?

7. Discuss overlaps and misses.
8. Discuss every kind of support that might be provided.
9. Ask teachers if they know any children whose learning can be enhanced using similar strategies.

REFLECTION AND SUMMARY

- Why make accommodations?
- What kinds of accommodations could be provided (beyond Braille, ramps, writers, etc.)?
- Is punishment an effective manner of addressing unusual behaviours? Or can positive supports be more effective?

ACTIVITY

Implementing positive behaviour support strategies

Outcome: Teachers will be able to describe positive behaviour supports, structure, schedules and visuals that can be used to encourage student compliance. Teachers will be able to describe situations that lead to anxiety. Teachers will be able to describe how to support and optimise peer mediation, and be able to explore their own assumptions and beliefs.

Instructions:

1. Ask trainees to get into fresh groups of five or six.
2. Ask each group to review the following case study based on their understanding of how the environment is experienced by Lalit.

CASE STUDY

Lalit has moved from grade three to grade four. He is a quiet child who keeps to himself. He scores average in his class work. He takes a long time to write, his writing is faint, and on many occasions he is not able to complete his class work. He also has trouble taking down lessons that are written on the board. He is punished for being lazy and slow. Lalit is often excluded from participating in activities such as competitions. His teacher believes he would not be able to keep up and so there is no point in including him. He is usually asked to stay home on such days.

Lalit's favourite sessions at school are when he is in the computer lab. He has been proficient at the computer from age three when his mother introduced him to educational games on the computer. He emails and surfs the internet independently. Lalit also has a phenomenal memory for facts. For instance, he knows every country in the world, their capitals and current heads of state.

3. Ask each group to suggest at least three steps for making accommodations for Lalit.
4. Make columns on the board. Think of each column as representing different aspects of supports/interventions that can be provided to ensure effective inclusion, e.g. communication supports, physical changes, visual schedules, visual cues, other assistive devices, sensory support, teacher tone of voice, quality of language used by teacher, peer mediation, etc.
5. Have one person from each group read out the group's suggestions. As a suggestion is read out, put them into a column or columns. Use a different coloured chalk/marker for items in each column.
6. As columns fill up, ask the teachers what kinds of support they think each column represents.
7. Discuss overlaps and misses.

DISCUSSION QUESTIONS

- What purpose does the written class work serve?
- What accommodations can ensure that Lalit participates in writing his lessons along with other students?
- How can Lalit's strengths be used for effective inclusion?
- What role can other students play in supporting Lalit and vice versa?
- What can the teacher do to support peer mediation?

8. Discuss every kind of support that might be provided.
9. Ask teachers if they know any children whose learning can be enhanced using similar strategies.

REFLECTION AND SUMMARY

- What are the different ways we can make accommodations?
- Does punishing a child make him overcome his difficulties?
- Do we notice strengths in our students?
- Do we make assumptions about abilities?
- Do we make assumptions about difficulties, such as motor difficulties?
- When a child looks 'typical,' do we face more difficulties in acknowledging differences? Does it challenge our perceptions of learning and diversity?
- What role can a student's strengths play in peer mediation?

REFLECTION AND SUMMARY OF SESSION ON SUPPORTING CHILDREN WITH AUTISM

- What understanding do they now have of ways to support communication in the classroom?
- How can they assist learning through use of physical structure, schedules, visuals and other assistive devices?
- What practices have they used so far that they will not use any more or rethink their uses?
- Is there anything they will now start doing that they have not done so far?

4. STRATEGIES FOR ADDRESSING SENSORY ISSUES

- Conduct a sensory survey of the school environment to identify sensory challenges the child may face (see Annexure 1).
- Put signage in different formats for the child to navigate his environment.
- Be calm while talking to children and give children with autism time to process and respond to instructions.
- Provide sensitisation training and information about autism to staff and peers.
- When faced with challenging behaviours, try to include the impact of environmental factors on the child.

4.1 Implement a Sensory Diet

Students with ASDs often have a difficult time managing their anxiety and modulating their levels of arousal. When they are anxious or hyper-aroused, they often have difficulty attending to instruction and completing structured tasks. This may result in challenging behaviours. Alternatively, when students are hypo-aroused, they often have difficulty initiating activities and remaining alert. A sensory diet generally consists of alerting or energising activities and relaxing or calming strategies that are incorporated into the day to meet students' sensory needs.

Alerting activities include:

- Participating in gross motor activities, e.g. jumping, running
- Participating in sensory activities, e.g. sucking on ice
- Being exposed to fresh air
- Playing with cold water
- Playing with toys with bright lights
- Listening to relatively loud music

Relaxing strategies include:

- Listening to music with headphones
- Moving to a quiet environment
- Sucking, e.g. drinking from a juice box
- Playing with favourite objects
- Breathing deeply
- Tensing and relaxing muscles
- Sitting quietly and looking out the window
- Engaging in a repetitive behaviour
- Reviewing a calming story or script

It is important to note that what is calming for one student may increase anxiety for another. Students can be taught to communicate that they need a break before inappropriate behaviour escalates.

4.2 Encourage Appropriate Sensation Seeking

Some students with ASDs crave specific forms of sensory input and seek out those sensory experiences in inappropriate ways. For instance, a student who enjoys tactile stimulation may rub saliva on his or her hands to gain desired input.

Generally, the most effective way to deal with inappropriate behaviours is to provide students with more appropriate ways to satisfy their sensory cravings.

INAPPROPRIATE SENSATION SEEKING	MORE APPROPRIATE ALTERNATIVE
Playing with saliva	Rubbing lotion on hands
Aimless running, spinning	Playing tag or running races
Smelling hair or feet	Using a pencil or eraser with a fragrance
Placing inedible objects in mouth	Sucking on hard candies or toffees

4.3 Note Frustration

Examine the school day for activities and situations that may result in sensory overload or frustration. Provide sensory experiences that are calming to accompany potentially frustrating

tasks. Whenever possible, adapt tasks and materials to promote successful participation. When feasible, decrease environmental distractions and eliminate activities that confuse, disorient or upset students and interfere with learning.

4.4 Provide Relaxation

It may be necessary to prepare a calm, quiet area where students can go to relax. Relaxing may mean engaging in repetitive behaviours that have a calming effect on students with ASDs. In some cases, students who crave certain repetitive movements, such as rocking or other self-stimulating behaviours, can be provided opportunities where this movement is permitted. These activities should be monitored in an unobtrusive manner to ensure safety.

5. STRATEGIES TO ADDRESS THE LACK OF CENTRAL COHERENCE

Difficulties with attention may significantly interfere with students' abilities to develop effective social behaviour and language.

Information and instructional activities presented to students should be provided in a format that:

- Is clear and concise
- Is consistent with student's comprehension levels
- Focuses their attention
- Emphasises the most relevant information

Individualised strategies for focusing student's attention can be developed as part of instructional plans. Ideally, instructional plans will include helping students eventually manage these strategies themselves.

Unit IV: CURRICULAR TRANSACTIONS and PEDAGOGIC STRATEGIES

TABLE 6: OVERVIEW OF UNIT IV

OBJECTIVES	METHODOLOGY	EXPECTED OUTCOMES
Unit IV: Curricular Transaction and Pedagogic Strategies		
1. To gain practical knowledge of modifying teaching – learning process for effective teaching of students with autism 2. To develop educational plans to optimise the learning of the students with autism 3. To gain experience and training in preparing teaching- learning materials related to the contents of the educational plan	Brainstorming, presentations and demonstrations with samples	At the end of the unit, the teachers will be able to: • Assess the current level of performance • Understand curriculum adaptation and accommodations and ways to develop it • Learn teaching strategies for children with autism in an inclusive environment • Understand the importance of evaluation and ways to evaluate the learnings achievements of children with autism

This unit builds on Unit IV of ***Module 1: Inclusive Education***. The unit's main objective is to help teachers develop and apply strategies that are in tune with the learning characteristics of a child with autism. It also combines strategies that are aligned with universal methods of learning, and can be extended to all students. Therefore, the transactions are very inclusive. The resources and materials mentioned are safe, simple, and cost-effective and can be used by all students in the class.

As noted in earlier sections of this module, children with autism may differ from their peers in a variety of ways. Some will outperform their peers in particular areas. Many have stronger rote abilities and can do spatial, matching and perceptual tasks with greater ease than their peers. Many, for example, excel at mathematics and science. The task for the teacher is to recognise that the child with autism will have a mixed profile of strengths and weaknesses. Best practice is for the teacher to focus on the child's strengths, while attending to the learning weaknesses and aiming to assist the child to manage or generalise the strategies for himself/herself.

THE *"AUTISM-AWARE"* TEACHER WILL

- Develop an interest in and an understanding of autism
- Collate information profiling the child's autism and its implications for teaching
- Plan strategies for teaching, focusing on the child's communication, social and behavioural needs and providing access to the curriculum of the classroom
- Involve the parents

1. ASSESSMENT OF THE CURRENT LEVEL OF PERFORMANCE

An assessment for a student with autism is similar in terms of the areas to be assessed as with any other student. The important aspect to understand is that more emphasis has to be given to learning style, language, communication and behaviour. It may be useful to conduct a basic functional assessment.

See Module 1: Inclusive Education (Unit II) for more information on conducting academic or subject related assessments.

Keeping the learning styles of students with autism in mind, four basic skill areas need to be assessed. These are: reading, writing, math, and basic language. This type of basic assessment should provide a baseline that will help determine learning goals, and help modify and prepare content for teaching accordingly.

1.1 Assessment of Reading Skills

Often sensory issues and associated learning difficulties may be causing reading difficulties. However, many students with autism may have very good reading skills. This informal guideline can be used to assess reading:

Does the student:

- Turn the pages of a book, one at a time?
- Look at the pages left to right and top to bottom?
- Identify common logos (e.g. Colgate, Nirma, Parle G, Pepsi, etc.)?
- Identify letters of the Hindi alphabet in upper and lower case and the varanamala?
- Associate sound to letters of the English alphabet, especially the lower case?
- Blend phonemes to read unfamiliar CVC (consonant-vowel-consonant) words?
- Uses phonic knowledge (e.g. initial letters) to attempt longer, unfamiliar words?
- Reads simple sentences independently?
- Reads sentences and answers what, where, who, how and why questions?
- Uses pictures to read a simple story silently and states its main idea?

1.2 Assessment of Writing and Issues Related With It

An assessment of basic handwriting should include observations of execution, legibility, and speed of writing.

Execution includes correct and consistent pencil hold, posture, and letter formation. The tripod grip over the pencil, sustaining the grip along with movement and maintaining certain stamina of writing have to be assessed. The directionality to form the letters is also important. For instance, young children may "draw" a letter such as "M" using separate strokes, starting on the right side of the letter. Forming the letter beginning on the left side, without lifting the pencil from the paper, is much more conducive to building eventual speed of writing.

Legibility involves the readability of letters, as well as spacing within and between words.

Speed is important as children advance beyond the first few grades so that they can use writing efficiently in a variety of tasks.

If children have learned both manuscript and cursive, as is often the case with older youngsters, then assessment should consider the ***execution, legibility,*** and ***speed*** of both forms of writing.

Expressive writing depends a lot on the language skills of the student. Narrations, descriptions and essay writing involve two skills: expressive language and formatting of the written content.

Students with autism may have difficulties formatting an answer, essayor narration due to organising difficulties mentioned earlier. The assessment should cover the student's understanding of concepts of:

- Introduction
- Main body of the content
- Summarising

1.3 Assessment of Math

The basic math assessment refers to the numeral sense of the student in the primary classes, including:

- **Pre-math concepts:** Big and small, full and empty, more and less, long and short, far and near, fat and thin
- **Number identification:** Recognition of numerals by the numeral names
- Ordering and sequencing of numbers: missing number, what comes after, what comes before
- **Quantity discrimination:** Greater and less, seriating numbers in ascending and descending orders
- **Number concept (value):** Counting, answering how many?
- Place value
- Basic operations (written as well as mental math)
- Additions with/without carrying over
- Subtractions with/without borrowing
- Statement sums
- Similarly assess with multiplication and division
- **Time:** Names of the days of the week and the months

1.4 Assessment of Basic Language Skills

Two basic types of language skills should be assessed: receptive and expressive.

Receptive language: Includes understanding instructions, reading with comprehension, and understanding tonal variations in speech of the teacher and peers.

Expressive language: Includes using speech, sign, or writing to express self—needs, feelings, and sharing. It also includes narratives, use of abstract language, topical and general conversational skills and answering what, where and when questions within simple, as well as inferential contexts (why, how, what do you think?).

Other aspects of a basic language skills assessment are grammar, meaning and practical use of language such as syntax, semantics and pragmatics.

ACTIVITY

Planning for the student's education: determining early learning goals for children with ASD

Instructions:

1. Divide teachers into groups of five or six.
2. Give each group a copy of the case study about Rashmi.

CASE STUDY

Rashmi is a six-year-old girl with ASD. She is in class one. She recites A to Z and 1 to 10 by rote through nursery rhymes.

She wets herself in class and cries when she wants water.

Rashmi likes to play with beads. She sits for only five minutes at a time and then wants to walk around the classroom.

3. Ask the teachers to read the case study and then enumerate one topics in math or in language that needs to be introduced to Grade 1, in the next 1-2 weeks.
4. Ask them to identify possible areas of assessment of Rashmi's that they would undertake, based on the topic identified to develop appropriate educational goals for her.
5. Remind the groups to keep certain areas in mind while developing an educational assessment e.g. observing their behaviour, attention span, sitting behaviour and response to simple instructions e.g. open your books, make a line, etc.
6. After 10 minutes, ask any one of the representatives of each group to present to everyone.
7. Have a discussion on the assessment suggested by the participants and share the guidelines given below.

ASSESSMENT GUIDELINES

Pre-math concepts: big and small, full and empty, long and short, fat and thin, basic shapes

Numbers: Students with autism may have exceptional rote memory in remembering numbers till 100 (maybe even beyond), days of the week and months, but may not know that the Figure 1 stands for the word one, 2 for two (relation between numeral shapes and names).

Other concepts: colour identification by colour names, basic prepositions like up and down/ in and out

Identification of common items, animals, fruits, vehicles and actions

Reading: Visual matching of identical objects, pictures, patterns, alphabet, numbers and familiar logos (e.g. wrappers of items like Lays, Parle G biscuit, Hamaam soap, Colgate, etc.)

Attention and response to instructions: Many students with autism may be hyperactive and need movement breaks. Sitting at one place for long periods will need to be learnt slowly over time. Therefore, assessment of sitting duration is also important.

ACTIVITY

Planning for the student's education (primary level)

Instructions:

1. Divide the teachers into groups of four or five.
2. Give each group a copy of the case study about Piyush.

CASE STUDY

Piyush is an ten-year-old boy in Grade 2. He likes to collect wrappers of soap, chips, toffees, etc.

He can write numbers up to 100, counts on pictures and circles the correct number but is unable to do what comes after or before a number. Piyush enjoys colouring and writing. He can spell three letter words like cat, pan and fat.

3. Ask the teachers to read the case study and then enumerate one topic in maths/language/environmental science that needs to be introduced to Grade 2, in the next 1-2 weeks.
4. Ask them to identify possible areas of assessment of Piyush that they would undertake, based on the topic identified.
5. Ask the groups to present the assessment areas that they have identified and discuss the same.
6. Provide the subject-specific assessment guidelines given below.

ASSESSMENT GUIDELINES

Math: Many students may be able to identify numbers, add and subtract in their mind, and learn multiplication tables, but they may not understand the concepts of addition and other operations. Therefore, they will not be able to apply these in real life. He following should be assessed:

- Ordering and sequencing of numbers
- Quantity discrimination
- Number concept (value): counting, answering how many?
- Concept of operations like addition, subtraction, multiplication and division
- Statement sums
- Calendar: day and night, days of week, months

Language (reading and writing):

Reading with comprehension: This is necessary to work on. Language eventually is the basis of all academic subjects and as students with autism have a language difficulty, it is important to work on this area.

Discussion on Assessment:

Does the child read single words, two word phrases, and sentences?

Can the student match pictures to words, sentences to a word (example: something that tells us dates and days - calendar), answer simple what, when where, who and why questions?

Can the student make sentences, write sentences, narrate short story in a logical manner?

Environmental studies: The teacher will assess the awareness of the child in relation to the environment:

- Names of animals, fruits, vegetables, transport, family, and community helpers
- Assess the non-verbal child by asking him/her to point to or touch flash cards and on picture charts when the name of, say, an animal is said. (Identify receptively)
- Also, assess the mode of response that will be best for the student: drawing, pasting pictures, writing single words, short answers, etc.

ACTIVITY

Planning for the student's educational assessment to determine goals for the child with ASD (above primary level)

1. Divide the teachers into groups of 4-5.
2. Give each group a copy of the case study about Tony.

CASE STUDY

Tony is a twelve-year-old boy with autism and is in sixth class.

His teachers have noticed that his performance is not improving. He answers what, where and when questions well but has problems with how and why questions.

He answers simple questions in two to three lines but never completes longer answers.

He can add, subtract, multiply and divide but he cannot do sums with statements.

3. Ask the teachers to read the case study and then select one topic in mathematics or language that needs to be taught over the next 1-2 weeks.
4. Ask them to identify the related assessment that they would undertake for Tony and goals appropriate for him.
5. Request each group to present their assessment and goals suggested for Tony to the larger group and discuss the same.
6. Provide the guidelines of assessment given below.

ASSESSMENT GUIDELINES

Practical math, science and social studies for many of students are difficult because these are abstract. Many students learn a number of facts by rote, but cannot relate them to real life. For example, in the NCERT Grade 6 textbook in the unit *Knowing our Numbers (Standard Sixth),* some students may do very well with mental calculations involving basic operations like addition and subtraction, but cannot do simple word problems such as:

Salma has two hundred ten marbles. She got twenty-six more from her brother. She gave thirteen marbles to Kiran and eight marbles to Anu. How many marbles does she have now?

Considerations in assessment that will help in deciding modification of the curriculum:

- Performance in objective type questions
- Performance in writing short answers
- Performance in long answers
- Understanding of abstract concepts in all subjects.
- Narrations, descriptions and essay writing involve multiple skills. These require motor, expressive language abilities, organisational skills (e.g. time management and formatting the subject matter). All these areas might need to be assessed.

2. INSTRUCTIONAL SUPPORTS

Curriculum transactions include content, method of delivery of the content, and evaluation of children. Teaching students with autism may require adjusting the adjusting the level and length of the content to be taught, as well the modes of evaluation. The curriculum needs to be modified based on the student's strengths and overcoming to the extent possible, the

difficulties they may face in learning. It is important to keep in mind that children with autism have a large range of functional abilities, behavioural and individual needs, and interests, requiring educational planning needs to be individualised. This would include incorporating the child's unique preferences and characteristics into the instructional plan.

2.1 General Instructional Approaches, Effective Teaching Practices and Other Academic Considerations

Teaching concepts versus rote learning: While working with the student in different situations and environments, a variety of materials and instructions should be utilized to make sure that the child actually understands the concepts. Teachers should make sure that children are able to generalise the concepts they are teaching and translate them into functional skills. For example, when teaching **colour concepts,** the student needs to identify the colour red when objects and pictures are presented. In art class the teacher can ask him to colour a circle red by picking up the red crayon; or name a red fruit; or in a game, look for a red bag or a red pencil box.

NEED FOR ADAPTATIONS

Many students with autism can have an excellent rote memory and therefore, they may score high grades. As the education and subjects become more complex and include abstract concepts, their grades may start falling. It is useful to know what kind of adaptations may be needed. For more information, see ***framework for curriculum adaptations in Annexure 7*** in Module 1: Inclusive Education.

Ensure flexibility in curriculum: It is sometimes necessary to modify the content or difficulty level of learning activities to better suit the interests and learning needs of students with ASDs. This type of modification can take many forms. Because these students often have difficulty comprehending abstract concepts, it may be necessary to present concepts in a concrete manner. For instance, the concepts of "public" and "private" are relatively abstract. For students to grasp these abstract concepts, it may be necessary to present concrete examples and explanations of each. This could be achieved using words, pictures or real-life experiences.

The baseline assessment helps in selecting the content of each lesson and the method of execution.

In case the child has exceptional skills, work on them in a functional manner so that the child derives optimum learning opportunities from these skills and uses them functionally and not just stays obsessed with them. For example, a child who is good with sketching may want to draw all the time and may end up filling books and notebooks with figures. Instead, acknowledge the student's skill, showcase the same appropriately and use the sketching to illustrate answers to reduce writing.

Provide opportunities for one-to-one instruction and support. This is possible with a peer/buddy in the class who gives the instruction whenever required. These may be simple ones like:

- Open your book. Start the work.
- What happened? Do you need help? You can ask the teacher for help.
- You are done. Show the book to the teacher.

Slowly, fade support as appropriate.

Develop and use visuals for instruction/provide visual support. One of the most effective approaches to teaching students with ASDs involves the use of visual aids. Students often

demonstrate relative strengths in concrete thinking, rote memory and understanding visual-spatial relationships, and difficulties in abstract thinking, social cognition, communication and attention. Pictographic and written cues often help students learn, communicate and develop self-control.

One advantage of visual aids is that students can use them for as long as they need to process information. In contrast, oral information is transient; once said, the message is no longer available. Oral information poses problems for students who have difficulty processing language and who require extra time. It is often difficult for students with ASDs to attend to relevant information and block out background stimulation. Using visual supports enables students to focus on the message.

Visual aids and symbols range in complexity from simple and concrete to abstract. The continuum moves from real object or situation, to facsimile, colour photograph, colour picture, black and white picture, line drawing, and finally to graphic symbol and written language. Objects are the most simple, concrete form of aid. Graphic symbols, although far along the continuum in terms of complexity and abstraction, have been used successfully with many students with ASDs.

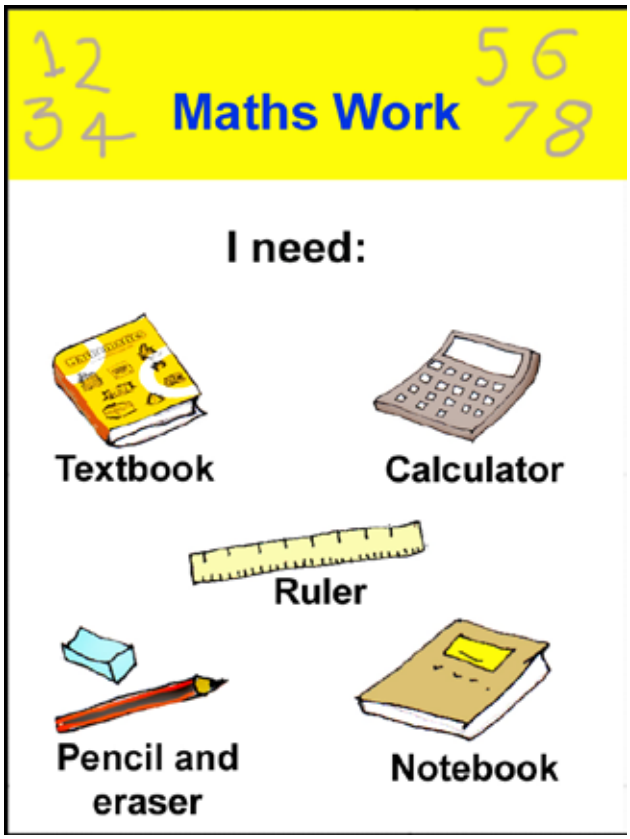
Visual supports can be used in a variety of ways in the classroom. However, to be successful, they must fit a student's level of comprehension. For example, if a student has a significant cognitive delay, it may be appropriate to outline the steps involved in a specific task using photographs of the student engaged in the task. For higher functioning students, it may be more appropriate to outline the task steps using line drawings or words.

Visual supports can be used to:

- Depict scheduled tasks and activities
- Encourage independence
- Facilitate organisation
- Teach social skills
- Promote communication
- Encourage appropriate behaviour
- Make expectations clear
- Depict choices

Some examples are:

- Individual visual schedule as discussed in the unit on "creating enabling environments"
- Highlighting important information
- Colour coding relevant information
- The students must know visually – how much work and when will it finish
- Depicting needs/choices



Some samples of useful adaptations and modifications of instructions are given below:

Sample 1: Modifying instructions

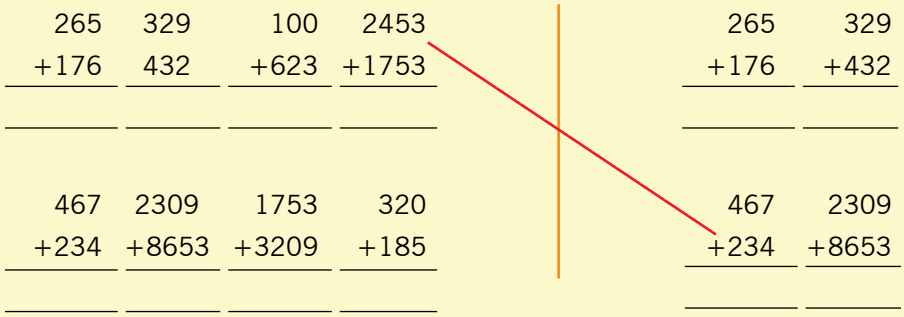
ADD the following

765 +412	228 +761
417 +502	910 +5

FINISH AND SHOW THE NOTEBOOK TO THE TEACHER

The red line above denotes finished.

Sample 2: Showing fewer sums on a page



Sample 3: Using a colour code for instructions

Add or Subtract

35 + 3	65 - 3	23 - 5	26 + 3	46 + 3	57 - 5

Structure the environment and instructional tasks: Increasing the level of structure is a basic principle underlying all successful approaches with students with ASDs. It is also important to consider the use of structure in the organisation of the physical environment and in the design of specific activities.

The ***physical environment*** of the classroom can be structured by:

- Establishing specific areas that are associated with certain kinds of activities (e.g., quiet work area, group work area, consistent area for snack, etc.). Signs can be used to create physical markers to separate instructional areas.
- Clearly marking materials and storing them in an organised fashion.
- Covering or screening desirable activities and/or objects when they are not available to the student.

- Marking the student's storage areas with his/her photo or some other easily recognisable cue.
- Using different coloured folders, binders or bins for different subject areas or tasks.
- Creating "start" and "finished" boxes, bins or folders for the student's independent work.
- Storing all materials for a specific task together, e.g., store worksheets, pens and visual instructions in a laminated file folder.

Structure can be incorporated into specific ***teaching or independent learning work*** tasks by:

- Removing extraneous materials from desks or tables before attempting to teach a new skill.
- Presenting only the text you want read, rather than the whole book. Highlighting key words in the text.
- Creating a set of sequenced pictures illustrating the steps involved in completing an important self-help task.
- Making sure that all tasks have an easily recognisable beginning and ending. For example, if the student is required to complete a partial page of calculations, mark the first question with a green marker and the last with a red marker.
- When asking a student to complete a project, provide a model or illustration of what the task should look like upon completion.

NOTE

Students with ASDs generally have a higher need for structure than other students with or without other types of disabilities, but it is important to note that all students benefit from structure. Structuring the environment and instructional tasks increases independence and promotes success. As students become increasingly familiar with classroom structure and routine, these supports can be reduced.

Use activity-based instruction: Activity-based instruction tends to occur within the context of typical classroom activities. During these activities, teachers take advantage of teachable moments—naturally occurring opportunities to give relevant instructions or directions and naturally occurring forms of reinforcement. The use of activity-based instruction calls for careful planning to ensure students have multiple opportunities to practise skills in the context which those behaviours would typically occur. For instance, during an art activity, the teacher could give instructions to teach colour identification skills, e.g., "Give me red paper," "Find the red paint brush," "Give Nitin the red paint." Since the reinforcement for demonstrating the desired response is engagement or access to the activity, it is important to carefully select motivating activities. These strategies have been called **Naturalistic Teaching.**

RELEVANT TERM

Naturalistic teaching involves the following elements:

- Teaching follows student's attentional leads, i.e. activities must be of interest to students.
- Student responses can be encouraged or elicited through environmental arrangements, e.g., putting desired toys out of student's reach, or through predetermined prompts.
- Reinforcement is related to student response, e.g. a student vocalises toward a toy and is given opportunity to play with the toy.
- Teaching opportunities are embedded in activities.

The activity-based approach to instruction allows teachers **to focus on multiple goals or skills within a single activity.** For example, a simple puzzle activity could be used to promote the development of communication skills, e.g. requesting puzzle pieces; social skills, e.g. taking turns with a peer; motor skills, e.g. placing pieces and cognitive skills, e.g. matching pieces to their holes.

Another benefit of activity-based instruction is that **reinforcement is built into the activity.** Because activity-based instruction occurs within the context of naturally occurring activities, skill generalisation is often facilitated.

The decision regarding which teaching method to use should be based on the skill being taught, as well as the student's behaviours, abilities and interests. For instance, a highly distractible student may respond more positively to the discrete trial teaching method, while a student who is motivated to participate in a particular classroom task, may respond more positively to activity-based teaching methods.

Use peer-mediated approaches: Peer-mediated approaches work with many students with ASDs. In some cases, a student may find the attention of a peer more motivating than that of an adult. Peer-mediated approaches involve teaching peers to model specific desirable behaviours, e.g. appropriate attention seeking, and to use specific strategies during their interactions with students with ASDs, e.g. being persistent. This approach tends to be most effective when teachers reinforce peers for their efforts.

Use task variation: Vary tasks to prevent boredom, and alternate activities to reduce anxiety and inappropriate behaviours. For example, alternate familiar, successful experiences with less-preferred activities. It may be helpful to alternate large-group activities with calming activities completed in quiet environments. In addition, incorporating physical activity and exercise during scheduled activities can have positive benefits.

Use age-appropriate materials: It is important to treat students with ASDs with respect by ensuring instructional materials are appropriate. Even if instruction must be modified significantly, the learning materials should be appropriate to the age of the student.

Break down oral instructions: Avoid long verbal explanations when providing instruction for students with ASDs. Supporting oral instruction with visual cues and representations helps students understand.

Use concrete examples and hands-on activities: Teach abstract ideas and conceptual thinking using concrete examples, and vary the examples so that a concept can be applied in a variety of ways.

Direct and broaden fixations into useful activities: If students are fixated on objects or topics, such as colours or shapes, use them to teach concepts. For example, a student's fixation on car parts can be used to teach a variety of math and fine motor activities.

Test taking strategies/adapting output methods: It has been observed that students with autism do not perform well on tests and assignments, even though they know the subject. Some useful tips are:

- Give frequent short quizzes and avoid long tests. They find it difficult to remember, sustain attention and organise long answers.
- Shorten assignments. If the student can demonstrate adequate concept mastery in 10 or 20 questions, do not require 30-40 problems. Reduce the length of tests.

- Uncluttered test formats.
- Give ample space for answers.
- Allow extra time for tests.
- Use the student's strengths, such as drawing, to illustrate their answers.
- Encourage them to ask for help if they are stuck.
- Teach the use of choices, if any, in an exam.
- Let them know that they can start with what they can do best.
- Teach them to answer the question when it is worded differently:
  - For example, if the student has learnt to answer the question, "Explain the life history of a mosquito," he/she should be able answer, "Write down the stages in the life history of a mosquito."
  - Another example - The student who has learnt to answer, "What are the uses of plants?" must be able to answer, "Write the names of five medicinal plants."
- Let them know that they do not have to finish the questions in the same order as given in the question paper. For example, if the student has done the first two questions but does not know the third one, he can leave it and do the next one. After completing the rest, he can come back to the third one and try it.
- Give oral tests.
- Allow students to use tools, such as dictionaries, counting blocks or calculators.
- Evaluate skills based on observation of performance.
- Complete baselines and post-teaching skill checklists to assess skill development.
- Expect students with ASDs to:
  - Print, rather than write, their responses
  - Give single word responses rather than phrases or sentences
  - Type their responses rather than printing them
  - Circle correct responses rather than printing them
  - Copy their responses rather than working from memory
  - Point to responses rather than answering questions verbally
  - Provide picture symbol responses rather than verbal answers
  - Draw pictures rather than print responses
  - Develop collages rather than stories or paragraphs; tape a checklist as shown below:

Rohan	Rohan, please check
• Check all the answers you know. • Do them first. • Ask for help for others later. • Look at the clock/listen to the teacher. • If you want a break, ask the teacher. You will get two breaks to walk in the passage.	• Answer 1 –done / not done • Answer 2 –done / not done • Answer 3 –done / not done And so on----- • Name written • Date written • Subject written • Read the answer paper once to make corrections. • Tie the tag. • Thanks - now give it to the teacher.

Work in partnership with the parents. Both parents and teachers can receive mutual support through exchange of ideas and opinions.

Increase Motivation

- Provide precise, positive praise. Give students precise information about what they do right or well. For example, "great painting" or "good work on that math problem." Students with ASDs may acquire new skills based on a single learning opportunity or trial, so directing praise to specific behaviour is important: "Sal, you are doing very well at multiplying these numbers."
- Use meaningful reinforcements. Reinforcements can be anything from praise to tangible objects that increase the behaviour a student is trying to learn. A reinforcement is only a reinforcement if it results in an increase in a specific behaviour. They might prefer time to:
  - Spend alone
  - Talk to a favourite staff member
  - Go to the cafeteria
  - Exercise
  - Play with a desired object
  - Listen to music
  - Play with water
  - Perform a favourite routine
  - Play with items that provide sensory stimulation
  - Sit by the window
- It is important to know what works as reinforcement for individual students. Preference profiles that identify the reinforcements students prefer can be helpful. These lists can be developed with the help of family members and built into individual learning plans.
- Give work in small amounts. For example, if the teacher places a whole page of math problems, the task before the student seems insurmountable. However, if the student sees only one chunk at a time, he/she will not get confused and exhausted. One way is to give one or two problems at a time or write one or two problems per sheet of paper.

Building self-esteem

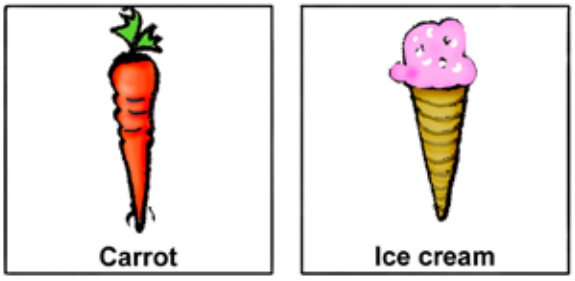
- Whatever the child does well needs to be showcased before the class, i.e. in the assembly.
- Carrying teacher's notebooks, distributing notebooks in class, wiping blackboard, a run around the playground or a walk up and down the staircase can be of great help.
- Never ask questions that are beyond his/her current level of performance.
- Give enough responsibilities that she/he can accomplish.
- Teachers must avoid comments like – irrelevant, incomplete, not done and careless in the child's notebooks.
- Teachers should encourage independence by consistently encouraging students to complete tasks and participate in classroom activities as independently as possible.

An effort should be made to fade adult support as students develop specific skills and abilities. This involves two distinct steps: fading assistance or prompting, and fading physical presence or supervision. It is often helpful to incorporate visual aids to decrease reliance on physical and verbal prompts, such as providing students with visual organisational aids (e.g. schedules, task outlines, check lists and charts).

- Plan tasks at an appropriate level of difficulty. Students with ASDs may become anxious and frustrated if they cannot perform assigned tasks. Teachers should support students through instructional adaptations. Teachers must select the most appropriate level of adaptation for a given activity. The adaptations should move from simple to complex on an as needed basis. The process of selecting an appropriate level of adaptation for a specific activity is illustrated in the following example:

CLASSROOM ACTIVITY: "MATH MINUTE" WORKSHEET			
Level 1: No adaptation	**Level 2: Same activity with adaptation**	**Level 3: Parallel or alternate activity with same subject**	**Level 4: Alternate functional activity (embedded in routine)**
The student with ASDs completes the same worksheet and under the same conditions as classmates.	• The worksheet contains fewer questions. • No time limit is enforced. • The student is given a calculator. • A pencil grip is used. • A peer or assistant records answers for the student. • The worksheet contains different questions, e.g. no carrying questions. • Manipulatives are used.	The assignment involves: • Matching numbers • Completing a dot-to-dot worksheet • Patterning activities • Tracing numbers • Completing a number puzzle	• The student uses a picture task analysis to gather materials for one of the activities listed above. • The student makes purchases and calculates cost and change after addressing money skills in class. • The student counts heads during attendance for math class. • The student counts how many math worksheets the class requires. • The student distributes worksheet to selected peers.

- Provide opportunities for choice. Because students with ASDs are frequently frustrated by their inability to make themselves understood, they need instruction in communicating choices. Many parts of their lives are necessarily highly structured and controlled by adults. Sometimes, students continue to choose one activity or object because they do not know how to choose another. It may be helpful to develop a choice menu to help students select activities and tasks or preference (carrot or ice-cream).



- Acceptable methods of providing choice should be developed on an individual basis. Direct teaching of making choices may be helpful. Choice should be limited to one or two preferred activities until students grasp the concept of choice.

- Once the concept of choosing is understood, you can begin to offer more subtle choices. Choice boards for learning coping skills can be very helpful. Examples are:

- Prepare students for upcoming lessons. Whenever possible, expose students with ASDs to concepts and materials prior to presenting the information to the entire class. Students with ASDs may require more time and repetition to learn a new skill or concept and incorporate it into their existing repertoire. By starting the instructional process earlier, learning opportunities are increased.
- Pay attention to processing and pacing. Students with ASDs often need more time to respond than other students and may need to process each discrete piece of a message or request separately. Providing extra time generally, and allowing for ample time between giving instructions and student responses, are important tactics for supporting students with ASDs.
- Introduce unfamiliar tasks in a familiar environment. When possible, introduce unfamiliar tasks in a familiar environment. For example, teach a student to order food in the school cafeteria to help him/her carry out the same task in an unfamiliar restaurant. When that is not possible, prepare students for new tasks and environments using pictures, videotapes and/or social stories. For example, show students photographs of the environment that a new task will be completed in, or a video of a familiar adult or peer completing the task.
- Maintain a list of individual strengths and interests. Family members can provide valuable information about what students know and do at home. Build on these interests and skills for instruction, and to reinforce successful learning and behaviour.
- Develop talents and interest areas. If students demonstrate particular interests and strengths in specific areas, e.g. music, drama, art, graphics or computers, provide opportunities to develop further expertise in those areas.

2.2 Early Learners

The term Early Learners refers to students who are in the pre-primary level of learning and includes both younger students as well as those who have associated learning issues and extreme specific needs.

ACTIVITY

Planning for the student's education

1. Divide the teachers into groups of 4-5.
2. Ask them what they would teach a child who only knows how to play with objects and children and look at pictures.
3. Give a PowerPoint presentation on early learning.
4. Prepare flash cards, worksheets and other aids to execute the items discussed in the presentation.
5. Monitor the activity with the teachers.
6. After 15 minutes, ask any representatives of each group to present on the board.
7. The teacher will be guided and involved in understanding and preparing the following:
   - Visual perception activities like matching identical objects and pictures.
   - Visual perception activities like – circle the same/different.
   - Associated matching cards (cup-plate, bat-ball).
   - Flash cards and picture books to learn names of common items, fruits, vegetables, colours, actions.
   - Sequencing colours, shapes, sizes alternately.
   - Seriating by size.
   - Scribbling, colouring within outlines and tracing.

3. TEACHING READING, WRITING AND NUMERACY

3.1 Reading and Writing

There is a lot of diversity in reading skills across students with autism. Some students may read much less because of the associated learning difficulties, while many others may learn to read well and become excellent readers.

Most important is to teach reading with meaning!

Children with ASD show an intense focus on pictures and therefore, if pictures and text are introduced together, it can make reading easier. Practically, it is seen that sight-reading is the best way to begin reading. Sight reading means whole word reading. For example, a small child, maybe even two and a half year old, will see the logo of PEPSI and read it as Pepsi. Many children start reading words like Maruti, Parle G, Shakti Bhog without knowing phonics. Similarly, in Hindi they may read the name of a newspaper because they see it every day.

Many reading programs have found it easier to teach a child with ASD to read using picture-text together on the same page or card. A good way to start is to write the child's

name very clearly on his/her notebooks, school bag, writing board, and slate with a bold marker and draw his/her attention to it intermittently. The child will eventually start reading his/her own name.

Once the child reads a few sight words, conventional reading methods can be used.

3.2 Reading with Comprehension

It is important to teach any child reading with comprehension. A very basic level activity is to match pictures to corresponding words or match word associations.

NOUN - NOUN ASSOCIATIONS	
Cup	Socks
Shoes	Ball
Television	Chair
Bat	Books
Table	Plate
Bag	Remote

NOUN - NOUN BY PARTS	
Door	Tail
Car	Leaves
Cat	Pages
Tree	Buttons
Book	Wheels
Shirt	Handle

NOUN - VERB ASSOCIATIONS	
Spoon	Drive
Glass	Blow
Bed	Eat
Ball	Bath
Soap	Eat
Car	Sleep
Bubbles	Drink

NOUN - ATTRIBUTES	
Apple	Tall
Mango	Cold
Leaves	Yellow
Tea	Red
Icecream	Green
Tree	Hot

Another approach is to give simple one-line sentence and then ask questions to check for reading comprehension. For example:

Manu went to the doctor's clinic on Monday.

- Who went to the doctor's clinic?
- When did he go?
- Where did he go?

Sonu and his mother went to the shop to buy a toy.

- Who went to the shop?
- What did they buy?

Examples for advanced learners:

Jai likes samosas and his younger sister Seema likes gulab jamuns.

- Who likes sweet things?
- Who is older?

Amira goes to the Sunrise School. It is November now. Her exams are coming up and will start on the 10th to the 25th of the next month. Two days later, she will be going to her grandmother's house in Shimla. She loves to go there because she meets her cousins who live there. Her sister Sameena prefers to go to her uncle's place that is near a river in Chennai.

- In which month are Amira's exams starting?
- On which date will the exams finish?
- Who likes to visit the hills?
- Why do you think Sameena likes Chennai?
- In which state of India does their uncle live?
- Read and answer?

A label with two attributes

Name something:

1. Hot beverage that we drink.
2. We play with and it bounces.
3. You can peel and eat it.
4. What liquid helps motors run?
5. Has a button.
6. You can read but it is not a book.
7. What do you see in a classroom that is not a table?

ACTIVITY

Teaching basic reading skills

1. Start the session by asking teachers to think about the skills needed to read (i.e. matching, discrimination, combining, etc.).
2. Ask them to think and share examples of how people without a formal education manage to read the names of popular brands of detergent, biscuits, TV channels, etc. (introduction to sight reading that does not require any phonic ability).
3. Teachers will prepare worksheets in groups of four to five (two worksheets per group) for teaching reading with meaning.

Points to highlight:

- Sight reading common words – logos, own name.
- Read letters in English alphabet and varanmala (Hindi alphabet).
- Identify letters with respect to sounds (phonics).
- Blend vowel – consonant: at, an, etc.
- Identify maatras (vowel signs in Hindi) and use them to make words.
- Once a child learns these basics, reading can be done conventionally.
- In autism, there is a language difficulty. Always teach reading with meaning.

Immersion activities

How can children with autism understand stories, poems and other lessons? One useful way is by immersing children in a range of creative activities before reading the lesson. This means that they are fully prepared and excited about the lesson. Through painting, music composition, role playing, the children will share vocabulary, ideas and concepts that give their reading fresh meaning and purpose. For example, before starting a lesson on a state of India, students can hear folk music or a song of that state and if there is any student from that state, he/she may be introduced. The teacher can play the song on a mobile.

Drama

The use of drama is such a powerful tool. Language (English, as well as Hindi), history and many aspects of social studies can be taught through drama. This process helps all children and students with autism and other related conditions will be helped by promoting their imaginations. It will also provide them with the ideas they need during understanding what they are reading and later in expressing themselves through their writing.

Teaching of spelling and phonics

All phonics and spelling activities must be fun, multi-sensory and as physical as possible. The aim is to meet all learning styles of children in the class.

Example: A game for a girl with difficulty in reading and writing, and a very short attention span.

- She responded better to games with visual clues.
- Her teacher made a set of pictures. There were at least two pictures for each letter of the alphabet.
- The teacher spread out 6 to 8 of these pictures on the table in front of the child. She then showed her a letter (sandpaper cut-out). The teacher talked about what the letter says and what sound it makes.
- Simultaneously, the girl touched the letters.
- The girl learned the sounds gradually.
- Next, they looked at the pictures, saying their names as they identify them in turn so she can hear the initial sounds, too.
- The teacher then asked her if she could find something on the table that begins with the given letter.
- The game was made as multi-sensory as possible: looking, listening, feeling the letter and writing it, saying the letter sound.

Grammar concepts taught creatively

Grammar cannot be taught as a stand-alone activity. Children begin to understand grammar concepts, and start to apply them in their own writing, when they start to read.

Teach simple rules, encourage reading, conversations on specific topics, and remember to correct errors very gently. Practice improves grammar. Give them incorrect worksheets to correct. Use tables as given below:

I	Is	Hungry
You		
We		
They	Am	
He	Are	
She		

ACTIVITY

Teaching advanced reading skills

1. Divide teachers into groups of 4-5 and give them a simple story of about ten lines.

THE STORY

Reva and **Aneesh** are best friends. They go to the same school in Model Town. Reva comes to school by a bus, while Aneesh walks to school. Last Monday, the friends were playing and the ball smashed a window in a neighbour's house. Mr. Rao came out and screamed at them. They said sorry to Mr. Rao and went away. The next day, Mr. Rao met the principal of the school. Both boys were asked to replace the glass of the window.

2. Ask the teachers to prepare:
   - Simple fill in the blanks based on the story.
   - True/false worksheets based on the story.
   - Two short inferential (indirect questions) related to the story.

SAMPLE QUESTIONS	
Direct question	***Simple-Inferential questions***
Where is the school?	Who do you think lives closer to the school and why do you think so?
When were they playing with the ball?	On which day of the week did Mr. Rao visit school?

3. One representative per group will present the above work.
4. Discussions will be related to the difficulties in comprehension of the stories and the instructions in the worksheets.
5. As a whole group, brainstorm and discuss possible solutions.

3.3 Mathematics

Many children on the autism spectrum show good ability in the number area of mathematics, as far as reciting and ordering numbers are concerned. For example, some can instantly recall the day of the week of any calendar date within a particular range of years, and others may have outstanding math skills in calculating large numbers in their head. This happens because the number system is structured and static and therefore fits nicely with the way children with autism learn and remember facts. However, these skills form only a small part of mathematics, and they do not provide children with the essential means to use or understand numbers and other mathematical concepts in real life situations. There are a lot of others who have moderate to severe difficulties in learning the skills. Math learning, however, is NOT impossible for children with autism. Many concepts can be shown through visual examples. Try to use visual cues as often as possible when teaching the child. Most students learn many aspects of math (number shape, name, value)simultaneously. However, these have to be broken down into steps for students who have different learning characteristics.

Direct instruction is most effective for teaching basic or isolated skills. Direct instruction is a scripted and very systematic program with a step-by-step format requiring student mastery at each step. It involves continuous modelling by teachers so that children begin to master the material. Direct instruction is a general term for the explicit teaching of a skill-set using lectures or demonstrations of the material, rather than exploratory models such as inquiry-based learning.

Some key areas of mathematics that need to be worked on are:

3.3.1 Shape, Space and Measures

This area of learning involves very practical hands-on concepts that are often referred to as pre-math concepts. These include:

- Relationship between objects and positions: manipulating 3D objects into a shape sorter, or tidying blocks into the box so that they all fit.
- Concept of size: matching big objects with big objects, lining up toys, vegetables, pencils, etc., from smallest to largest.
- Vocabulary related to size, shape, measurement and position: for example, big and small, triangle or square, heavy or light, long or short, on or under.
- Directional position: forwards or backwards, front and back, in between.
- Recognising and describing a range of shapes: using appropriate vocabulary such as straight, flat, or solid.
- Comparing objects using criteria related to shape, space, or measures: identifying that the two bags are different because the red bag is 'heavier'.
- Time related concepts: including day/night, reading a clock, and calendar.
- Completing patterns or sequences.

ACTIVITY

Teaching basic math skills

The activity will involve doing a task analysis of teaching number names and associating the numbers to shapes:

1. Auditory rote memory of numbers one to ten.
2. Number rhymes in English and Hindi.
3. Teachers will be encouraged to brainstorm and give more creative ideas to reach recitation of number names by rote.
4. Use flash cards to teach number shapes (different multi-sensory inputs)
   - Identification 1,2,3
   - Next 4,5,6
   - Finally 7,8,9 and 10
   - Counting objects until 3
   - Counting until 6
   - Counting until 10
   - Number correspondence – ice trays, circles to finger stamp, etc.

Note: Sometimes use of ICT, like numbers flashed on the computer monitor with an auditory support, helps students pay better attention.

Many students may not remember the number that they have to count while they are counting. Therefore, the number card may be placed clearly in front of them.

They may be asked to count and put objects in a box that has the specific number card placed on it; this will be a good reminder.

3.3.2. Numbers

This area of learning focuses on using number skills in different contexts. Referred to as traditional math skills, these include:

- Responding to and enjoying a range of number activities including songs, rhymes, stories and games.
- One-to-one correspondence or ability to match 1 to 1, which helps with counting. For example, when counting a set of objects, the child is taught to point to one object at a time.
- Recognising numerals visually and orally.
- Rote counting or counting without any objects present. For example, counting up to 10 as part of a song, or simply reciting numbers up to 20.
- Counting objects by matching numerals to their correct quantity. For example, the ability to count out 4 pencils when requested, "Give me 4 pencils." This is a crucial skill, as it develops the key understanding that numerals represent a quantity.
- Awareness of contrasting quantities or the concepts of more and less, bigger number and smaller number, etc.
- Addition and subtraction, simple as well as levels of carrying over/borrowing.
- Ordinal numbers (1st, 2nd, etc.)
- Responding to, and using mathematical vocabulary: how many, sum, total, difference, etc.

Multiplication tables and division are the basis of higher problem solving in math. Therefore, rote learning of tables needs to be followed by then posing questions about multiplication facts.

ACTIVITY

Teaching ordering, (sequencing), numbers and place value

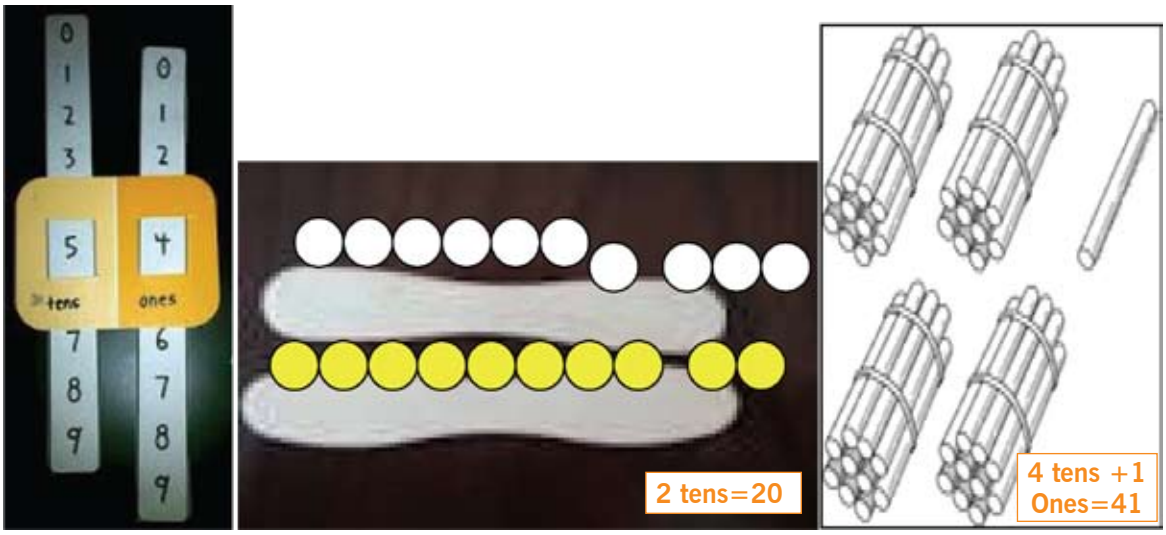
The activity will involve:

- Preparation of structured worksheets in which the child sees and knows clearly what to do. Example:

1	2		4

- Preparation of aids to teach place value - tens and ones. Pencils, ice cream spoons, twigs, etc. could be used as teaching aids.

Examples of teaching aids:



More Practical Tips

Learning to count and match the numeral to the correct quantity can be a very boring task. It Using interesting equipment and 'real-life' contexts, can made the learning a lot more interesting.

EXAMPLE 1

Neena enjoys music and by following simple visual instructions to play musical instruments, she created a simple song by correctly matching the numeral to the quantity:

3 times, I beat my drum – bang- bang- bang

2 times, I clap my hands – clap - clap

1 time, I shake my rattle – chunchun

EXAMPLE 2

Arjun is very active and enjoys jumping around.

Draw shapes on the floor with a wet chalk. The class can have an activity in which the students are given instructions (in groups of ten) to jump in the circle and now out of the circle. Similarly, jump in the square and now out of the square. The concept of in/out and shapes, as well as listening skills, will be taught in an interesting manner.

Utilise the child's special interest. Whether unusual or wonderful, simple or complex, try to incorporate the child's special interest wherever possible. Always use visual aids and keep the focus of the lesson 'hands-on' and tactile.

EXAMPLE 3

Zeenat likes animals. She can arrange pictures of a rat, cat, monkey, cow and elephant in the increasing order of size. Create an activity of sequencing from big to small or vice versa.

EXAMPLE 4

Piyush likes to collect rubber bands. Give him three yellow and four blue rubber bands while teaching the concept of addition. Provide him with the fact that there are three yellow and four blue rubber bands. How many in all?

Use ICT, which allows for a multi-sensory approach (visual, sound, interactive aspect). Many children with autism are fascinated by technology and using a digital camera, video, or interactive whiteboard can make an otherwise boring or difficult task very motivating. There is often a question that teachers ask - individual, or paired use of ICT. Ideally, it should provide:

- A whole-class display visible to all students - blackboard, chalk, computer, OHP, projector for PowerPoint presentation is best.
- However, scope for visual-oral interaction between teacher and pupils in one-to-one situations. A range of software appropriate to the mathematics curriculum can be created.

EXAMPLE 5

Sunny was having difficulty sequencing three pictures in order. The picture had a tree in each but the number of apples on each picture was different: one, two and three apples. Working on the same skill, the teacher created short sequences using Sunny's interest in piling books and took photos of him building a tower using books; the finished tower; knocking books one by one until the tower was down. The sequence was fun, and seeing himself in the photos was very motivating. And, as he had experienced the sequence, he understood the process of putting it in order and it had meaning for him. After a few days of practicing this skill using the camera, Sunny was able to sequence three pictures from the story independently.

Use 'real-life' contexts. This will ensure that the children see mathematics as an integral part of daily life – something that is useful and worth learning. Another bonus is that it makes learning about math a lot of fun, and it allows you to make links with other concepts. Some real-life contexts that can be used to teach math very easily include:

- Shopping: making lists and matching picture to object and matching numeral to correct quantity; using money; following directions in the shop – forwards, backwards, left, right; concepts of measurement such as weight – heavy, light, kg, g; and concepts of quantity, such as more or less, etc.
- Wrappers and empty pouches of items like soap, toothpaste, packet of chips, etc., can be used to read price, weight, expiry date, etc.
- Sports/exercise games: following visual instructions; for example, two ball throws, two hoop jumps, etc.; keeping score during a game; concept of direction – four steps forwards; concept of placement – over, under, next to, on, etc.

Please note: as it is not always possible to use the contexts mentioned above, similar environments can be recreated through play and pretend equipment. For example, having a birthday party with the child's favourite toys and counting out portions of food equally in four plates. Food, such as biscuits and toffees, can be made out of clay.

ACTIVITY

Teaching basic addition and subtraction

Instructions:

1. The session will involve brainstorming.
2. Wind up by highlighting these important points:
   - Teach the concept with concrete examples and use pictures.

- Reverse counting may be done through visuals, like numbering steps and counting down from 10 to 1.
- Concept of zero through activities like five marbles in a tray and putting them away in a box one by one until there are none.
- Students need to know that addition means more and subtraction means taking away.
- Use language along with numbers. Examples:
  - One blue car and two red cars on the road. How many cars are there?
  - Three apples on a tree and one fell down. How many apples are left?
  - Use visuals along with language.

3. Choices help the student to learn and then withdraw choices. Example: which box has 1, 2 and 0 apples?

4. More structure in sums can be presented as follows:

11	13	16	27	18	34
+54	+28	+16	+33	+42	+47
35	65	23	26	46	57
+ 3	- 3	- 5	+ 2	+ 3	- 5

Source: www.iidc.Indiana.edu

Note: Students with higher math abilities will learn like their peers but some support may be needed for generalisation.

ACTIVITY

Preparing and using material for the student's education (primary level)

Instructions:

1. Divide the teachers into groups of 4-5.
2. Ask each group to reread the case study about Rashmi. The first activity in this unit (pg. 51) focused on planning for student's (like Rasnmi's) education to determine the early learning goals for her.

CASE STUDY

Rashmi is a six-year-old girl with ASD. She is in class one.
She recites A to Z and 1 to 10 by rote through nursery rhymes.
She wets herself in class and cries when she wants water.
Rashmi likes to play with beads. She sits for five minutes at a time and then wants to walk around the class.

3. Ask the teachers to read the goals that they have set earlier in Activity 1.
4. Prepare flash cards, worksheets and other aids to execute the goals.
5. Monitor the activity with the teachers.
6. After 10 minutes, ask for a volunteer from each group to present on the board.
7. Have a discussion

ACTIVITY

Preparing and using material for student's education (primary level)

Instructions:

1. Divide the teachers into groups of 4-5.
2. Ask teachers to reread the case study about Piyush, discussed in an activity at the beginning of this unit.

CASE STUDY

Piyush is an eight-year-old boy. He likes to collect wrappers of soap, chips, toffees, etc. He can write numbers up to 100, counts on pictures and circles correct numbers, but is unable to say what comes after or before a specific number. Piyush enjoys colouring and writing. He can spell three letter words like cat, pan and fat.

3. Ask the teachers to read the goals that they have set in the earlier pre-primary level activity
4. Prepare flash cards, worksheets and other aids to execute the goals.
5. Monitor the activity with the teachers.
6. After 10 minutes, ask a representatives from each group to present on the board.
7. Have a discussion on the guidelines below.

GUIDELINES

Worksheets need very clear formats and structure.

Example: What comes after 17?

23	24
17	

(The student will see and figure out what is to be done. Also, highlight instructions.)

Simplify work by breaking it into steps.

Example: What comes before 14?

	14	15	16	17
	14	15	16	
	14	15		
	14			

Avoid lengthy worksheets.

Worksheets involving copying (for handwriting) may be given for both longitudinal as well as lateral copying.

Avoid making cursive handwriting in English a must. Plain script may be allowed.

Practical guidance for teaching students in higher grades (above primary level)

Avoid unnecessary overload of challenging topics. For example, the water cycle can simply include a few points such as:

- Water in rivers and lakes gets warm.
- Some of it dries up and goes into the sky.
- Clouds are formed.
- Clouds become dark and heavy.
- Clouds then bring down rain.
- Rivers and lakes get their water back.

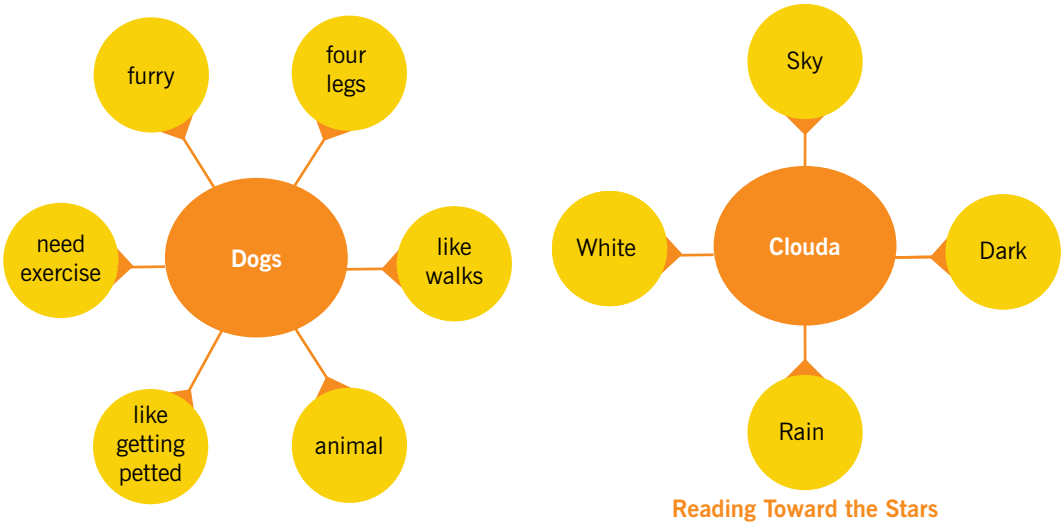
Graphic organisers: These visuals guide the student's thinking as they fill in and build upon a visual map or diagram. Graphic organisers are some of the most effective visual learning strategies for students with autism and are applied across the curriculum to enhance the learning and understanding of subject matter content. In addition to helping students organise their thinking and writing processes, graphic organisers can also help in memorising, as these are visuals.

There are two main types of graphic organizers: mind maps and flow charts.

Mind Map sare graphic organisers used to organise and connect concepts. In a mind map, concepts are typically interlinked and arranged in a radial pattern around a central concept. To create a mind map, start with a central concept and then expand into branching sub-concepts. Students with autism are visual learners; they understand, retain and express better when they learn through such graphics.

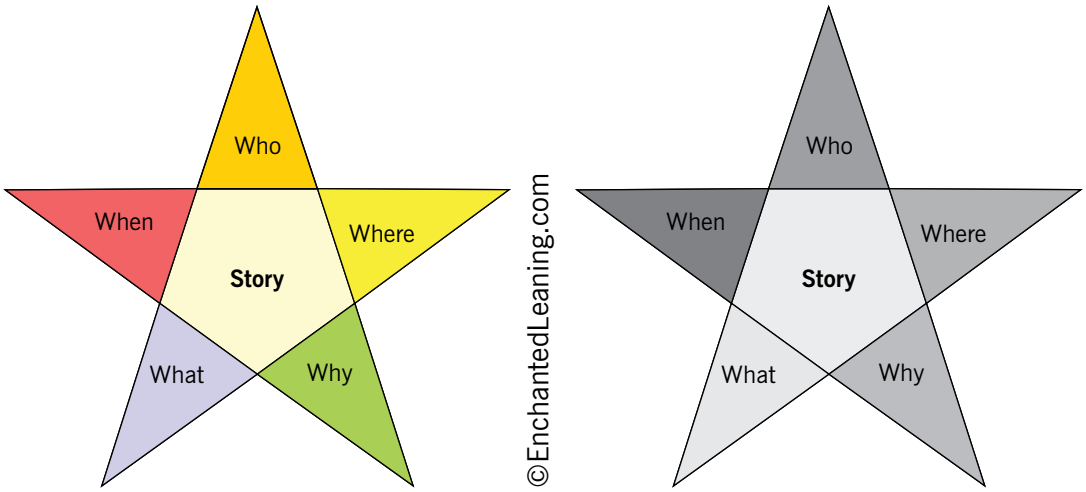
Mind Map Examples:

1. To help in writing about a dog and writing about clouds



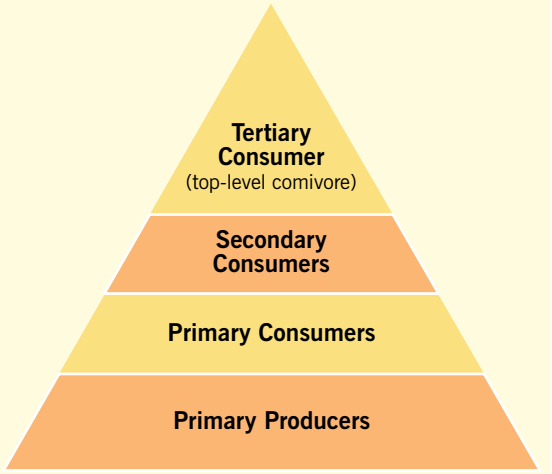
Reading Toward the Stars

2. Retaining a story to write or narrate:

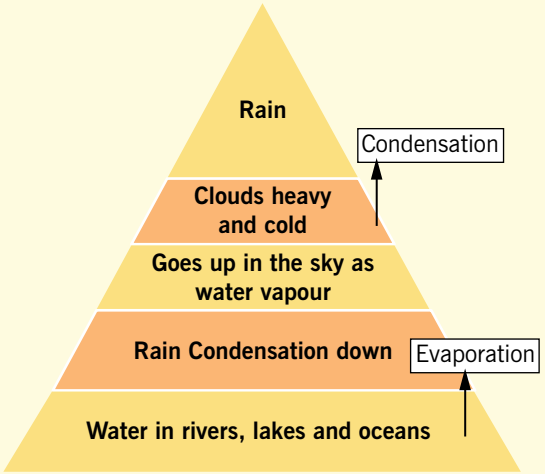


Flow charts examples: Flow charts are diagrams that visually present sequences of a concept, actions of people or things involved (like starting a computer or using a hyperlink) in a complex activity. Flow charts help learners understand and do it better.

EXAMPLE 1: ENERGY PYRAMID



EXAMPLE 2: WATER CYCLE PYRAMID



EXAMPLE 3: TABLE DURING MATH

Add	+	Total in all, sum of
Subtract	–	Left, difference, how many more

ACTIVITY

Using mind maps and flow charts

Instructions:

1. Provide examples of how graphics: mind maps and flow charts could be used in a classroom.
2. Divide the teachers into groups of four or five and return to the case study about Tony, used in an earlier activity in this unit.

CASE STUDY

Tony is a twelve-year-old boy with autism and is in sixth class. His teachers have noticed that his performance is not improving. He answers what, where and when questions well, but has problems with how and why questions. He answers simple questions in two to three lines, but never completes longer answers. He can add, subtract, multiply and divide but he cannot do sums with statements.

3. Ask each group to prepare graphic organizers to explain a story.
4. Ask them to prepare diagrams, drawings, bullet points to simplify a water cycle, food chain, healthy food, essays on "rainy season day" and "Tamil Nadu" (one graphic per group).
5. Give them 10 to 15 minutes to prepare
6. One representative from each group will present the graphic organiser.
7. Have a discussion on these basic guidelines:
   - When developing and using visuals, ICT supports like PowerPoint, overhead projectors, sounds on a mobile, computers, etc. could be used.
   - Keep the content simple and age appropriate.

TOP TEACHING TIPS

Get to ***know the child as an individual.*** Understand his/her autism and assess how it interrupts learning. Use his strengths to teach new skills.

Give the child an opportunity to explain a situation from his point of view. A good idea is to share viewpoints using visual information such as comic strip conversations.

Cut down on the amount of language you use when giving instructions. Keep the instructions clear, simple and direct. Avoid idioms. Tell the child what should be done rather than what should not be done.

Emphasise routine and structure. Teaching strategies which incorporate visual structure and clarity will be of great help.

Set targets that are realistic, attainable and short term.

Teach social skills as they do not come naturally.

Do not be afraid to make mistakes; this is a learning process.

A calm disposition and a sense of humour works!

ANNEXURES

ANNEXURE 1: QUESTIONS FOR AN INVENTORY OF SENSORY FACTORS

Consider the impact of sensory factors

An inventory of possible sensory factors can help minimise the negative effect that sensory information may have on students with ASD. Parents and others who have experience with the student are valuable sources of information about sensory difficulties. Here are some questions to ask and points to consider when developing an inventory:

Auditory:

- Are there fans, loudspeakers, fire alarms, several people talking at once, air conditioners, bells, dogs barking, or scraping?
- What are the general sound level and the predictability and repetitiveness of sounds?
- What can be done to minimise the negative effect these stimuli may have on the student with ASD in the class?
- What is the individual's comprehension of verbal information?
- What is the time typically required by the student to process auditory information and/or to shift attention between auditory stimuli?

Visual:

- Are there distracters, such as light, movement, reflection or background patterns, that affect the student's ability to attend to the learning activity?
- What is the eye level of the student, the position of the teacher in relation to the student, and the distracters that may interfere with attention?
- How much time is required to shift visual attention?
- What effort is given to reducing the effects of aversive visual stimuli, so that the management of the student's behaviour is facilitated, and his ability to learn is enhanced?

Tactile:

- Are there textures that seem to be abrasive?
- Are temperatures appropriate to minimise negative effect on the student?

- Does the student demonstrate a need to explore through touch, and yet avoid being touched?
- What is the level of ability or defensiveness in the use of certain objects intended to support instruction?

Vestibular:

- How is the student's need to move and exercise accommodated?
- What are the individual's reactions to movement?
- How can the student's program incorporate needed movement without unduly jeopardising the attention and learning of other students in the class?

Gustatory and olfactory:

- What are the student's preferences in taste and smell with foods and other materials?
- How are the student's responses to the smell of materials incorporated into decisions made about activities?
- What is the appropriate behaviour, as affected by these smell preferences, suitable to teach for snack or mealtimes?

ANNEXURE 2: COMMON DIFFICULTIES WITH SENSORY SYSTEMS: OBSERVABLE BEHAVIOURS

COMMON DIFFICULTIES WITH SENSORY SYSTEMS: OBSERVABLE BEHAVIOURS	
HYPER-REACTIVE BEHAVIOUR	**HYPO-REACTIVE BEHAVIOUR**
AUDITORY SYSTEM	
• Is easily distracted by background sounds • Overreacts to sounds • Has unpredictable reactions to sounds • Holds hands over ears to block noise • Screams or cries at sounds in the environment • Responds physically as if sound is a threat	• Does not respond to name being spoken • Seems oblivious to sounds of surrounding activities • Creates constant sounds as if to stimulate self • Behaves in an unsafe manner- does not react to sounds indicating potential danger. • Does not respond to any kind of sound
VISUAL SYSTEM	
• Is disturbed by bright lighting • Avoids sunlight • Follows any movement in the room with eyes • Covers part of visual field- puts hand over part • of the page of a book • Responds physically to appearance of certain objects or colours	• Is unaware of the presence of other people • Is unable to locate desired objects, people • Loses sight of people or objects when they move • Cannot distinguish figure-ground relationships
TACTILE SYSTEM	
• Does not like to be touched • Avoids tasks with a strong tactile element (clay, water play, paint, food preparation) • Complains about discomfort of clothing • Refuses to wear certain items, lugs at clothes • Responds negatively to textures in food, toys, Furniture	• Does not seem to grasp concept of personal space • Does not seem to notice touch of others • Frequently puts things into mouth • Does not adjust clothing that would appear to be an imitant • Has high pain threshold, is unaware of danger because of low response to pain
VESTIBULAR SYSTEM	
• Is disturbed by bright lighting • Avoids sunlight • Follows any movement in the room with eyes • Covers part of visual field- puts hand over part of the page of a book • Responds physically to appearance of certain objects or colours	• Seems to need constant movement • Rocks, travels in circles • Seems to tires easily when engaged in movement activities • Is generally slow to move, lethargic • Takes a long time to respond to directions to move

GUSTATORY & OLFACTORY SYSTEM	
• Eats a limited variety of food • Gags, refuses food • Has difficulties with oral hygiene • Spits out foods, medications • Overreacts to smells in environment • Avoids places or people with strong odours	• Seems to be constantly wanting food • Licks objects in the environment • Chews on objects inappropriately • May ingest dangerous substances despite their unpleasant taste • Sniffs objects and people in unusual ways • Does not seem to notice the smells others notice

Source: Alberta Learning, *Teaching students with Autism Spectrum Disorders.* Alberta, Canada. 2003. https://education.alberta.ca/media/512925/autism3.pdf

ANNEXURE 3 : SALLY ANNE TEST

The Sally-Anne test is a psychological test, used in developmental psychology to measure a person's social cognitive ability to attribute false beliefs to others (Wimmer & Perner, 1983).

Wimmer and Perner (1983) observed a striking cognitive change in children between roughly three and four years of age. They discovered that three-year-olds tend to fail a certain false-belief task whereas four-year-olds tend to succeed on the task. As shown below, children watch a scenario featuring puppets or dolls in which the protagonist, Sally, leaves a marble on the counter and then departs the scene. In her absence Anne is seen to move the object from the counter to a box. The children are asked to predict where Sally will look for the marble when she returns to the room, or alternatively where Sally "thinks" the marble is.

Prior to age four children typically answer incorrectly, i.e., that Sally thinks it's in the box (where the chocolate really is). Around age four, however, most children answer as an adult would, by specifying the place where Sally left the marble, thereby ascribing to Sally (what they recognize to 4 be) a false belief.

What happens between three and four that accounts for this striking difference? Theorists answer by positing a change of theory in the minds of the children. At age three they typically have conceptions of desire and belief that depict these states as simple relations between the cognizer and the external world, relations that do not admit the possibility of error. This simple theory gradually gives way to a more sophisticated one in which beliefs are related to propositional representations that can be true or false of the world. At age three the child does not yet grasp the idea that a belief can be false. In lacking a representational theory of belief, the child has – as compared with adults – a "conceptual deficit" (Perner, 1991). This deficit is what makes the three- year-old child incapable of passing the false-belief test. Once the child attains a representational theory of belief, roughly at age four, she passes the location-change false-belief test.

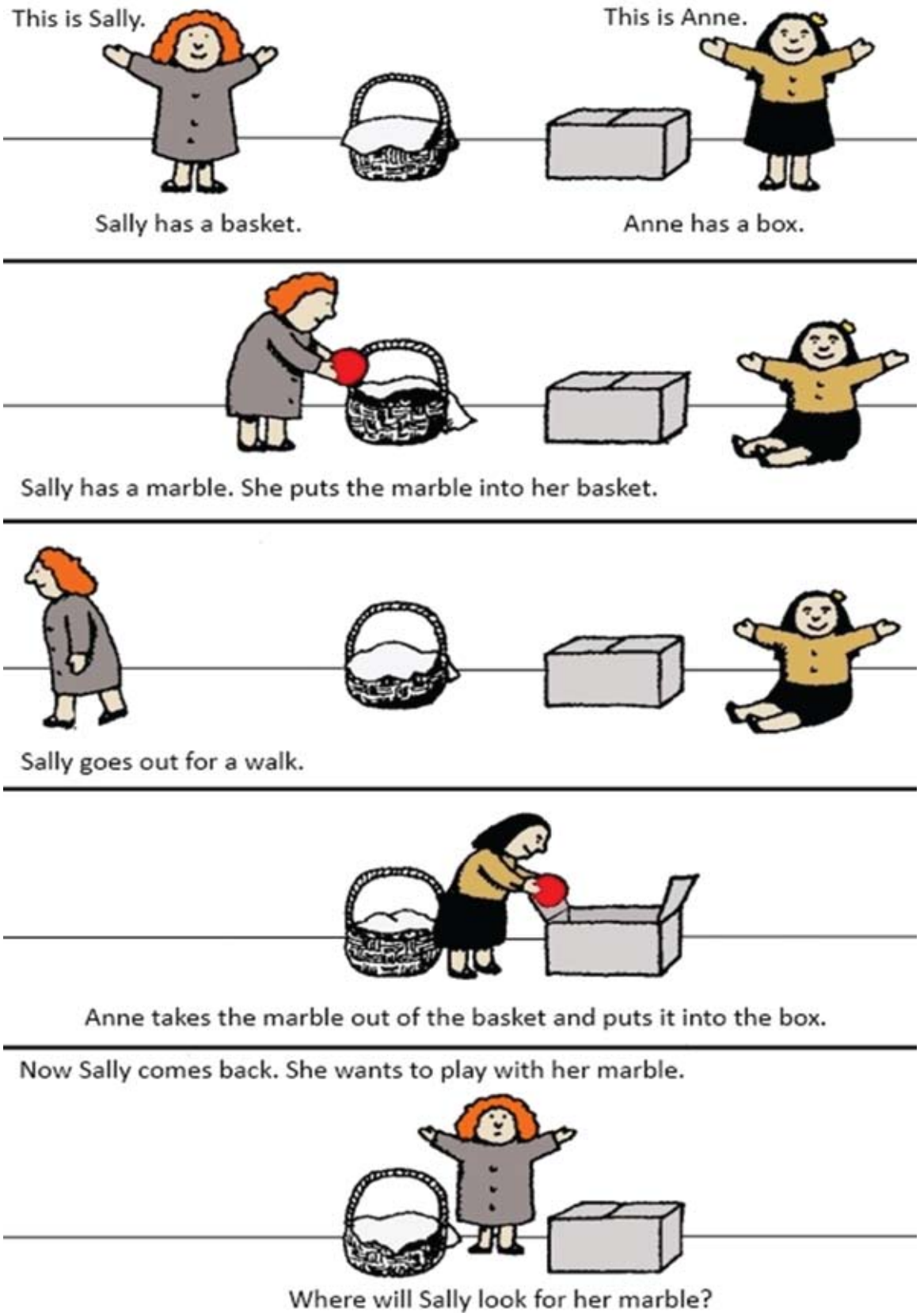
Test description: The experimenter uses two dolls, "Sally" and "Anne". Sally has a basket; Anne has a box. Experimenters show their subjects (usually children) a simple skit, in which Sally puts a marble in her basket and then leaves the scene. While Sally is away and cannot watch, Anne takes the marble out of Sally's basket and puts it into her box. Sally then returns and the children are asked where they think she will look for her marble. Children are said to "pass" the test if they understand that Sally will most likely look inside her basket before realizing that her marble isn't there.

'Normal children' under the age of four, along with most autistic children (of all ages), will answer "Anne's box," seemingly unaware that Sally does not know her marble has been moved.

Interpretation of the Sally Anne test: Children who pass the test (presumably) understand that there are two different sets of beliefs:

- Their own beliefs, based on what they have personally seen, heard, remembered, imagined, reasoned, etc.,
- The beliefs of others, based on what they have seen, heard, etc.

Perner, J. *Understanding the Representational Mind*. Cambridge, MA: MIT Press, 1991.



From : Where did the bird go? at http://whereidthebirdgo.com/2013/11/sally-anne-false-belief-test
Source : http://www.peerinsight.com/musings/2014/11/13/what-the-sally-anne-test-tells-us-about-communicating-change

Children who pass this test are believed to have the following mental capacities:

- To recognize that other people have perceptions/feelings/beliefs/thoughts/etc. different from their own;
- To recognize that others may not know everything they themselves know, and vice versa;
- To "mind-read" (or "mind-guess") other people's thoughts and feelings; and to predict (or even interfere with) other people's third-party relationships.

Those children who fail the test are said by some psychologists to lack a "theory of mind." (In this context, "mind" refers to psychological processes such as perception, belief, thought, or memory.) However, failing the Sally-Anne test does not mean that an individual has no awareness of mental states: very young children, who typically fail the test, nonetheless show other sophisticated social behaviors (such as empathy).

Source: http://www.autism-help.org/communication-mind-blindness.htm

For more details on the experiment see : http://www.holah.karoo.net/baronstudy.htm

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Note: