Indira Gandhi
National Open University
School of Education

BES-128
Creating an Inclusive School

Block

2

STRATEGIES FOR CREATING INCLUSIVE CLASSROOMS

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BES 128 CREATING AN INCLUSIVE SCHOOL

BLOCK 1 STRATEGIES FOR CREATING INCLUSIVE CLASSROOMS

Introduction to the Block

This block focuses on strategies for creating inclusive classrooms. It familiarizes student teachers with various teaching-learning strategies that engage all learners and develop ability and confidence in them. In this block, we shall discuss various teaching-learning strategies and evaluation, adaptation in curriculum and expanded core curriculum, aids, appliances and information communication technology and resources for inclusion. There are four units in this block which are briefly discussed here.

In unit 5, Strategies of Teaching – Learning and Evaluation, we discuss various approaches to instruction, teaching- learning strategies and continuous comprehensive evaluation in inclusive classroom and reporting and feedback.

In unit 6, Adaptation in Curriculum and Expanded Core Curriculum, we discuss concept, need and principles of adaptation, adaptation in curriculum and expanded core curriculum for children with various special needs.

In unit 7, Aids, Appliances and Information Communication Technology (ICT), we discuss the concept of aids, appliances and ICT for students with Special Needs (SwSN) and facilitating teaching learning through ICT.

In unit 8, Resources for Inclusion, we discuss resources for inclusion, collaborations and parents and community as resources.

UNIT 5 STRATEGIES OF TEACHING-LEARNING AND EVALUATION

Structure

1.1 INTRODUCTION

In the previous units, you have understood that inclusive education can be helpful for all children including children with special needs in identifying and overcoming barriers to learning. There have been paradigm shifts in use of appropriate teaching-learning approaches in the inclusive classroom. It is very important to visualize inclusive education in terms of children's learning capacity, learning difficulties and curriculum. Go through the table given below and appreciate the principles of inclusive education and try to relate with teaching-learning strategies of the inclusive classroom.

Table 5.1. Principles of Inclusive Education (IE)

Factors	What IE is not...	What IE is...?
Learning capacity	Establishes a hierarchy of cognitive skills to measure the abilities of each student	Highlights the learning potential of each student to be discovered and stimulated
Learning Difficulties	Learning difficulties are seen as deficiencies in student capabilities	Learning difficulties are seen as a need to reform curriculum and teaching and learning processes
Curriculum	Alternative curriculum designed for 'low achievers'	Common curriculum for all Students. Highlights active participation of students in the learning process

If each student's learning potential is to be discovered, stimulated and active participation in the learning process to be ensured, the instructions need to be designed in such a way that all children including those with different abilities are benefitted. Teaching practices need to be more flexible and effective as every child is different in his/her needs and learning styles. For example, while teaching a child with hearing impairment, you extensively use black board, visual aids such as charts, flow diagrams and models along with slow and clear speech. Don't you think these visual strategies will also help all children in your class? Yes, children without disabilities will also appreciate. If you have a child with visual impairment, then the teacher has to ensure that besides visual strategies, he/she also explains orally and uses models that the child can explore by tactile sense. This also helps all the other children in the classroom. The children who are slow in learning would fail to understand even a simple concept if they are not exposed to small and repeated step- wise demonstration of each concept. An effective teacher uses all these skills in his/her class. The teachers of inclusive classrooms need to understand and use effective instructions which help all the children to learn and use them in real life situations. In this unit, you will get familiar with some effective and important instructional strategies that you can use in the inclusive classroom.

5.2 OBJECTIVES

After reading this unit, you will be able to:

- Appreciate the principles underlying teaching-learning in an inclusive classroom;
- Identify suitable strategies for an inclusive classroom;
- Describe and use Universal Design for Learning (UDL);
- Plan Differentiated Instruction (DI) for diverse learners;
- Undertake continuous comprehensive evaluation (CCE);
- Report the progress and provide feedback.

5.3 UNDERSTANDING TEACHING-LEARNING IN INCLUSIVE CLASSROOM

Over the years, teachers have been engaged in the teaching-learning process of students who did not have any special needs. Of course, the teachers used to have diverse students who were different in terms of intellectual, social and emotional capabilities; motivation and interest; family and social backgrounds and such other variations. There are also examples of multi-grade teaching where the teacher is asked to teach students of different grades. However, the teachers never ceased their efforts in providing quality learning experiences to those diverse students including the average ones.

But today, our classrooms are more inclusive, and now diversity is the norm. The students are from varied backgrounds; different abilities are part of the classroom. Hence, the teachers need to equip themselves in effective teaching – learning strategies to justify their roles in the inclusive classroom.

We need to appreciate the philosophy and principles of inclusive education in the context of the teaching-learning process. Inclusive practice intends to protect the rights of every student and expects the system to change- the school, classroom, the teaching-learning strategies and such other related aspects, so that every child gets the opportunity for quality and optimal learning and for enjoying learning together and actively participating in learning activities. Hence, the teacher needs to use effective teaching-learning strategies which are applicable to all types of learners. We shall discuss these strategies in this unit.

5.4 IDENTIFYING INSTRUCTIONAL NEEDS

Now we are concerned about how the children with special needs would be equal partners and experience the same kind of learning in your classroom where you need to take care of their instructional needs, considering that there can be a few exceptions. In case of a child with severe disabilities, to cope with the curriculum and show progress in it, they may require special arrangements with a special educator and rehabilitation professionals. However, the teacher can meet most of the needs and for this she has to focus on instructions in other life skill areas, such as improving their social skills and activities of daily living.

You may consider the following steps for identifying instructional needs of children with special needs:

- **Identify individual needs and make an action plan**: Individualized Educational Plan (IEP) should be developed for those students; who have special needs. You need to have a list of annual goals for academic and non academic areas for the child which is to be taken care of during the year. Note that IEP is developed based on the child's individual needs, but this does not mean it is an individualized program of one to one teaching for the selected goals. Most of the goals selected in IEP are covered in the classroom while teaching the whole group, but individual needs are kept in mind by the teacher. For example, while teaching how to write a paragraph to the class, if there are children who have a goal to improve spelling as part of their IEP, the teacher involves them more in spelling task while making the class write a paragraph. Expected length of the paragraph may be different for some children who spend time in practising the spelling task.

- **Study the curriculum while identifying instructional needs**: You should begin with an assumption that children with special needs in your classroom will take part and learn content from the prescribed curriculum. The most important task for you is to identify the learning goals for each child with special needs and then translate the curriculum to achievable activities.

- **Decide how children with special needs can participate in the curricular transaction**: All children can participate fully if you provide accommodations (adjustment/adaptation), for example, listening to audio files from a mobile phone if the child finds it very difficult to read, and is given additional instruction, or if required, modifications/flexibility in the curriculum are done. But you need to plan it prior to your instruction. We will learn more about 'accommodation' in the next section.

Check Your Progress I

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

1) If you have a student with hearing impairment in you

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5.5 INDIVIDUALIZED EDUCATIONAL PLAN (IEP)

Sometimes, it is very difficult to fulfill the special needs of a child without a specific annual plan. By preparing the annual goals of a child, the teacher finds it more convenient while teaching in the classroom as she/he knows the exact needs of the child. Sometimes the teacher combines the IEP goals of many children which are similar and then teaches the same at group level. But when a goal is unique to a particular child (and not a common goal), then one to one teaching may be planned by the teacher and also extended to be carried out at home (if parents can). For example if Karan's goal is to read and write Braille alphabets or Simi's goal is to learn finger spelling for signing, these goals can only be achieved in separate one to one instruction and with the help of a special educator may be taken. The steps involved in IEP are given below:

- **Identify the child's strengths:** You need to understand the child's background well by collecting information on the child's personal details, family environment and past school history (if any) and so on. This will help you not only to build a rapport with the child but find out his/her strengths in both academic, non-academic and life skill areas.
- **Identify the child's instructional needs:** We have discussed about identifying instructional needs for a child with a special need. Follow the steps to identify them. Considering the child's strengths and limitations, customize and then prioritize the goals (those that can be achieved in a year) and finally make a list of the goals.
- **Separate the objectives to be taken up at group or individual level:** As discussed above, separate the objectives on the basis of being taken up at group or individual levels. In a particular activity, you can also respond to different instructional objectives. For example while teaching the properties of air (that air has weight), a child with visual impairment can be oriented to weights of different materials (that require tactile manipulation) or a child with hearing impairment would learn different vocabulary related to the activity and use them.
- **Involve the parents:** Parents need to be involved in achieving IEP goals. If same objectives are taken up both at school and extended to home it becomes easier to achieve in addition to expanding the scope for generalization. Always spell out the parents responsibilities clearly and guide them. Good relationships with parents always foster the achievement of the child with special needs.

Check Your Progress II

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

There are statements given below about IEP. Examine whether the statement is 'TRUE' or 'FALSE':

a. Parents should be involved while planning individual goals.

b. It will be easy to take up IEP goals on individual level rather than group level.

c. IEP records along with progress information help the teacher to communicate well with the parent.

d. IEP goals should be evaluated on annual basis and new goals should be set.

5.6 EFFECTIVE APPROACHES TO INSTRUCTION

Children with special needs have challenges in learning. We need to handle these challenges effectively while teaching. Let's discuss how certain special needs and other challenges can be addressed. Table 5.2 indicates the teacher's action to compensate if the child has difficulty in certain ability/skill areas.

Table 5.2: Meeting the Challenge of Teaching in Inclusive Classroom

Special Need	Area(s) to be Compensated	Ways to present lesson content		
		Auditory	Tactile/ Kinesthetic	Affective
Visual Impairment	Vision	• Presenting subject contents and information orally, • Reading aloud	• Taking on a field trip, • Demonstrating, • Using Braille	• Forming small groups, • One to one presentation or Tutorial, • Role playing, • Connecting to students' interest areas
Hearing Impairment	Auditory & Communication	Visual	Tactile/ Kinesthetic	Affective
		• Reading article, books with illustrations, • Watching Video clips or a slide show, • Watching an activity/ demonstration, • Sign language	• Taking on a field trip, • Demonstrating	Same as above
Intellectual & Learning Disabilities	Cognition or Processing	**Visual**	**Auditory**	**Tactile/ Kinesthetic** / **Affective**
		• Reading article, books with illustrations, • Watching video clips or a slide show, • Watching an activity/ demonstration	• Presenting contents and information orally, • Reading aloud	• Taking on a field trip, • Demonstrating / Same as above

The above ways of content presentation are definitely beneficial to all children in the classroom. When a teacher presents the subject content through different ways by involving multi-sensory approach and also takes care of their interest and motivation; it helps all types of learners including children with special needs in the classroom resulting in the most effective teaching. Effective instructions need to respond to the characteristics of a diverse group of students as well as be precisely tailored to the unique strengths and needs of each student. This can be achieved using the principles and guidelines associated with (a) Universal Design for Learning (UDL) (CAST, 2011, 2015) (b) Differentiated Instruction (DI) (Tomilson, 2001). UDL provides teachers with broad principles for planning instruction and designing learning environments for a diverse group of students, whereas differentiated instruction allows them to address and apply specific strategies to support in enhancing the skills and overcoming the difficulties. In the next sections we have discussed both UDL and DI in detail for your understanding for using these instructional approaches in the inclusive classrooms.

5.7 TEACHING-LEARNING STRATEGIES OF THE INCLUSIVE CLASSROOM

Here we have discussed some teaching-learning strategies that you can use in your inclusive classroom.

Co-operative Learning and Peer Tutoring

Cooperative learning is the cornerstone of inclusive education because it can accommodate children of varied skill abilities. Each child can help to complete the necessary task that calls for his or her particular talent, skill, or learning style, while contributing to the success of the group. Over time, it is important for children to function in various roles that not only call for their natural abilities but also help them to develop additional skills. Cooperative learning is advantageous for all culturally diverse children. The cooperative learning strategies make learning more acceptable and less threatening for many children. A mixture of different abilities, ethnic backgrounds, learning styles, and personal interest's works best resulting in productive teams.

Classes are great places to implement "peer buddies" or "peer tutoring". Children can be paired by matching their physical, cognitive and social needs. You may pair a child who is very active with someone who is less active. Some guiding principles for you to use peer tutoring are:

- You need to clearly establish the goal (what exact activity the pair would do);
- Use a peer as tutor that you think has mastery of the concept or skill to be taught;
- You must talk to the tutors about the kinds of questioning, prompts, feedback, or any special adaptations a child (classmate) might need;
- Last but not the least, you must monitor the progress systematically;
- Please remember that you may come across occasions where the peer who is being taught can have certain abilities in him/her that can be learning for other students in class. Spot the talent and use the special skills of the child with special need to reach to others. Here he/she can become

the tutor and is not always a peer learner. For example, a child with vision impairment can be excellent in music/verbal presentation skills or a child with hearing impairment/specific learning disability can be an remarkable artist in drawing and painting

Project Based Learning Approach

Project based learning (PBL) as a pedagogy is a great vehicle for meaningful inclusion because each of its project design elements and teaching practices are geared towards creating the kind of engagement and dynamic learning environments that are also known to best serve students with a wide range of disabilities (Uliasz, 2016). You need to integrate UDL and DI as well as IEP goals with PBL. In PBL, either you or your students devise projects that support content in a way that will help students go deeper or further. For example: making a model of an insect and labeling it or creating a play on some historical event. You need to reinforce content retention and there are lots of multi-sensory instructions involved in PBL. Use rubrics that you have read in Unit 8 of Block II, Course: BES 127 to assess student's learning.

Problem Based Approach

It is a student-centered pedagogy in which students learn about a subject through the experience of solving an open ended problem. In PBA, learning experiences are organized in small group situations focusing on a given issue/problem. Each student takes on a role within the group that may be formal or informal and their roles often rotate. It is focused on the student's reflection and reasoning to construct their own learning. The processes involved are: brainstorming, structuring and hypothesizing, learning objectives, independent study and synthesis. In short, it is identifying what they already know, what they need to know and how and where to access new information that may lead to the resolution of the problem. The role of the teacher is to facilitate the learning by supporting, guiding and monitoring the learning process.

Explicit Instruction

It is a systematic, direct way of engaging and is success oriented. It has been shown to promote achievement for all students. The instruction focuses on critical contents by analyzing the skills, strategies, vocabulary, concepts that students would develop and then lessons are sequentially and logically arranged for effective teaching- learning process. Frequent responses of students are elicited and student performance is carefully monitored. Immediate affirmative and corrective feedback is provided.

You as a teacher can search for more strategies which could be beneficial for teaching in an inclusive classroom.

Check Your Progress III

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

3) Write any three benefits of peer tutoring strategies while teaching in an inclusive classroom.

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5.8 UNIVERSAL DESIGN FOR LEARNING (UDL)

In an inclusive classroom, no single method can reach all learners; hence there is the need of having multiple pathways to achieve the goals of instruction. Universal Design is not just a technique for special education; rather it is a technique to enhance the learning of all students. UDL was inspired by work in architecture on the planning of buildings with a view to enhance accessibility for people with physical disabilities. The added improvement in the building facilitates access for all users and not just people with physical disabilities. A ramp, for instance, is helpful to a person using a wheelchair gain easier access to a building, but it also makes it easier for a patient, a small child or an old person.

With strong evidences from research, it has been clear that the assistance targeted at a specific group can help everyone. This has found its way into the field of education. Teachers are yet to realize that, teaching strategies and pedagogical materials and tools that respond to the special needs of a specific student or group of students are also useful for all students. For example, various types of assistive technology, such as speech-to-text software, organizational software, and interactive whiteboards, enable students who have special needs to access the curriculum. When these technologies became more widely available, teachers discovered that they could enhance learning for all students in the classroom. The discovery has transformed the way in which such technologies are being used in the classroom today.

Success Story of Nirmala

Nirmala Yadav teaches Science in a Primary School and she was planning to take a lesson on 'Farmers' Friend-Earthworm'. Madhav and Arshi are two children in her class who have hearing impairment. She was finding it very difficult to explain the lesson to them. Initially, she planned carrying the earthworms from the field with her to the class. Just by seeing the earthworms, children cannot understand how earthworms dig the soil to make it good for the plant. But she thought of some alternatives that she could do. She decided to make a small movie with the help of her mobile phone. Nirmala finally did and presented the same over a computer along with her lesson. To her surprise, it was not only Madhav and Arshi who were benefitted; the whole class had the best learning attitude. Just think how Nirmala used 'multimedia' to make her lesson inclusive. She thought it was small effort; but it was a great achievement.

Note: *Actual names are changed for anonymity.*

The aim of UDL, then, is to provide access to the curriculum for all students, and to assist educators in designing products and environment, making them accessible to everyone, regardless of age, skills, or situations.

UDL encourages the teacher to develop a class profile. That would help her to plan from the beginning. She needs to provide means and teaching- learning materials (TLMs) that are based on the strengths and the needs of all students. Remember that the instructional design is not only for those who have special needs. The core concepts of UDL can be summarized as follows:

Universality and equity: UDL is intended to ensure that teaching is designed in such a manner that it is based on the strengths of all students and meet their needs. The "universal" in UDL does not imply that there is one optimal solution for everyone; rather, it reflects awareness of the unique nature of each learner and the need to accommodate differences, creating learning experiences that suit individual learners and maximize their ability to progress (Rose & Meyer, 2002). This means planning learning opportunities that will extend the learning of all students, whatever their level of achievement, and help each one reach his or her potential.

Flexibility and inclusiveness: The planning of teaching and the time teachers allocate to students' activities must be sufficiently flexible to provide real learning experiences for all students, regardless of their performance levels. Students are accommodated through:

- Different teaching strategies and TLMs that are relevant, engaging, and responsive to their learning needs; that make use of all the senses; and that vary in form, level of difficulty, and manner of presentation;
- Various technological media (multimedia) and tools;
- Different types of assessment strategies, involving a range of media, formats, and response options (Note: During assessments, students have access to the same supports that they have during instruction unless those supports undermine the purpose of the assessment.);
- Various ways of using space.

Appropriately designed space: A learning environment should ensure that, for example:

- All students have a clear line of sight;
- All learning materials, including print, electronic, and interactive texts, are within comfortable reach of all students;
- There is adequate space for assistive devices or teacher's assistants.

Simplicity: Teachers can avoid unnecessary complexity and minimize distracting information by:

- Communicating consistent and achievable expectations;
- Collaborating with students to construct learning goals, using clear, student-friendly language;
- Arranging information sequentially to clarify its relative importance;
- Breaking instructions down into small steps;
- Providing descriptive feedback during the learning.

Safety: Safety is a precondition for learning. Classrooms must be safe for all and of all students and promotes student achievement and well-being, allowing every student emotionally. They must provide a caring and safe environment that is engaging, inclusive, and respectful to learn to the best of his or her ability.

Check Your Progress IV

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

4) Examine whether the statement is 'TRUE' or 'FALSE'. UDL takes the many components of teaching into account:

a) Overall and specific expectations and learning goals

b) Teaching strategies and learning situations

c) Pedagogical materials (teaching learning materials)

d) Technological tools

e) A variety of student products resulting from learning situations

f) Assessment and evaluation

Main Principles of UDL Applied while Planning Lesson and Instruction

We have now understood that application of UDL needs a positive environment in the classroom. Before applying the main principles of UDL to lesson plans and instruction, we must ensure that the overall design of providing learning experiences to the students, use of space and presentation of information are in order. Besides, it is important to take care of equity and accessibility for all students; flexibility and inclusiveness; simplicity and safety. Once it is ensured that these prerequisites are in order, we can use the following principles of UDL as given in Table 5.3.

Table 5.3: Application of UDL

Principles	How do I apply?
Multiple Means of Representation	need to provide for multiple means of representation, to accommodate students' different strengths in perception, language, and comprehension (e.g., providing alternatives for auditory and visual information; clarifying vocabulary and symbols; using multiple media; highlighting patterns and big ideas and guiding information processing.)
Multiple Means for Action and Expression	need to provide for multiple means for action and expression, to accommodate different physical, communication, and executive-function strengths (e.g., improving access to tools or assistive devices; varying ways in which students can respond; supporting students in goal setting, planning, and time management).
Multiple Means for Engagement	need to provide for multiple means for engagement, to accommodate different interests, attention spans, and strengths in self-regulation (e.g., allowing for individual choice, increasing relevance and authenticity, minimizing distractions, providing graduated levels of challenge, fostering collaboration)

The following points must guide teachers in the classroom while applying UDL principles:

- Use a variety of teaching and learning materials that represent all modalities (i.e., that make use of all the senses, that employ different media, and so on).
- Use multiple means of presentation, at various levels of difficulty, as appropriate for the students in the class (e.g., present information using visual, auditory, and kinesthetic formats during instruction). Make varied use of space.
- Ensure access to various types of information and communication technology tools to facilitate learning.
- Ensure adequate space and a minimum of distractions, so that students can concentrate on instructional elements.
- Ensure that the classroom is a caring and safe learning environment.

5.9 DIFFERENTIATED INSTRUCTION (DI)

DI is an approach to teaching that is intended to meet the learning needs of children with diverse abilities. This helps you to plan and deliver your instruction based on different strengths and weakness of the children in your classroom. As discussed earlier about UDL, the instruction is varied so that children can take information in various ways, use different approaches to understand key aspects of the information and express or demonstrate what they have learned according to their personal skills and abilities. It is important for you to plan the essential components or the most powerful ideas of the content to deliver as children will learn material in different breadths and depths. To accomplish the desired outcomes, DI uses flexible grouping patterns; sometimes whole class instruction occurs, and sometimes children work in small groups. Some important steps of DI are given here:

- **Know your student's strengths and plan to teach by using them**: For example, some children may enjoy playing sports and others may like singing or acting. You can often use these strengths to find out an approach to instruction that will be most appealing to them.
- **Vary the instructional content based on children's strengths, performance level, and need:** The idea is not to change the essential aspects of the content but to offer in different ways or degrees based on current performance of the children.
- **Change the instructional approach, lessons, and grouping based on children's characteristics and need for support:** Different learners need varying amount and types of support; so plan your lessons from simple to advanced levels and group children (initially for whole group and then breaking into different small groups) for different types of instructions to be delivered.
- **Consider various ways for children to demonstrate what they have learned:** For some, use alternative ways of assessment (may be oral test for a particular child) to determine their mastery of content knowledge and

how well the child has acquired the desired contents through summative assessment. However do not forget to use formative assessment to monitor children's learning.

DI includes	DI does not include
• Providing alternative instructional and assessment activities; • Challenging students at an appropriate level; • Using a variety of groupings to meet student needs.	• Doing something different for every student in the class; • Disorderly or undisciplined student activity; • Using groups that never change, or isolating struggling students within the class; • All students participating in the same endeavour.

A key strategy in differentiated instruction is the use of flexible groupings, which allows teachers to assign different tasks to different students, individually or in small groups, based on strengths, interests, learning styles, or readiness. Students may be grouped by interest, but may also have activities set at different levels of complexity (questioning levels, abstract thinking processes) resulting in varying products that employ students' preferred learning modality (auditory, visual, or kinesthetic). It is important to note, however, that the approach does not exclude instruction and activities in which all students are working on the same learning task at the same time, whether individually, in groups, or as a class.

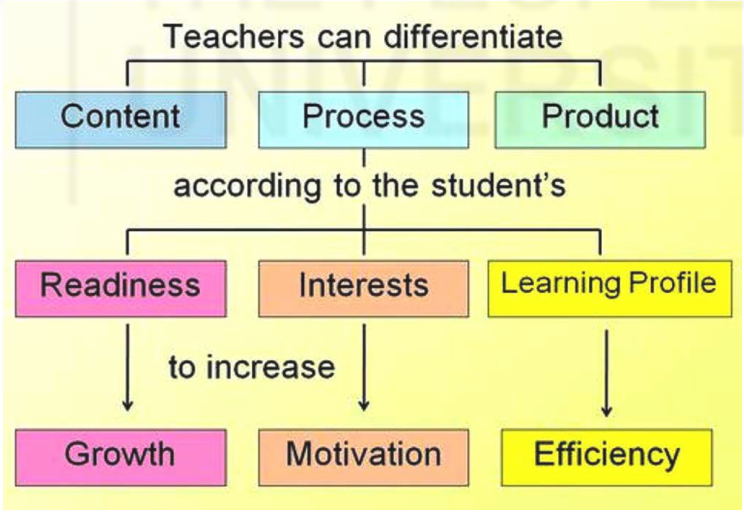

Figure 5.1 Differentiated Instruction

Source: https://www.tes.com/lessons/lrDlRlZiTH8JWg/differentiated-instruction

Main Principles of DI Applied while Planning Lesson and Instruction

Before applying the main principles of DI to lesson plans and instruction, we must ensure that assessment and instructions are varied to (a) suit diverse learning styles and preferences; (b) engage students with diverse interests; (c) support

students who are at different stages in their readiness to learn and provide scaffolding, emotional support, and opportunity for practice.

Then we can use the following principles of DI as given in Table 5.4.

Table 5.4: Main Principles of DI

Principles	How do I apply?
Differentiate Content	• Vary content (e.g., provide content at different levels of difficulty; enable students to extend knowledge and skills) to suit student readiness, interests, motivational needs, and learning styles. • Unpack the big ideas of the curriculum to create achievable learning goals. • Introduce new learning and pose open questions as appropriate to the student's zone of proximal development (ZPD).
Differentiate Process	• Use various assessment strategies to match students' strengths, learning style preferences, interests, and readiness. • Use various types of learning activities and various grouping strategies to draw on students' strengths and provide support in areas that need improvement. • Use a variety of instructional and management strategies that engage all modalities. • Provide students with opportunities to choose from an array of activities and projects that involve differentiated processes. • Monitor students' response to the differentiated strategies used, and assess their progress on a regular basis. • Provide the accommodations and/or modifications that are specified in the IEPs of students who have special needs.
Differentiate Product	• Gather achievement data through various assessment tools. • Engage students' interest by involving them in various different types of projects and problem-solving activities. • Foster students' awareness of their strengths in learning, and their sense of ownership of their learning, by allowing them to choose the products they will create and the formats or modes of presentation they will use.

5.10 COMMON CLASSROOM STRATEGIES THAT SUPPORT BOTH UDL AND DI

Now you might have understood that UDL and DI overlap, share a number of goals and strategies, such as the following:

- Taking into account the background and experiences of all students to meet their diverse interests, aptitudes, and learning needs;
- Varying the form of assessment and instructional materials (e.g., printed text, visual or auditory representations);
- Using various types of media;
- Providing opportunities for different kinds of activities and different means of demonstrating learning;
- Providing a safe and supportive environment that enhances students' ability to learn.

Now you must have thought of instructional strategies in their classrooms that support some of the shared principles of UDL and DI, including *cooperative learning, project-based approaches, problem-based approaches,* and *explicit instruction*. The Table 5.5 summarizes relevant aspects of these strategies.

Table 5.5: Common Classroom Strategies Supporting UDL and DI

Principles	How do I apply?
Cooperative learning	• Emphasizes small-group work, which suits the emotional needs and learning styles of some students. • Groups are composed of students with different abilities and talents, enabling participants to experience the value of their particular strengths. • Students work together to achieve specific tasks, which fosters positive interdependence and responsibility. • Tasks are structured so that no single team member can complete them on his or her own, which fosters an appreciation of diverse strengths and teamwork.
Project-based approach	• Facilitates learning through a variety of different projects focused on a particular topic or theme, allowing students to work on topics of particular interest to them, at their own level and pace. • Students may work independently or in mixed-ability groups, as suits their particular learning style or emotional need.

	• For group projects, the teacher ensures that students can work simultaneously on a number of different options. • The teacher monitors carefully to ensure that students are attempting tasks at the most appropriate instructional level.
Problem-based approach	• Allows students to solve realistic problems by reflecting on best strategies and drawing on prior knowledge of effective approaches used in other problem situations, according to their particular prior knowledge and readiness to learn. • Requires careful planning by teacher to provide appropriate cognitive challenges for every student.
Explicit instruction	• Provides suitable learning opportunities for students who benefit most from structured learning, clear direction, and specified processes. Provides structure for students who need more guidance. • Requires teacher to frequently model the use of learning strategies and assessment tools by: – verbalizing thought processes, including steps of a learning strategy or process; – providing opportunities for students to practice using the strategy; – mentoring and monitoring students' practices; – providing timely feedback; – guiding students' attempts until they can carry out the strategy independently.

5.11 CONTINUOUS COMPREHENSIVE EVALUATION (CCE) IN INCLUSIVE CLASSROOM

You must be familiar with CCE. It refers to a system of school based evaluation of students that cover all aspects of development. As the term suggests, it is a continuous process built into total teaching-learning process rather than an event. It means regular assessment, frequent unit testing, diagnosis of learning gaps, and use of corrective measures, retesting and feedback of evidence to teachers and students for their self evaluation. In inclusive classroom, you need to follow the CCE procedure, but it is important to remember that evaluating the achievement of a child with special needs is not an easy task. Inappropriate

evaluation can lead to lowering of the child's confidence and stop their efforts to achieve which may be very challenging according to their special needs. The following points you must keep in your mind while undertaking CCE:

- **Decide if flexibility in grading is necessary:** By knowing the child's problem, be flexible while grading. For example, you may not reduce the grade if a hearing impaired child has a number of mistakes in spelling and sentence structure.
- **Decide on the purpose of grading:** Grading helps children to improve their performance and teacher to focus on instruction. You need to grade only when it helps the child to improve.
- **Determine the grading adaptation to be used:** Adaptation may vary according to the Personalized Grading Plan (PGP), but most common adaptations on grading can be (a) the child's grading is done as per progress on IEP objectives; (b) improvements over time; (c) correct procedure used despite an incomplete assignment; (d) high level of effort made by the child but could not complete the test; (e) alternative grading based on assignments/ participation in the classroom at the place of examination.

You as a teacher must ensure that the child has understood the test material and necessary adaptations (wherever applicable) are available for taking the test. Allow more time or change the format so that the child would respond in the best way or you may need to change the test environment where the child would be more comfortable with the test (the furniture, lighting, enough space for working fewer distractions etc.).

In case of term end or final examinations of 10th and 12th class, various examination boards and councils also provide exemptions and concessions to the students with special needs. For illustration purpose, the Circular of Central Board of Secondary Education of 24 January 2017 is given at the end of this Unit (Annexure 1).

5.12 REPORTING AND FEEDBACK

Effective progress monitoring, regular reporting of progress and a good feedback mechanism are keys to success for students in the inclusive classroom. Progress can be monitored in four general categories: (1) Curriculum-Based Measurement; (2) Classroom assessments (system or teacher-developed); (3) Adaptive assessments; and (4) Large-scale assessments used during the year to monitor growth of individual students and groups of students. For reporting and feedback, you need to consider the following points:

– Use multiple measures for progress monitoring.

– The entire school needs to build skills and knowledge on how progress monitoring is used in inclusive classroom for improvement and follow the same.

– Find and use available resources for effective reporting and platforms for sharing feedback.

– Apply universal design for learning principles to the design of progress monitoring techniques to ensure that individual learner differences are considered from the start.

– Be prepared to have an open discussion of whether the benefit of a comprehensive progress monitoring improvement process is sufficiently large to offset the additional time or cost required for implementation.

5.13 LET US SUM UP

The teacher has a great role to play in creating a positive environment in the school. The inclusive classroom requires teaching-learning strategies that suit all students in the class including children with special needs. Before involving in the teaching-learning process, the teacher must identify instructional needs and whereever required, prepare an IEP. She should be aware of various inclusive classroom teaching –learning strategies such as cooperative learning, peer tutoring, project based learning, problem based approach, explicit instruction, etc. He/she should apply the concept of UDL in her class to design instructional methods, materials, activities and evaluation procedures in an effort to support children with wide differences in their abilities. Differentiated instruction is applied to vary the instructional content based on children's strength, performance level and needs. Changes are made in instructional approach, lessons and grouping based on children's characteristics and need for support. Adaptations and accommodations in teaching must be considered seriously while undertaking CCE, measuring progress and providing feedback.

5.14 ANSWERS TO CHECK YOUR PROGRESS

5.1 Do yourself

5.2 a. True, b. False, c. True, d. True

5.3 Do yourself

5.4 a to f – all true

5.15 REFERENCES AND RESOURCES

1. **CAST (2011)**. Universal Design for Learning Guidelines version 2.0. Wakefield, MA: Author. **CAST. (2015).** About Universal Design for Learning. Retrieved from http://www.cast.org/our-work/a bout-udl.html#.V88Bc-krKUk

2. **Tomlinson, C. (2001).** How to differentiate instruction in mixed ability classroom (2nd ed), Alexandria, VA: Association for Supervision and Curriculum Development

3. **Uliasz, K. (2016).** Inclusive special education via PBL. Retrieved from www.bie.org/blog/inclusive_special_education_via_pbl/ retrieved on 15 March 2017.

Web Resources

ASCD- Learn, Teach & Lead: Online/multimedia resources available on differentiated instruction, visit: www.ascd.org/research-a-topic/differentiated-instruction-multimedia.aspx#online

CAST- Universal Design for Learning (UDL): A comprehensive website of information and resources regarding UDL, visit: www.cast.org/udl/index.html

Making everyone In (Video): An overview of all videos developed for Inclusive Learning: Everyone's In, highlighting the indicators of success in eight schools across Edmonton Public Schools. Visit: http://www.youtube.com/watch?v=aTXtT05782Y

MyEducationLab: Go to topics on teaching in inclusive classroom, visit www.myeducationlab.com

The Inclusive Class: Ten items that can make your classroom more inclusive, visit www.theinclusiveclass.com

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Annexure-I

Instructions/Exemptions/concessionsextended by the Boardduring Secondary (Class X)& Senior School Certificate(Class XII) Examinations for Differently Abled Candidates

A. GENERAL INSTRUCTIONS/CONCESSIONS(APPLICABLE FOR CLASS X & XII)

Sl.No.	Subject	Instructions/ Concessions
1.	Medical Certificate	The medical certificate issued by the following agencies/organizations will be considered for granting concessions to Differently abled candidates: i) Disability Certificate(s) issued by Government hospitals controlled by either the Central or State Governments; ii) Disability Certificate(s) issued by Recognized institutes of national level viz National Association for the Blind, Spastic Society of India etc; and iii) Disability Certificate(s) issued by Non-governmental Organizations/practitioners registered with Rehabilitation Council of India/Central Government/State Government of the Respective State.
2.	Scribe and compensatory time	i) Spastic, Visually Impaired, Physically Handicapped, Dyslexic, Autistic and candidates with disabilities as defined in THE RIGHTS OF PERSONS WITH DISABILITIES ACT 2016 are permitted to use a Scribe **or** allowed Compensatory time as given below **or** both : For paper of 3 hours duration 60 minutes For paper of 2½ hours duration 50 minutes For paper of 2 hours duration 40 minutes For paper of 1½ hours duration 30 minutes ii) Autistic candidate is permitted to use the services of a scribe or an Adult prompter.
3.	Appointment of Scribe and related instructions	i) A person to be appointed as scribe should not have obtained his/her qualifications in the same subject (s) in which the candidate shall be appearing for the examination ii) candidate shall have the discretion of opting for his own scribe and shall have the flexibility in accommodating change in scribe in case of emergency. iii) Candidate shall also have the option of meeting the scribe a day before the examination. iv) Centre Superintendent of the examination centre concerned shall forward to the concerned Regional Officer of the Board, a report giving full particulars of

		the candidate and of the scribe. v) Suitable room shall be arranged for the candidate for whom a scribe is allowed and aseparate Assistant Superintendent shall be appointed by the Centre Superintendent to supervise his/her examination. vi) Services of Scribe shall be provided free of cost vii) The Scribe shall be paid by the Board remuneration as prescribed from time to time.
4.	Other General instructions/ facilities	i) To facilitate easy access, a few selected schools are made examination centers for special students. ii) Teachers from schools for visually impaired are appointed as Assistant Superintendent(s) (Invigilators) at the special examination centers. However, precaution is taken to appoint different subject teachers on different days. iii) Answer books of differently abled candidates are sent separately by the Centre Superintendents iv) A separate column is provided on the title page of the answer book for indicating the category of differently abled candidates. v) Visually Impaired candidates are permitted use of screen reading software (like JAWS- Job Access with Speech) with prior approval of the Board. They also have the facility of using a computer or a typewriter for writing answers. vi) Use of calculator is not permitted in any of the examinations conducted by the Board
5.	CGPA Calculation	CGPA in respect Candidates with disabilities as defined in THE RIGHTS OF PERSONS WITH DISABILITIES ACT 2016 be calculated out of 5 subjects only, even if offering a NSQF subject under Compulsory group.
6.	Fee	Registration and Examination fee (IX, X, XI, XII) will not be charged from Visually Impaired students.

B. SPECIFIC EXEMPTIONS/CONCESSIONS

I. CLASS X

S. No.	Subject	Exemptions/Concessions
1.	Exemption from third language	Exemption from examination in the third language from Classes VI to VIII is granted to • Visually impaired candidates • Candidates suffering from speech / hearing defects • Dyslexic candidates • Candidates with disabilities as defined in THE RIGHTS OF PERSONS WITH DISABILITIES ACT 2016.
2.	Flexibility in choosing subjects	i) "Candidates with visual and hearing impairment, Spastic, Dyslexic, Autistic and candidates with disabilities as defined in THE RIGHTS OF PERSONS WITH DISABILITIES ACT 2016 have the option of

		studying one compulsory language as against two. This language should be in consonance with the overall spirit of the Three Language Formula prescribed by the Board. Besides one language any four of the following subjects be offered". *Mathematics, Science, Social Science, another language, Music, Painting, Home Science, Foundation of Information Technology, Commerce(Elements of Business), Commerce(Elements of Book Keeping and Accountancy),* ***E-Publishing and E-Office(English),E-Publishing and E-Office(Hindi), Information and Communication Technology(ICT-166), any one out of Retail (NSQF) and Information Technology (NSQF)*** ii) Bonafide residents of Delhi appearing as Private candidate as per provisions of Examination Byelaws cannot take subjects having Practical Component at Secondary level. However, candidates with disabilities as defined in the Examination Bye-laws have the option of taking up Music, Painting, Home Science as the subjects of study. iii) Physio-therapic exercises are considered as equivalent to Physical and Health Education course of the Board.
3.	Alternate questions/Separate Question Paper	i) Alternative type questions are provided in lieu of questions having visual inputs for Visually Impaired candidates in the subjects of English Communicative and Social Science. ii) Separate question papers in enlarged print are provided in the subjects of Mathematics and Science.

II. CLASS XII

S.No.	Subject	Exemptions/Concessions
1.	Flexibility in Choosing subjects.	Bonafide residents of Delhi appearing as Private candidate as per provisions of Examination Byelaws cannot take subjects having Practical Component. However, candidates with disabilities as defined in the Examination Bye-laws have the option of taking Music, Painting, Home Science as the subjects of study.
2.	Separate question paper and questions in lieu of practical component	Visually Impaired candidates are - i) given separate question papers containing Multiple choice questions based on Practical component in lieu of practicals in the subjects of Physics, Chemistry and Biology ii) Question papers administered in the subjects of Physics, Chemistry, Mathematics and Biology are without any visual input iii) Alternative type questions are provided in lieu of questions having visual inputs in the subjects of History, Geography and Economics

Students studying in schools affiliated to the Board and desirous of availing the exemptions/concessions should approach the concerned Regional Office of CBSE through the Head of their Institution preferably while in Class IX and/or XI. The request should be supported by relevant medical certificate and recommendation from the Head of the School/Institution. Only those students would be considered for grant of exemption/concession in whose respect relevant category has been entered during registration in Class IX and/or XI.

C. Advisory to schools as per the Guidelines of Inclusive Education of Children with Disabilities (IECD):

a. to ensure that no child with special needs is denied admission in Mainstream Education
b. to monitor enrolment of disabled children in schools
c. Schools to provide support through assistive devices and the availability of trained teachers
d. to modify the existing physical infrastructure and teaching methodologies to meet the needs of all children including Children with Special Needs
e. to ensure that they are made disabled friendly by 2020 and all educational institutions including hostels, libraries, laboratories and buildings have barrier free access for the disabled
f. to ensure availability of Study material for the disabled and Talking Text Books, Reading Machines and computers with speech software
g. to ensure adequate number of sign language interpreters, transcription services and a loop induction system for the hearing handicapped students
h. to revisit classroom organization required for the education of Children with Special Needs
i. to ensure regular in-service training of teachers in inclusive education at the elementary and secondary level.

CBSE has 10 Regional Offices which deal with matters of different states. Contact number, jurisdiction and address of Regional Offices is available on the website of CBSE. CBSE has also a Helpline 1800-11-8002 which is functional on all working days from 9 AM - 7PM.

UNIT 6 ADAPTATION IN CURRICULUM AND EXPANDED CORE CURRICULUM

Structure

6.1 INTRODUCTION

The phenomenal increase in the number of children with special needs in schools has raised concern for rethinking and analysis. It calls for expansion of services to meet the needs of children with special needs to help them develop optimally, cognitively and socially. The National Curriculum Framework on School Education (NCF - 2005) recommends making curriculum flexible and appropriate to accommodate the diversity of school children including those with disabilities in both cognitive and non-cognitive areas. The actions teachers take to adapt curriculum to address the child's needs is important in creating an inclusive classroom. This unit will focus on various adaptations in curriculum and expanded core curriculum for children with special needs studying in the inclusive set-up.

6.2 OBJECTIVES

After going through this unit, you will be able to:

- demonstrate understanding of the concept of adaptation in curriculum and expanded core curriculum;
- describe the need for adaptation in curriculum and expanded core curriculum; and
- explain the curricular and expanded core curricular adaptations for children with special needs in the inclusive classroom.

6.3 CONCEPT AND NEED

The adaptation in curriculum has been defined as the concept of adjusting in educational programmes to accommodate diversity in student learning. Rather than being viewed as an "add-on", the curriculum adaptation must be viewed as an essential ingredient that spreads throughout the curriculum and instruction in all general, modified and alternate education programmes.

The focus should be on meeting individual needs and maximizing student learning. In some instances, a student's needs may best be met through individualized instruction where the teacher works one to one with the student; however, in other situations, some form of group instruction may be more appropriate for the student.

The adaptation in curriculum addresses the needs of a variety of students. Because, each teacher, each learner and the dynamics of each classroom is unique, the adaptations required may vary from student to student. For example, adaptations may be in the form of a modification of content to compensate for an informational deficit or may be in the form of an individual or small group enrichment activity to nurture demonstrated knowledge and interest in a topic.

A student may be able to achieve some objectives through general instructional approaches, while requiring adaptation to curriculum content, instructional practices, and/ or the learning environment to reach other objectives. Another student may require some form of adaptation to achieve objectives in all the content areas. Furthermore, the length of time an individual student may require for curricular, instructional, and/or environmental adaptations to learn efficiently may vary from a few lessons to being an integral part of an entire educational programme.

Adaptation therefore influences curricular aim, contents, method and evaluation. Adaptation needs to be individualized for students, based upon their needs, their personal learning styles and interests. This allows students to access the general curriculum and other learning materials and activities and to demonstrate what they have learnt. As they experience success in the classroom, motivation and learning increases, and overall student outcomes improve.

The term Expanded Core Curriculum (ECC) is defined as concepts and skills that often require specialized instruction for students with special needs to compensate for decreased opportunities to learn incidentally by observing others. For a student who is blind, learning about world geography from books is not enough. That student must also learn orientation and mobility skills and practice using a white cane for safe, independent travel.

The expanded core curriculum empowers students with special needs to access their education and make their own choices throughout life. The ECC areas

include: compensatory skills, including communication modes (adaptations needed for students to access core subjects such as Braille, sign language, or tactile symbols); orientation and mobility; social interaction skills; independent living skills; recreation and leisure skills; career education; assistive technology; sensory efficiency skills; and self-determination.

6.4 PRINCIPLES OF ADAPTATION

1. The adaptive curriculum is designed for all students in all educational settings.

2. The adaptive curriculum accepts students diversity, as reflected in individual differences, to be a key consideration as teacher's plan.

    - It is acknowledged that students come to the classroom with significant differences in cultural backgrounds, aptitudes, interests, abilities and achievement levels which must be accommodated through adaptation to curriculum content, instructional strategies, and the learning environment if all are to benefit equitably from the approved programmes.

3. The adaptive curriculum assumes that there is an interrelationship among the variables associated with adaptation.

    - Adaptation to accommodate learning styles necessitate adjustments to instructional approaches and assessment practices.
    - Adaptation to evaluation practices may be necessitated by changes to the amount, type, and time frame for students to explore the curriculum.
    - Adaptation in curriculum, instruction, and assessment practices may require changes in resource requirements, support personnel, and classroom organization.

4. The adaptive curriculum requires the teacher to attend the learner, the learning task, and the learning environment in optimizing learning opportunities for students.

    - It is understood that adaptation considers the student's developmental level, the specific needs, the interests, and the learning styles, the demands of the learning task, the significant aspects of learning environment, and the knowledge, skills, and abilities of the teacher.

5. The adaptive curriculum recognizes that students approach learning in multiple ways.

    - Teachers should know about differences in learning styles and regard adaptations designed to accommodate differences as an expected part of their teaching responsibilities.

6. The adaptive curriculum recognizes the importance of careful collaborative preplanning for instruction.

    - Preplanning, which may involve consultation with students, parents/ guardians, and other professionals, is fundamental to structuring adaptations to maximize students' potential as independent learners.

7. The adaptive curriculum requires that assessment practices align with the curricular and instructional adaptation provided for the student.

    - Assessment practices must be adapted to be consistent with curricular and instructional adaptations.
    - It is expected that learners will be familiar with current research and the best practices for diagnosis of student needs, assessment of student learning, and evaluation of all aspects of student development.

6.5 ADAPTATION IN CURRICULUM AND EXPANDED CORE CURRICULUM FOR CHILDREN WITH SENSORY DISABILITIES

Adaptations are needed to make it more suitable for students with special needs in the inclusive classroom. Three key areas of consideration are: 1) how the curriculum is presented 2) how students are required to respond and 3) how their efforts are evaluated. In the following sub sections, we will discuss these with regard to various disabilities in detail.

6.5.1 Visual Impairment

These children can be categorized into two main types i.e., blind and children with low vision. For those who are blind, Braille or recorded tapes must be the medium of instruction and for children with low vision, print with magnification. No significant modification is required in the curricular content, but special equipment is needed for teaching Braille, mathematics, science and social studies. It will be necessary for a teacher to adapt his/ her teaching strategies to suit the needs of a student who is blind and one who has low vision. The following points should be borne in mind.

- Show models that can be comprehended by touch instead of illustrations.
- Say it, orally, whatever you write on the black board.
- Assignments should be taken either on Braille or on a tape.
- Orient the child fully with the classroom and school building.
- It will be preferable to associate with a peer who will take responsibility of giving the blind student lecture notes, taking him/her out when necessary and/or facilitate his/ her involvement in play and other suitable occasions.
- Provide them with the facility to magnify the text (optical devices such as magnifiers/large font size on computer) provide magnified texts, contrasts in presentation, good lighting and more time for doing assignment.
- Adaptation of games, For example, chess, cards, cricket and badminton.
- Encourage the child to be mobile within the campus. Fix self-illuminating contrast strips on the staircase to give depth perception which children with low vision seem to lack.
- Give the right environment, equipment and encouragement for a blind child to perform.

- Encourage all children to interact freely in the classroom.
- Encourage students with blindness and low vision to join in all competitions such as essay writing, debating, storytelling, recitation, music and other activities that the sighted children participate in.

Specific strategies involve the use of skills such as plus curricular activities, Braille, reading, writing skills, orientation and monitoring and spatial equipment. These have been briefly explained below.

Plus Curricular Activities

Plus curricular activities are meant for providing compensatory experiences to visually impaired children in inclusive education programmes. Plus curriculum means development of skills specific to blindness such as Braille reading, Braille writing, orientation and mobility, daily living skills, sensory training and use of mathematical devices such as Taylor's frame and abacus.

Braille

Braille is a medium of written communication of that part of population that cannot communicate through usual print because of their visual impairment. Every teacher should be familiar with open English Braille and Bharati Braille as applicable to regional languages. Students with Visual impairment should be taught how to read and write Indian Braille.

Taylor Arithmetic Frame

Taylor frame has aluminum frame with star shaped holes with eight angles, thus allowing the double-ended metal types to be placed in various positions according to a set system. This frame is suitable for teaching arithmetic to children with visual impairement.

Abacus

A simple instrument for performing rapid arithmetical calculations. Please refer Unit 7 on aids and appliances for detailed description of all the relevant aids and appliances.

The Expanded Core Curriculum (ECC) is the body of knowledge and skills that are needed by children with visual impairment due to their unique disability-specific needs. Children with visual impairment need the expanded core curriculum in addition to the core academic curriculum of general education. The ECC should be used as a framework for assessing students, planning individual goals and providing instruction. A brief description for each of these areas of expanded core curriculum is as follows:

Compensatory Skills

Compensatory skills include skills necessary for accessing the core curriculum including concept development; communication modes; organization and study skills; access to print materials; and the use of Braille, tactile graphics, object and/or tactile symbols, sign language, and audio materials.

Orientation and Mobility

Orientation and mobility instruction enables students of all ages and motor abilities to be oriented to their surroundings and to move as independently and safely

as possible. Students learn about themselves and their environments, including home, school, and community. Orientation and mobility lessons incorporate skills ranging from basic body image, spatial relationships, and purposeful movement to cane usage, travel in the community, and use of public transportation. Orientation and mobility skills enable students to acquire independence to the greatest extent possible, based on their individual needs and abilities.

Social Interaction Skills

Social interaction skills include awareness of body language, gestures, facial expressions, and personal space. Instruction also includes learning about interpersonal relationships, self-control, and human sexuality. Almost all social skills are learned by visually observing other people. Instruction in social interaction skills in school, work, and recreational settings is crucial. Having appropriate social skills can often mean the difference between social isolation and a fulfilling life as an adult.

Independent Living Skills

Independent living skills include the tasks and functions people perform in daily life to increase their independence and contribute to the family structure. These skills include personal hygiene, eating skills, food preparation, time and money management, clothing care, and household tasks. People with vision typically learn such daily routines through observation, whereas individuals with visual impairment often need systematic instruction and frequent practice in these daily tasks.

Recreation and Leisure Skills

Being unable to observe others reduces awareness of recreation and leisure options. Instruction in recreation and leisure skills will ensure that students with visual impairment will have opportunities to explore, experience, and choose physical and leisure-time activities, both organized and individual, that they enjoy. This instruction should focus on the development of life-long skills.

Career Education

Career education will provide students with visual impairment of all ages the opportunity to learn through hands-on experiences about jobs that they may not otherwise be aware of without the ability to observe people working. They also learn work-related skills such as assuming responsibility, punctuality, and staying on task. Career education provides opportunities for students to explore and discover strengths and interests and plan for transition to adult life.

Assistive Technology

Assistive technology is an umbrella term that includes assistive and adaptive tools as well as instructional services that can enhance communication, access, and learning. It can include electronic equipment such as switches, mobile devices, and portable note takers; computer access such as magnification software, screen readers, and keyboarding; and low-tech devices such as an abacus, a brailler, active learning materials (e.g., Little Room), and optical devices.

Sensory Efficiency Skills

Sensory efficiency includes instruction in the use of vision, hearing, touch, smell, and taste. Learning to use their senses efficiently, including the use of optical

devices, will enable students with visual impairment to access and participate in activities in school, home, and community environment.

Self-Determination

Self-determination includes choice-making, decision-making, problem solving, personal advocacy, assertiveness, and goal setting. Students with visual impairment often have fewer opportunities to develop and practice the specific skills that lead to self-determination. Students who know and value who they are and who have self-determination skills become effective advocates for themselves and therefore have more control over their lives.

6.5.2 Hearing Impairment

Hearing impairment is a great barrier to the normal development of language; the child with such impairment is at a severe disadvantage in virtually all aspects of language development. Language being a very powerful tool of learning, its importance in academic achievement can never be overemphasized. A considerable number of educators of the deaf individuals believe that many of the problems of people who are hearing-impaired related to social and intellectual development are primarily due to their deficiencies in language. Therefore, to help those with hearing impairment develop optimally in all aspects of learning, i.e. social, emotional and cognitive, it is imperative to ensure early identification and intervention early in life.

For inclusion of students with hearing impairment in general classroom the following points should be kept in mind.

1. The distance between the child with hearing impairment and teacher should not be more than three to four feet.
2. The teacher should avoid moving too much while speaking so that the child can see his/her face.
3. The teacher's face should always be in sufficient light to enable face and lip reading by the child.
4. The school can make efforts to reduce unnecessary noise by carpeting floors, draping windows and covering walls with materials that absorb noise; if this is not possible, rubber pegs should be used under the legs of the tables and chairs. All electrical equipment in the classroom such as fans and tube lights should work without making any noise as such noise can interfere with the child in using the residual hearing that s/he might have.
5. When answering or asking any question, a student should be asked to come in front so that the hearing-impaired child can also participate and learn.
6. For hearing impaired children, seating arrangement should be carefully planned to keep in view the teacher's visibility and audibility of his/ her speech.
    - Child should be seated in front to allow accurate reading of teacher's facial expressions to understand better.
    - The learner's chair or desk can be turned properly so that he/she can see the faces of his/her classmates.

- He should be seated in a place where the reflections of light do not distract him from reading the black board writing.
- The child should be seated away from windows, doors to reduce the noise that may interfere in using his hearing maximally. He/ she should be seated in a way that his/ her better ear is towards the teacher.
- The classroom should be preferably located in the inner area of the school, away from all sources of noise due to movement such as the office, auditorium, road traffic etc.
- It should also not be located near the boundary of the school where the traffic noises are maximal.
- If possible, there should be several trees and plants outside the classroom to absorb noise.

Adaptive Teaching

Inclusion of a student with hearing impairment might require extra effort to teach with the help of special techniques. These techniques include simple ways such as learning through storytelling, direct activities, visit to educational places, description through pictures and so on.

While teaching any subject, use objects which are easily available. For instance, in mathematics, use material such as used match sticks for teaching addition and subtraction. The teaching strategies used will also depend upon whether the hearing-impaired child has acquired language or not.

Methods of Communication

Oral/Auditory-oral method

In this method, the child is taught to make maximum use of his/ her hearing through amplification (hearing aids). It also stresses the use of speech reading to aid the child's communication. Use of any form of manual communication (sign language) is not encouraged although natural gestures may be used.

Auditory verbal uni- sensory method

This method emphasizes maximum use of auditory skills. The child is taught to develop listening skills through one-on -one practice that focuses attention on use of remaining hearing with the aid of amplification. In this method, no manual communication is used and the child is discouraged from relying on visual cues. This method is very useful with children with cochlear implant. The success in inclusive education through this method is very high.

Sign language

Sign language is a manual language which is distinct from the spoken language for communication and one uses signs/ gestures/ actions

Total communication

In this method, the child is exposed to a formal sign-language system, finger spelling (manual alphabet), natural gestures, speech reading, body language, oral speech and use of amplification. The idea is to communicate and teach vocabulary and language in any manner that works.

While communicating with the hearing-impaired child, the following rules should be kept in mind:

- Sentence should be simple and short
- The child should get first-hand experience
- More visual clues should be used
- Use of proper hearing aid is important
- The face of the person who speaks should be clearly visible to the child who is deaf to enable speech reading.

The hearing-impaired child should be given opportunities to participate in house hold activities so that s/he knows what and how to eat, take care of self and daily needs and so on. Gradually the child will learn to communicate with the environment around him/her.

Children with hearing impairment need Expanded Core Curriculum (ECC) in addition to the core academic curriculum of general education. The ECC for students who are deaf or hard of hearing includes eight content areas: Audiology, Career Education, Communication, Family Education, Functional Skills for Educational Success, Self-Determination and Advocacy, Social-Emotional Skills, and Technology. A brief description of each of these areas is as follows:

Audiology: Understanding Hearing Loss, Amplification Management, and Environmental Management.

Career education: Career Exploration and Planning, Occupational Skills Training, Soft Skills Training, Job Seeking Skills and Money Management. For the youth who are deaf they must also learn critical skills in arranging accommodations at the work site, learn how to use an interpreter in an interview and work setting. Often youth who have had interpreters throughout their education do not realize that in the adult world of work, an interpreter is used quite differently and must be planned for in advance.

Communication: Auditory Skills Development, Sign Language Development, Speech Development, Receptive Communication, and Expressive Communication.

Family Education: Understanding Hearing Loss, Amplification, Family and Child Interactions, Communication Strategies, Education/Transition, and Resources and Technology.

Functional Skills for Educational Success includes: Concept Development, Comprehension, and Study and Organization.

Self Determination and Advocacy: Self-Determination, Community Advocacy, Community Resources and Supports, Cultural Awareness, and Using Interpreters and Transliterators.

Social-Emotional Skills: Self-Awareness (Personal Qualities), Self-Management, Support Networks, Personal Responsibility, Decision Making, Social Awareness, Social Interaction Including Conversation Skills, and Conflict Resolution.

Technology: Skills Necessary to Access Technology.

Peer support is especially important for the hearing impaired child. When the child meets other hearing impaired children and realizes other people face similar challenges and manage fine, regardless of language or level of hearing, it supports identity development and increases confidence. Organizations offer a variety of peer activities for children and youth – activities for small children are aimed at the whole family, but school-age children and older can go to camps and weekend events. Peer support plays an important role in rehabilitation and orientation courses, too.

Activity 1

1. Prepare plus curriculum for a visually impaired child in an inclusive classroom.
2. List out adaptation techniques in teaching a child with hearing impairment
3. Plan expanded core curriculum for hard of hearing child in an inclusive classroom

Check Your Progress I

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

1) What do you mean by adaptation in curriculum?

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2) What do you mean by expanded core curriculum?

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3) List the areas of expanded core curriculum?

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6.5 ADAPTATION IN CURRICULUM FOR CHILDREN WITH INTELLECTUAL DISABILITIES

School is an institution where student is gradually shaped into a person and develops more of those qualities and capabilities which enhance his/ her competence. Students with intellectual disability (earlier known as mental retardation) take longer to learn a concept in comparison to others. Therefore, the content should be adapted. The focus should be his learning and using the learnt concepts in daily living.

After selection of the content, how to teach, that is, the method of teaching should be decided. Students with Intellectual disability learn better when there are concrete experiences, rather than just lectures. Providing hands-on experiences, along with other children helps. After selection of curricular content, decide: 1) what can be taught directly 2) what needs adaptation. Adaptation refers to simplifying, using additional teaching learning materials (TLM's) physically positioning the student and planning with family and peers for the student's optimum learning. We should pay extra attention to the following:

Position of the teacher

While teaching children with intellectual disabilities, the teacher should pay proper attention to each child. It is advised that the child should be seated closer to the teacher so that the teacher can supervise his/ her work and support the child.

Teaching Strategies

The usual guidelines for facilitating learning holds good for children with intellectual disabilities as well; these are:

Simple to Complex

Start with easier and simpler tasks and then proceed to teach more difficult parts. For example, while teaching sentences of English, simple sentences should be taught first and complex type of sentences may be taught afterwards.

1. I like chocolate cake.
2. I don't know how to bake and so I buy the chocolate cake.

The first sentence is an example of a simple sentence. The second sentence is a compound sentence.

Concrete to Abstract

To teach about objects, wherever possible, it is ideal to first show and explain with real object, (three dimensional) then shift to the pictorial form of the same object (two dimensional) and finally their symbolic description, that is in oral /written form. For example, if we should teach 2+2=4, first teach with the help of real objects, then with the help of pictorial form of addition and finally the sum in paper as well as verbal description.

Whole to part

It represents a practical methodology for designing learning programs. It is useful for the overall design of learning programs of any length- total courses, as well as, for short learning experiences. The Whole Part-Whole (WPW) learning model offers a helpful framework for developing training and instruction. For example,

a coach might teach the triple jump by first demonstrating the "whole" action (hop, step, and jump in sequence) and then have the athlete practice each of the components or "parts" of the event. Finally, the coach would again demonstrate the complete triple jump and have the athlete combine the three components and practice the entire sequence.

Known to Unknown

Every learning should move from known concepts to unknown concepts. If the child needs to learn what rain is, he must first know what water is. Water is seen by the child every day. Rain is seasonal. Hence the teacher, ideally, should talk about water first and then lead the children to the concept of rain.

Generalization

A generalization is general statement that applies to many situations or facts. Once a task/concept is learnt in one specific context, the ability to carry out/ use the concept in other situations is called the ability to generalise. For example, if a child has learnt the general process of tying a knot- he/ she should be able to tie knots in varied situations such as in shoe laces, pyjamas, bows in ribbons and so on.

Sequential Teaching

Whatever we teach our students, it should be taught in a sequence that facilitates learning. While teaching students with intellectual disability, we need to follow a systematic approach moving in a sequence as discussed above for optimum learning in them.

Curricular Adaptation

Language

- Long lessons/stories can be divided into smaller parts with a meaningful beginning and ending.
- Poems can be taught through actions and repetitions.
- Students need more real experiences and activities to learn a concept. For example, the concept of 'turning' can be taught by doing simple activities like using the fan regulator, tap, gas-stove knob and so on.
- Unfamiliar words can be taught using a visual/picture dictionary.
- While using picture cards, select colours that are distinct as some children may have difficulty in differentiating minor differences in shades of colours. Colourful pictures having natural colours of the objects depicted are the best.

Mathematics

- For teaching place value, initially, use scale with unit place numbers having blocks in one colour and another colour at ten's place and so on. Fade colour coding once the student learns the concept.
- Fractions can be taught through activities such as paper folding.
- Concepts of measurement (tall, short), capacity/volume (full, empty), weight (heavy, light), shapes (circle, triangle) etc., can be understood better through concrete things/ objects, flash cards.

- Use material like clay and play dough to make different shapes. As children with intellectual disability take longer to learn a concept, instead of giving all shapes together, expose them to one shape at a time.

Environmental Science

- Group activities will facilitate active participation and experiential learning. Activity based learning facilitates understanding characteristics of what is around, for example, different houses.
- For teaching 'changing times', the entire content can be divided into parts concept wise. Then narration using real objects can be used as a technique for better understanding.
- Use sound effects to give a close-to –real experience. For example, the concept of rain can be demonstrated by playing recorded sound effects of thunder and rainfall with associated sounds of animals and insects.
- Picture/flash cards can be used to introduce the objects that are not available, such as, non-regional plants.

6.6.1 Specific Learning Disabilities

Students with specific learning disabilities have a break down in their psychological processes that prevent them from learning academic topics effectively. It manifests as difficulties in listening, thinking, reading, writing, spelling and doing mathematical calculations. Some of the students with specific learning disabilities demonstrate some degree of attention deficits, that is, paying attention to the task till its completion is very challenging for them. Some may exhibit difficulty in perception and understanding and some in recalling what is learnt from their memory. Therefore,

- Make sure students have understood the instruction before making them do a task.
- Give a student only that much work that he can manage without great difficulty.
- Give positive reinforcement every time the child is "on the task".
- Use quiet corners for seat work.

Reading Skills

Reading is a process where by one accesses verbal information through the medium of presented symbols. To read efficiently one needs a sound understanding of the symbolic nature of the language i.e. its sound system to form words, sentences and paragraphs. Problems in reading arise out of a poor perceptual maturity or poor language skills. The following measures are suggested to deal with such problems.

Providing learners with out line of the subject matter they are about to read. This helps them anticipate what to look for in their reading i.e. important points.

- Teaching key vocabulary in content can assist them in comprehending and scanning more difficult reading materials. These words can be taught using sight word techniques such as pairing the word with corresponding picture.

- Peer tape recorded chapters and peer tutors can assist learners in studying and completing assignments.
- Teaching good study and note taking skills. Teaching the survey, question, read, recite, and review approach. Basically learners are taught to survey the material briefly, locating the main points. Then, convert the main points to question that may help to increase their comprehension. They read until they can answer each question, recite the answers, and finally review after all questions have been answered.
- Memory aids are important set of skills for weak learners. Some aids such as poetic devices, linking techniques- linking words to form a mental image and location techniques- visually walking through the exercise.
- Many students with learning disabilities may not perform well on content based tests because of their deficits in reading. Teachers could assist in developing alternate projects that assess learner's knowledge, yet do not rely solely on reading ability.

Specific Strategies for Reading

These strategies involve the use of methods which can help correct the student's spoken or written language and word identification. In other words, these methods are meant to raise the student's level of reading to that of other students in the class. A few of the remedial strategies are given below:

Drill Card Method

This method uses multi-sensory approach. The sound of each letter is taught through this approach. Letters having one sound can be presented on the drill or flash cards. A book of printed letters can also be shown to the student. This will help the student note resemblance between the printed and written word. This technique involves following procedure:

- A flash card showing one letter only is shown to the student
- The teacher then makes the sound represented by the letter
- The teacher then writes the letter for the student gradually, explaining how it is formed. The student traces the letter and copies it. The student then learns and writes the letter without looking at the letter written by the teacher or the printed letter
- After the student has learnt about 10 letters in this way, he/ she is now ready to combine these letters to form words.
- When the teacher speaks a letter, the student repeats the word, names the letter, writes the letter as he speaks it and reads the word he has formed.

Joint Oral Learning Method

This method is very effective with students with severe reading difficulties. It aims to help the student attain fluent reading automatically. This method comprises joint oral learning at a rapid pace by both the teacher and the student. It is generally believed that a student can learn better by hearing his own voice as well as someone else's voice jointly reading the same material. In this method,

the student sits in front of the teacher so that the teacher's voice while reading is heard by the student. Moreover, the student can also see how the teacher reads the text. This method requires no special preparation and both the student and the teacher can read as many as they want to. The steps in this method are listed below:

- The teacher first reads loudly and with normal speed
- The student is encouraged to read along with the teacher without worrying about the mistakes
- The teacher then slides the finger to locate the words as they read.
- As the student picks up pace, the teacher can lower his/ her voice
- The student can then use his/ her finger to point to the word being read. Thus, the student slowly takes over the reading.

The use of visual aids such as charts and pictures with these children is of prime importance. A straight forward way to teach reading to the child with the help of a picture would be:

- Project a picture on the board.
- Label objects in the picture.
- Ask the child to read the words.
- The child may also be asked to narrate a story regarding the picture,
- Small groups can also be formed in which all children read together. In an inclusive class, all children benefit through such activities.

Writing Skills

Those children with reading problem may also have problem in writing. These could be because of poor visuo motor integration, poor language skills, or poor memory for spelling correctly. Suggested here are activities that foster writing skills and note taking. In some instances, creative writing skills can help these learners become more independent.

- Computers can be of tremendous help to learning disabled children in improving their written expression. Word processing packages can assist learners who previously have found writing too difficult because of severe deficits in hand writing, spelling, punctuation and other skills.
- Providing students with a list of words they can use to form sentences can be a meaningful exercise for those who lack an adequate vocabulary.
- Providing students with incomplete sentences required to finish by them, by supplying the main idea can help them to complete their thoughts. The procedure would be to gradually fade the number of words provided by the teacher.
- For students whose social experiences are limited, organizing groups to share ideas for a story can be a helpful way to generate content. Teams of students can work together to form a story.
- Teaching manuscript writing is easier to master than cursive writing, however it is less versatile. Cursive writing is best suited for students who have

difficulties in blending letters to form words while reading. The best practice may be to match the technique best suited to each student.

- Commercially produced methods for teaching cursive writing may provide teachers with an effective structured programme.
- Reading and spelling are so closely related that they should be emphasized together as much as possible. For example, students can identify words in their readings that they have learnt to spell and write.

Specific Strategies for Writing

Students with writing problems require the use of some special methods which can help improve their writing. Several remedial methods have been designed for students with writing problems. But before teaching writing to a student, it is important to see that these students have developed their readiness skills. In other words, the student should be able to connect dots on the paper; perform hand movements such as up-down, left-right; draw vertical and horizontal lines and different geometric shapes such as circle and line

Cover - Write Method

This multi-sensory method has the following steps:

- The student looks at the word and says it
- The student then writes the word by looking at it, may be twice or thrice
- The student covers the word and writes it from memory
- Checks the spelling himself/ herself

Imitation Method

This method is meant for students with severe writing problems. The steps in this method are as follows:

- The teacher / parent first spells the word and provides the model written form of the word.
- The student imitates the model by spelling the word and writing it
- The student receives immediate positive feedback (praise) if the response is correct
- If the response is incorrect, the student is taught again and the above two steps are repeated.

Math Strategies

Some children with learning disability have problems in learning mathematics. The problems arise because of difficulty in analytical thinking that is needed for doing math. In addition, perceptual or language comprehension deficits, such as reading the numbers correctly, writing them in correct column or performing the right operation can be difficult for them. These are known as difficulty in computation. Some children face difficulty in understanding/ comprehending the problem such as in story sums. These are known as difficulty in mathematical reasoning or difficulty in mathematical application. Some suggested solutions are

- Reduce the number of problems that you assign. Identify the specific difficulty the student has and address it.
- Color code to highlight processing signs for students who are inattentive to change in operational signs on a page.
- Color dots the ones (units) column to remind students where to begin computation.
- Use mnemonics (memory devices) to help in recalling steps. For example, steps of long division can be remembered by dad for divide, mother for multiply, sister for subtract and brother for bring down as this is the sequence to do division.
- Familiarize students with mathematical vocabulary 'all together/total' for addition, 'balance/left over' for subtraction, 'equal distribution' for division and so on.

Structured Lesson Presentations

Students with specific learning disability achieve more when lessons taught to them are clearly presented, well sequenced and well organized. Explanations should be concise and clearly presented with key concepts properly highlighted. The way of presentations should vary according to each student's unique abilities and needs. In other words, the lessons should consider the learning style, preferred channel of learning and the needs of the students.

Activity 2

1. List the functional skills required for daily living
2. Plan a sequential teaching programme for a student with intellectual disability in an inclusive classroom
3. Plan curriculum adaptation for a student having difficulty in reading in an inclusive school

6.6.2 Autism Spectrum Disorder

Autism, currently called Autism Spectrum Disorder (ASD) refers to individuals who have impairment in socialisation; impairment in communication and impairment in flexibility (have restricted interests). Many with ASD have average or above average intelligence while many do have intellectual disability too. If taught right, many of those with average/above average intelligence complete high school education and enter and pursue higher education. It is crucial that the teacher carefully plans the educational programme for them.

For a child with autism an effective curriculum will aim to enhance competency. Also, children with autism may learn when taught using specific methods. A good curriculum should have activities that are age appropriate, reflects the interests of child and family and prepares the child for competence in relevant environments. Predictability in the routine helps them stay calmer and get prepared for the anticipated activities. Children with autism are strong visual learners. They will greatly benefit from the use of visual supports. Structured activities and environments will help them focus on tasks and help in task completion. It would provide predictability and independence. As children with

autism are concrete thinkers it is imperative that they are taught experientially i.e. they learn by doing and hence they need opportunity to use suitable material and equipment. Exposure to real objects and situations will assist learning.

Breaking the tasks into small units, clarity of instruction, repetitions and multisensory learning experiences will increase the learning rate. It is essential to relate the learning to the world around them. They should be encouraged to engage in concept learning experiences to deepen their understanding and be provided with variety and challenges to make learning engaging and interesting. For keeping motivation high, it is essential to keep their interests and preferences in mind. Linking class work to student's interest is a useful strategy. As some children with autism may have difficulties with generalisation, while teaching a skill, it is necessary to expose the child to all possible situations in which a skill can be used. Also, children would benefit if given flexibility in choosing subjects. It is essential to provide language exercises to help them to infer meanings. Specific project work can help set achievable goals and develop language in context.

Curricular Domains

Keeping in mind that the focus for a student with autism needs to be on building a repertoire of skills needed to function productively in society, curricular goals should additionally include:

Critical goals: These include high priority skills and provide the basis for selecting the other goals. These goals have implications throughout the lifespan of children with autism e.g. communication.

Life skills: This is another important domain and includes (a) Social Skills: As difficulties in forming relationships are central to autism, effort must be devoted to design specific strategies for improving social functioning. (b) Self-preservation skills and safety skills: It is imperative to work on the student's ability to recognise and respond to dangerous and life-threatening situations. (c) Daily life skills: Programming in daily life skills is important to teach independence.

Vocational skills: This should begin early as in later years it is a source of pride, self-satisfaction, personal fulfilment and income.

Functional academics: Those who have Intellectual disability and ASD need to have a focus involving functional curriculum. They involve skills needed for everyday living. Academics are functional when they involve skills as knowing coin values, using a calculator to add up purchases, telling time.

Many children with ASD benefit in inclusive classes as it gives them an opportunity to improve their social skills and communication skills in addition to learning academics.

6.7 ADAPTATION IN CURRICULUM FOR CHILDREN WITH LOCO MOTOR DISABILITY, CEREBRAL PALSY AND OTHER DISABLING CONDITIONS

Loco motor disability (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both).

Cerebral palsy (CP) is a disorder that causes problems with movement and balance. It results from damage to the brain or mal-development of the developing brain, resulting in varying degrees of physical disability.

The physical disabilities may co-exist with other conditions such as impairment in hearing, vision, language and communication; intellectual disabilities, autism, and/or specific learning disabilities. Some children with cerebral palsy also have epilepsy. Cerebral Palsy is not hereditary, it is not a disease nor is it infectious. It is non-progressive; there is no cure but with early diagnosis and suitable intervention, there is scope for improvement, regardless of the severity of the condition.

Since a child with loco motor impairment does not require special educational techniques the following might prove beneficial. All that is necessary is to remove architectural barriers and ensure that the child has a comfortable seat. If he /she is using a wheel chair the desk should be at such a height to enable the child to reach it without experiencing any kind of discomfort. This also applies to reaching the black board as well. All the materials should be within the reach of the child.

Please remember that considerable number of children with CP tend to have intellectual disability. Such children, in addition to support for positioning themselves and in movements, may need curricular adaptations as seen earlier in the context of children with intellectual disability.

Adaptation of Physical Environment

Classrooms are active environments, and often involve the movement of both teachers and students. The physical structure of the classroom may be changed by the teacher to ensure effective learning. Circular or horse shoe arrangement of furniture is advised for all children. Where there is lack of space for such arrangements, consideration for mobility of children with loco motor impairment and cerebral palsy (using mobility aids) should be observed.

Space for Easy Mobility

Adequate space and facility of accessibility should be made for children using mobility devices e.g. wheel chair, crutches and walkers, as well as those walking with the assistance of other children in the class room, toilets, libraries, canteen and play ground.

The range of reach (forward and side; with or without obstruction) of a child in a wheel chair should be taken into consideration. Different reach heights with hand rails are important for loco motor impaired children for working in library, class room and canteen.

Height of the black/ white board and notice boards should be at an angle, rather than parallel or at right angles to the wall.

Adequate light should be ensured in the classroom benefitting everyone.

Position of the Teacher

Many strategies may be used to enhance learning of Children with Special Needs (CWSN). Emphasis may be given to the pictures of the teacher in the classroom. The teacher should have adequate light (white light is to be preferred to yellow light) above his/ her head. Glare and shadows should not fall on the teacher's

face.

Seating Arrangement

It is important to remember that CWSN need to be positioned appropriately to access all that happens in the class. Sometimes their problems in communicating with others will limit their self- esteem and ability to play and work with others.

Adapted Furniture

In case of children with loco motor impairment, accessibility is the main issue. Sometimes accessibility may be ensured through ramps, lifts, hand rails etc. whereas on some other occasions the accessibility may be in terms of appropriate furniture.

Seating arrangement around the table should be more than 800 mm from the floor and should have knee and leg space. For example, for a child using wheel chair, the table may be mounted in such a way that the wheel chair can get inside and child is able to sit comfortably. Such modified furniture is necessary for the effective functioning of the child.

Positioning of Children with Cerebral Palsy

Very low-cost adaptations can be carried out if the principles that govern poor motor control in children with cerebral palsy are understood.

Whether seating on a floor seat or chair, the following should be kept in mind	a) The trunk (if needed) should be well supported b) Feet should be flat, or during extended periods of immobility the feet should have a splint or support so that they are at 90 degrees to the legs c) If the child has good sitting balance then an ordinary chair or floor can be used.
Positioning of the student	d) To be given a front seat, as a child suffering from cerebral palsy might have vision and speech impairments.

Adaptation in Teaching

The teacher should ascertain whether the child with cerebral palsy is inclined to be a visual learner, an auditory learner or a tactile learner for designing proper instructional strategies.

There are no such specific strategies as far as students with loco motor impairment are concerned. They may need adaptation to compensate for hand function/ mobility. The Teaching Learning Materials should be carefully designed keeping in mind the specific need. The teaching techniques mentioned below provide ample opportunities for such children to interact effectively in the learning process. Other activities such as drama, skit, role play and other performing arts may also provide opportunities for effective inclusion.

Facilitate learning by involving children with special needs in groups. In a class consisting of children with special needs, group learning can be planned by including a child with disability in a group consisting of non-disabled children. This kind of activity not only develops academic skills but also influences natural inclusion of the child.

Teacher Assisted Peer Group Learning

Peer group learning is considered to contribute to effective learning in the case of non-disabled children and it is not less so in the case of children with special needs. This requires careful planning by the teacher so that all children are involved based on their ability levels. Peer tutoring and cooperative learning situations are the best in promoting peer interaction in learning environments.

Learning through Field Trips and Hands on Experience

A range and variety of experiences should be provided to children with CP by alternative modes of reaching them with information. Field trips are example of alternative experiences which contribute to concept development.

Multisensory Approach in Learning

Multisensory approaches promote learning significantly in children who experience learning problems. Organise the learning experience which would require all senses to learn wherever possible as these experiences help in learning and retention of what is learnt.

Speech and Communication

Many children with cerebral palsy may have speech impairment or have a time lag in response and some may even be nonverbal. However, all of them want and need to say many things! Many nonverbal children also respond. They may use various parts of the body to communicate. They may use hands, eyes or a nod of head. Encourage them to communicate.

Many children with cerebral palsy may have drooling (salivating). Such children should be taught frequent swallowing and reminded about mouth closure while eating. Chewing and swallowing are important as good eating practice is integral part of speech training.

Cognition

Children with Cerebral Palsy need certain physical adaptation to cope with school curriculum. Concept development is fundamental in the education of children with cerebral palsy. In general, these include body awareness, object and situation characteristics, time and distance awareness, spatial awareness, measurements, orientation of environment and so on. These should be consistently focussed in these children.

Reader and Scribe Services

Due to their disability, some of these children need assistance during examination time. For example, a child with cerebral palsy/difficulty in hand functioning may benefit by a scribe to write the examination. In many such examinations including class tests and term end examinations many non-disabled children from the same class, or from higher classes may be involved in assisting children with cerebral palsy/difficulty in hand functions.

6.8 ADAPTATION IN CURRICULUM FOR CHILDREN WITH MULTIPLE DISABILITIES (MD)

Multiple disabilities refer to a combination of two or more disabling conditions that have a combined effect on the child's communication, mobility and performance of day-to-day tasks. This can have combination of disabilities such as deaf blindness, CP and hearing impairment, blindness and intellectual disabilities – in short, a combination of disabilities. Every child with Multiple Disability is different as s/he can have a varied combination of disabilities

There are some aspects that this group of children have in common.

- It affects the all-round development of the child
- Communication with the world around is severely affected
- Opportunities to interact with the environment becomes very limited
- Ability to move around in the environment is restricted
- Need regular help in simple day-to-day activities such as wearing a shirt, opening a door, finding a chair to sit down and so on.
- A highly structured educational / rehabilitation programme helps in their training

Effective teaching leads a child to function as independently as possible in the world around him. A curriculum for a child with multiple disabilities needs to reach the goal of enabling the child towards personal adequacy, social competency and economic independence, and more significantly, make his life easier and healthier.

Teaching Strategies for Children with Multiple Disabilities

Giving choices for communication, problem solving, exploration and independent mobility are the key areas of teaching program. A constant interaction between the child and his parents or other caregivers is important. This will help build a safe and trustful world for him. Reward and reinforcement are very basic to the learning environment of the child. Attention and praises for the desirable behaviour will not spoil any child with multiple disabilities any more than it would spoil the other siblings.

Independence is the goal: No matter how small or big the task is, the child should learn to be independent in the activity as far as possible.

Teach skills that are functional and meaningful: with the limited opportunities available to the child, it is wise to teach him things that are directly related to his environment and those that he has high chances of carrying out frequently and is essential for independent living.

Teach skills in natural settings: This point can never be stressed enough number of times. The child can remember things that he learns while going through his/her day to day routines. This helps him to learn better and remember, thus minimising the need for transfer of training.

Help: Encourage the child in every attempt. Be patient and give him enough time to respond/carry out the activity. Allow him to try. Do not be in a hurry to extend help. Involve peer group wisely.

Take advantage of the teachable moment: Sometimes you may not plan to teach an activity, but the child shows curiosity to explore an object. Use this time to teach him more about that object.

Provide repeated opportunities to practice: This will help the child to get opportunities to try the activity many times and master it.

Use real objects: As mentioned earlier in the context of teaching in natural setting, use of real objects where possible is more meaningful in enhancing learning.

Develop routines: Have a fixed timetable for the day with the child. This helps him to have more control over his life and to anticipate what is going to happen with him next.

Multi-sensory approach: It is best to make use of all remaining sensory abilities of the child- like seeing, hearing, touching, smelling and movements. All should form a part of the teaching moments for the child.

Plan activities: With highly individualized activities being planned for the child, there is always a risk that either the parent or one caregiver is constantly trying to teach the child. It is important that the child should know what others enjoy doing and for him to be part of that too. Plan certain activities that he can do with other siblings in the family and peer group in school.

Make use of resource persons from the community: It is important that the best advantage is taken from the resource persons from the community as teachers.

Environmental/physical accommodations/modifications

- Provide preferential seating
- Alter physical arrangement of classroom
- Reduce distractions
- Provide quiet corner/room/study carrel when needed
- Modify equipment if needed
- Adapt writing assignments appropriately to suit the need
- Help in maintaining uncluttered space
- Provide space for movement.

Evaluation-Accommodations

- Allow answers to be dictated
- Allow frequent rest breaks
- Allow additional time
- Allow oral testing/using sign language
- Give variety of test (multiple-choice, essay, true-false) based on the combination of disabilities the child has.

- Accept short answers
- Allow open book or open note tests if it is justified
- Shorten test
- Read test to student if he needs
- Provide study guide prior to test
- Highlight key directions
- Give test in alternative site – only if justified
- Allow calculator, word processor

As we are considering inclusive class room environment, provide the above supports only if justified and do not be in a hurry to implement all the suggestions given above to all students with MD.

Check Your Progress II

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

4) What is the basic premise of multi-sensory approach?

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5) Discuss adaptation in physical environment for children with loco motor impairment and cerebral palsy.

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6) Discuss evaluation accommodations for children with multiple disabilities.

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6.9 LET US SUM UP

The National Curriculum for Teacher Education (NCTE, 2009) clearly states that teacher education institutions will need to reframe their programme courses to include the perspective, concept and strategies of inclusive education. The inclusion of children with special needs is the prime concern. Various policies have recommended that, the curriculum needs to be adapted based the on the nature and type of special need. The same curriculum is followed for children with special needs in inclusive classrooms. Adaptation is the means to facilitate learning in every possible manner to maximise learning or provide options in such a way, that all children can learn. For visually impaired the need is more in the instructional material and methods, for hearing impaired teaching strategies should be adapted which includes storytelling, direct activities and description through pictures. For intellectually disabled the adaptation in teaching strategy is more required and for the loco motor and cerebral palsy the adaptation in physical arrangements, sitting arrangements and furniture. For children with specific learning disabilities the adaptation is needed for remedial purposes, particularly teaching strategies and instructional methods. Similarly, for children with autism spectrum disorder adaptation is required in improving social skills and communication in addition to learning academics, for children with multiple disabilities adaptations are required to enable the child towards personal adequacy, social competency and economic independence.

6.10 UNIT END QUESTIONS

1. What are the main components which a teacher should consider in curriculum adaptation?
2. To what extent the plus curricular activities are important for teaching children with visual impairment?
3. Describe remedial strategies for writing for a child with specific learning disability.

6.11 ANSWERS TO CHECK YOUR PROGRESS

1. The adaptation in curriculum has been defined as the concept of adjusting in educational programmes to accommodate diversity in student learning. Rather than being viewed as an "add-on", the curriculum adaptation must be viewed as an essential ingredient that spreads throughout the curriculum and instruction in all general, modified and alternate education programmes.
2. The term expanded core curriculum (ECC) is defined as concepts and skills that often require specialized instruction with students who are blind or visually impaired to compensate for decreased opportunities to learn incidentally by observing others.
3. The areas of expanded core curriculum are compensatory skills, including communication modes (adaptations needed for students to access core subjects such as Braille, sign language, or tactile symbols); orientation and mobility; social interaction skills; independent living skills; recreation and leisure skills; career education; assistive technology; sensory efficiency skills; and self-determination.

4. The multisensory approach is based on the premise that some students learn best when content is presented in more than one modality.
5. The physical structure of the classroom may be changed by the teacher to ensure effective learning. Circular or horse shoe arrangement of furniture is advised for all children where there is lack of space for such arrangements, consideration for mobility of children with loco motor impairment and cerebral palsy (using mobility aids) should be observed.
6. Evaluation-Accommodations for children with multiple disabilities are
   - Allow answers to be dictated
   - Allow frequent rest breaks
   - Allow additional time
   - Allow oral testing/using sign language
   - Give variety of test (multiple-choice, essay, true-false) based on the combination of disabilities the child has.
   - Accept short answers
   - Allow open book or open note tests if it is justified
   - Shorten test
   - Read test to student if he needs
   - Provide study guide prior to test
   - Highlight key directions
   - Give test in alternative site – only if justified
   - Allow calculator, word processor

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UNIT 7 AIDS, APPLIANCES AND INFORMATION AND COMMUNICATION TECHNOLOGY

Structure

7.1 INTRODUCTION

In our day to day life, we use different types of materials, tools and equipments, which are helpful in performing certain tasks and activities. For example, we use spoon to eat without spilling, wear pair of shoes or slippers to walk comfortably on a rough surface and carry bags to keep our belongings. These tools and equipments aid and provide us support to function independently. Some of the equipments are specific in nature. These are used for some specific purposes. For instance, spectacles are used to see clearly, wrist watch is used to read time and mobile phones are used to communicate. All such equipments become important part of our life. Similarly, persons with disability also require certain equipments to perform their day to day activities, which make their life easy and comfortable, help them to take care of themselves and to perform most of the tasks independently. Among these equipments, some of them are required for their daily needs or may be used occasionally for some specific purpose. Some of the equipments are manually and mechanically operated while some others are motorized and technology based. These enhance their social

acceptance and vocational competency and are necessary to lead a quality life. In this unit, you will learn about the aids, appliances and tools generally used by the students with disabilities.

7.2 OBJECTIVES

After reading this unit, you will be able to:

- explain the concept of 'aids', 'appliances' and 'Information and Communication Technology (ICT)';
- identify suitable aids and appliances for children with Sensory and Speech Disabilities;
- identify suitable aids and appliances for children with Neuro-Developmental Disabilities;
- identify suitable aids and appliances for children with Loco motor, Multiple and other disabling conditions;
- discuss 'ICT' as an aid for children with special needs.

7.3 CONCEPT OF AIDS, APPLIANCES AND ICT FOR STUDENTS WITH SPECIAL NEEDS

Aids

Aids refer to providing assistance, support, or relief to the needy to perform certain activities that may be necessary for his/her survival or may be to improve his/her life style. The aids may be of different kinds and nature. These aids may be financial, human assistance, services or in the form of materials, equipments and devices, which are necessary for a person to live with dignity in his/her own society. Providing an assistant or helper, monetary payment, teaching aids and facilitating to live in relief camp are a few examples of aids. Some aids are temporarily provided to a person to overcome a difficult situation, whereas some persons may require aids permanently throughout their life; for example, post earthquake a person may require an aid in the form of temporary accommodation in relief camp, whereas another person who lost his both lower limbs during the same earthquake may require physical assistance of a person and/or assistive devices like wheelchair permanently throughout his/her life for his mobility and to perform day to day activities. There are sources from where such aids can be obtained which include Central and State Government schemes, government organizations, private organizations or non-government organizations at local, national or international level.

Appliances

Appliances refer to the use or application of a technique and putting a technique into practice. There are machines and devices which are used as appliances to make our work easier. Refrigerators and washing machines are a few examples of electronic/electrical home appliances, which make our day to day activities easier. These appliances are used in the form of hardware and/or software that makes a particular function easier or possible to perform. A 'hand held magnifier' used by a child with low vision to read texts in a printed book is an example of a hardware appliance whereas the software appliance is software inbuilt or

downloaded in the computer/mobile to magnify the text/visuals. Thus, these device, system or design allows us to perform a task that we would otherwise not be able to do. It can increase the ease and safety in performing a task and assist in carrying out daily activities.

Information and Communication Technology (ICT)

Information and communication is the process where in the information is obtained and organized to be communicated to others. The form and structure of information is as important as the information itself, or else it would just be accumulated and cluttered. There are a range of technological resources available for handling, manipulation and communication of information such as television, satellite, video and telecommunication. Computer database and internet may have connections to global network. By using the facilities of the internet, it is possible for teachers and children to find information on almost everything and anything, access range of multimedia learning resources, communicate with others, contribute to group discussions, order different resources publish and obtain information for and from other people around the world.

7.4 AIDS, APPLIANCES FOR CHILDREN WITH SENSORY AND SPEECH DISABILITIES

In the previous units, you have learnt about sensory and speech disabilities, which mainly include children with visual disability, hearing and speech disabilities. As you know, vision and hearing are the important senses required to observe, attend and learn from what is happening around you. Both the senses provide a holistic understanding of the surroundings. Vision and hearing help in detection, discrimination, recognition and comprehension of the visual and hearing stimuli respectively. Any type of impairment in vision and hearing restricts as individual's exploration of the world around and creates problems in the learning process.

7.4.1 Aids and Appliances for Children with Visual Disability

Educational Devices

There are a number of educational devices available for children with visual disability. Some of them are Braille Duplicators and Writers, Writing Devices, Braille Paper, Talking Books and Tape Recorders, Reading Machines, Braille Computers, Mathematical Devices, Geography Devices and Science Devices.

(a) ***Braille Duplicators and Writers*****:** *Thermoform Machine and* Vacuum Forming Machine are commonly used as Braille duplicators. 'Indutherm' is an indigenous semi-automatic Braille duplicating machine/thermoform machine. It is useful for taking out multiple copies of the Braille matter on the Indutherm (or Brillion) sheets from the master generally prepared on the Braille paper. This machine operates on the principle of vacuum and high temperature. Vacuum Forming Machine can also be used for taking out multiple copies of Braille matter.

(b) ***Braille Writers*** is an upward writing machine for writing on one side of the paper, enabling the Braille to be read as it is written. This machine can be compared to a normal type writer with a major difference that it has only nine keys, three for paper setting and six for embossing; the brailler embosses combinations of six dots in a Braille cell.

Fig: Brailler

(c) ***Writing Devices*:** Children with visual disability require the complete *Braille Kit,* which contains the items like Braille Writing Frame, Braille Writing Pocket Frame, Rubber Sheet, Foot Ruler, Compass Set, Two Styli, Folding Stick or Abacus and Signature Guide which is in a Rexene coated wooden box. Among all these items, *Interline Braille Frame, Taylor Postcard Frame*, *Pocket Braille Frame, Styli, Braille Kit and Pragnya* Sketching Device are the famous writing devices used by the children with visual disability.

Interline Braille Frame is used for writing standard character interline Braille. The frame comprises a wooden board, a metal guide, a reversible paper clamp and a stylus. The clamp fits at the top of the board and has a small swivel stud for locking and holding Braille paper. When one side of the paper has been Brailled, the clamp with the paper still held, is turned over as a unit. The binding margin is made automatically.

Fig: Interline Braille Frame

Fig: Plastic File Type Braille Frame

Fig: Stylus-knob type

Fig: Stylus- Saddle type

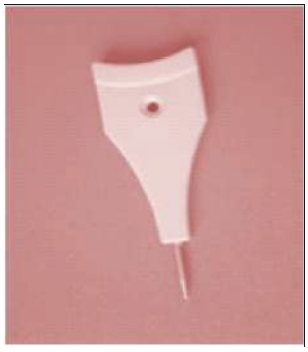

Fig: Stylus-Flat type

Taylor Postcard Frame is used for writing small character Braille on one side of the paper. The corner pins are arranged in such a way that the Braille can be read without removing the paper from the frame; when the top section is lifted, the paper remains attached to it.

Pocket Braille Frame is a four-line pocket Braille frame that produces small character Braille on one side of the Braille paper. This is specially used for making small and occasional notes.

Styli are produced with handles of various shapes to suit individual needs. The points of all styli are made of stainless steel and the handles are of polished hardwood or synthetic material.

Pragnya Sketching Device enables a child with visual disability as well as one with low vision to create simple sketches and diagrams out of a thread. It is based on the principle of using acrylic thread as "writing ink" and nylon fabric fastener strips as a "writing slate".

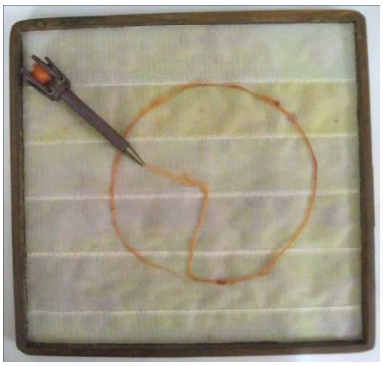

Fig: Pragnya Sketching Device

(d) ***Braille Paper*:** The Braille paper is used for embossing Braille dots on it. The standard size of Braille paper is 22"X28" and weight 8.6 kg. Per gross.

(e) ***Talking Books and Tape Recorders*:**

As Braille books are very heavy and many blind persons in recent years find it difficult to learn Braille easily, *talking books* have emerged to be the most viable alternative. The materials are recorded on cassettes/CDs/ DVDs which are used for listening to the talking books.

Digital Tapeless Recorder is another invention for aural reading by the children with visual disability. It has a special voice prompt for the blind which includes a voice guide, easy research mode, volume adjustment and option for use of earphone.

(f) ***Reading Machines***

Kurzweil Reading Machine and Optacon are the commonly used reading machines. Kurzweil Reading Machine is a portable optical scanner that reads type-set or type-written text and turns it into speech. *Optacon* is a book-sized electronic device with a movable camera, the size of a pocket knife and a tactile screen the size of a fingertip which presents a tactile image on an array of vibratory pins. The reader passes the camera over printed material with his right hand and his left index finger feels the vibratory respose of the image that the camera sees.

(g) *Braille Computers*

The basic features of Braille computer include *Braille Window, Keytone, EHG-BW/ 2-PIEZO and Versa-Braille II+*. *Braille Window* is the Braille-display for connection to all sorts of IBM compatible personal computers, *Keytone* is a portable information handling, word processor and computer access device that talks to its user and *EHG-BW/ 2-PIEZO* is a monitor and key board which provides the output in raised dots and can be conveniently used by the students with visual disability. *Versa-Braille II+* is recognized as a convenient Braille operating system. It can be used for editing, programming and word processing.

Fig: Braille Computer

Fig: Key board with Braille display

(h) *Mathematical Devices*

The commonly used mathematical devices include Taylor Arithmetic Frame, Arithmetic and Braille Writing Slate, Abacus, Talking Calculator, Primary Mathematics Kit, Compass Set, Spur Wheel, Geometry Mat and, Opisometer.

Taylor Arithmetic Frame has aluminum frame with star shaped holes with eight angles, thus allowing the double-ended metal types to be placed in different positions according to a set system. This frame is suitable for teaching arithmetic to children with visual disability.

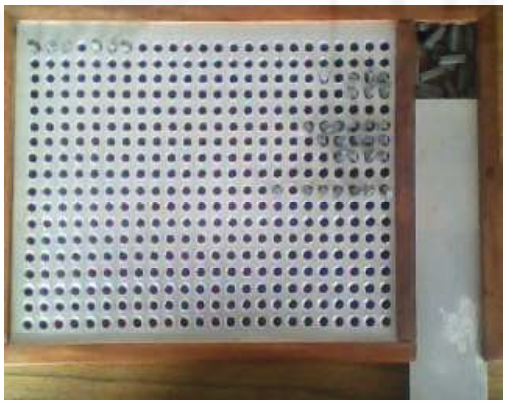

Fig: Taylor Arithmetic Frame

Arithmetic and Braille Writing Slate has an Arithmetic frame on one side and a Writing slate on the other. It also has a reversible type clamp and two guide lines supplied with a wooden stylus.

Abacus: A simple instrument for performing rapid arithmetical calculations. It consists of a frame holding thirteen vertically arranged rods on which beads slide up and down. The beam supporting the beads is marked with a raised dot at each rod position and a raised bar between every third rod. The bars serve to indicate the decimal point and other units of decimal measure.

Fig: Abacus

Talking Calculator is an audible calculator in synthesized speech. It is useful for calculation. Inbuilt clock, alarm and calendar are its additional features.

Primary Mathematics Kit is specially designed for children with visual disability to comprehend mathematical concepts. It contains a plastic box, slide strips, number boards, fractional strips, Braille clock, geometrical shapes, geometrical figure tray, magnetic board, and geometrical devices.

Compass Set includes a foot ruler, a protractor and a set square in nylon and a spur wheel. It enables children with visual disability to use the same techniques as their sighted counterparts. The foot ruler and set square have embossed markings for their convenience. The compass has a removable component fitted with a toothed wheel for drawing embossed dotted lines on the reverse of the Braille paper.

Fig: Geometry set

Fig: Compass

Fig: Compass

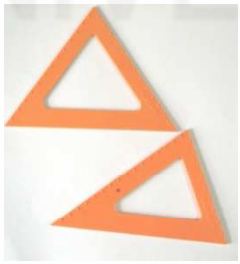

Fig: Set square

Fig: Protector

Spur Wheel is a serrated wheel revolving in a plated metal handle. It is used for making continuous embossed lines on the reverse side of the paper. *Geometry Mat* is a sheet of rubber for use as a base in conjunction with the spur wheel and Braille paper for making geometrical drawings.

Fig: Spur Wheel

Opisometer has a bell, which rings each time the disc moves a distance of one meter. It is useful for mapping and understanding mathematical problems in length and perimeter.

(i) *Geography Devices include devices like* *Sensory Quill, Raised Relief Plastic Maps, Relief Globes and Braille Diagram Board.*

Sensory Quill is equipment for obtaining a raised line format of any writing or drawing. The height and texture of the line can be altered.

Raised Relief Plastic Maps are *v*acuum formed plastic maps printed in strong colours with names in letterpress for the benefit of students with low vision. The main towns are shown by large dots and principal rivers by depressions. Braille symbols denote the names of seas, main rivers and towns, a key to which is given in the guide. The boundaries on political maps are indicated by raised lines.

Fig: Raised Map on Braille paper

Relief Globes are plastic globes in textured relief. The land masses are shown in different colours. The principal towns are indicated by raised dots; rivers and lakes by depressions. Dotted lines indicate the tropics, Arctic, and Antarctic circles, the International Date-Line and meridians. The names of oceans and the main land are shown in Braille.

Fig: Typographic Relief Globe

Braille Diagram Board has a metal sheet fixed on a board with closely formed holes in which round headed pins are stuck to form maps and diagrams.

Fig: Braille Diagram Board

(j) Science Devices

In science devices, Conductivity Apparatus demonstrates the difference in the heat conductivity of copper and iron. It consists of a wooden stand with horizontal heating rods. The *Three Dimensional Raised Relief Plastic Charts* are made with rigid Polyvinyl Chloride (PVC) sheet, printed and formed in multi-colours. The charts are available for B*otany general, some of* which includes typical plant cell, plant meiosis, plant mitosis, Ribonucleic Acid, Bacterial forms, Spirogyra and Funaria - common Moss in Botany whereas *Botany advance* depicts fertilization, T. S. dicot leaf, dicot stem, types of placentation. *Zoology charts have v*ertebrate and invertebrate; charts on *Human Physiology and Human Body Systems* include human skeleton, circulation system, heart, and nervous system, a section of the brain, muscles, digestive system, the ear, the nose, and the eye. *Human Reproduction* includes male and female reproductive organs, fertilization and foetus.

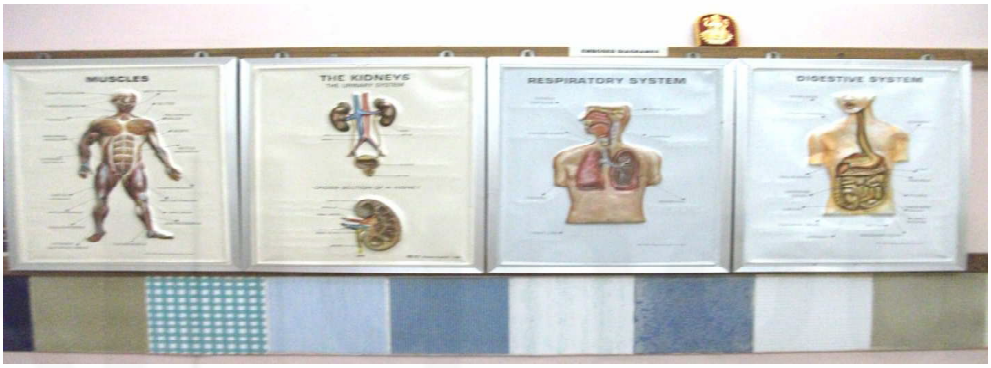

Fig: Three Dimensional Raised Relief Plastic Charts on Human body system

Mobility Devices

Canes are the most popular and cost effective mobility devices used by students with visual disability. *Symbol/folding Canes* are made of sections of light metal tubing, generally aluminum or its alloys, joined through the center by means of an elastic cord. The canes fold up conveniently for carrying in the pocket or handbag. When required for use, the top section is held and others automatically fall into position. *Long Canes* are wooden or aluminum stick of 85 to 90 centimeters. Three models, i.e. rigid, two pieces, and four pieces are available. The aluminum cane is generally sleeved with PVC material, having a rubber grip and a nylon tip with or without a crook.

Fig: Long cane

Fig: Folding cane

Electronic Travel (ET) Devices send out signals to sense the environment within a certain range or distance, processes the information received and furnish the student with relevant information about the environment. Most of these devices are based on integrated circuits and emit sound or tactile signals.

Fig: Smart cane

Daily Living Devices

Daily living devices are helpful for students with visual disability to perform day to day activities independently. Adapted clocks and watches, games and puzzles, sports materials, kitchen equipment and some personal devices are frequently used by the students with visual disability in their daily life.

a) Clocks and Watches: *Alarm Clock, Travel Alarm Clock, Pocket Watch, Ringer Timer, Wrist Watch and the Talking Time are the well known devices among students with visual disability. Alarm Clock:* Standard alarm clock is adapted for students with visual disability. It has strengthened hands and an open plastic dial having the hour positions indicated by two raised dots at the 3, 6, 9, 12 positions and single dots at the remaining hours.

Fig: Wrist watch

(b) Games and Puzzles: For indoor and outdoor activities of games and sports, different types of games and sports materials have been adapted and developed for the use of students with visual disability. *Playing Cards, Chess, Dominoes, Brahma Puzzle, Audible Ball, Draught Board are some of the play materials for students with visual disability.*

Fig: Chess board

(c) Sports: sports materials like *Football, Basket Ball and Soccer Ball* are equipped with a small electronic beeper which is battery powered and emits a compact sound. The beeper is held within a moulded cavity designed for easy access to 'on & off' switch. *Cricket* can be played using the audible plastic ball. *Table Tennis* has become a popular in-door game for students with visual disability. The ordinary table tennis table with some modifications in the net and the sides can be used for the purpose.

(d) Kitchen Equipment: for the students with visual disability, kitchen equipments of daily use as per the needs of the student can be modified or adapted. *Egg Poaching Rin, Measuring Jug, Bread Cutting Box, Liquid Level Indicator, Self Adhesive Labels are few examples of adapted kitchen equipments.*

(e) Personal Devices: Devices like *Notex, Signature Guide, Address Templates, Light Probe, Location Finder etc. are very useful for students with visual disability. Notex* consists of a rectangular base and flaps made of high-density polythene hinged together. It differentiates Indian currency notes of different denominations. It considers length and breadth of a currency note for its differentiation. *Signature Guide is a* template to guide the visually impaired students in placing signature in proper position on letters, cheques etc. *Address Templates* are made of cardboard with four raised lines to guide a visually impaired students to write his/her address on Inland letters and envelopes. *Light Probe* is full function light detector may be adjusted for desired sensitivity to light. *Location Finder* helps in finding your house, apartment, or office easily with portable, light weight location finder. A siren, attached outside location, will sound on pressing transmitter attached to a key chain.

Fig: Notex, a wristband to help the blind identify notes

Fig: Braille Slate with Signature Guide

Activity I

1. Distinguish between aids and appliances
2. Interact with a student with blindness studying in class VIII. Identify his/her educational needs for aids and appliances. Find out the sources, from where such aids and appliances can be obtained for the student.

Low Vision

Low vision of the students interferes in their learning. They may have varying degrees of visual limitations. They should be encouraged to use their residual (remaining) vision. They may read standard print or enlarged print. Some students with low vision try to avoid using print as they find it laborious. Some may

even prefer to use Braille for reading and writing. Students with low vision require some reading aids. They may require some environmental modifications in colour, illumination, contrast, print size, spatial relations and time. Modifications in the environment can be made for a low vision child by reducing glare through various means like appropriate placement of mirror, window and/or wall treatment for reducing the source of glare, using filters or Tints that limit the amount of light, visors or aperture limit the size or directions of light bundles entering the eye, table lamps with regulator, reading stand, typo-scope and materials in contrast colour etc. They may also require one or several low vision devices.

Low Vision Devices: optical devices which use lenses to magnify objects and non-optical devices and techniques which make objects easier to use are two main types of low vision devices. **VTS Link** is a portable large print computer and work station, specially designed to meet diverse needs of students with visual disability. It provides people with low vision with the most comprehensive solutions to computer access available today. It features a custom-made high contrast flat display screen which presents a sharp clear image of character up to 75 mm. **Visualtek**: Closed circuit TV magnifying system magnifies up to 60 times the normal size with wide variation of light intensity and both positive and negative images.

Magnifying Lenses: have many applications other than reading: they make everything bigger and brighter. The different models of magnifier lenses are *Mounted Magnifying Lens, Flexible Arm Illuminated Magnifier, Magnifying Binoculars, Book Magnifier, Illuminated Magnifier, Paperweight Magnifier, Super Loupe, Eye Loupe, Head Loupe, Flashlight Magnifier, Fresnel Wallet Magnifier, Pocket Magnifier, Rayner Recumbent Spectacles, Superscan Reading Glasses, Windsor Spherical Magnifiers, Stand Magnifier, Hand Held Magnifiers, LCD Projector etc.*

Fig: Low Vision Devices

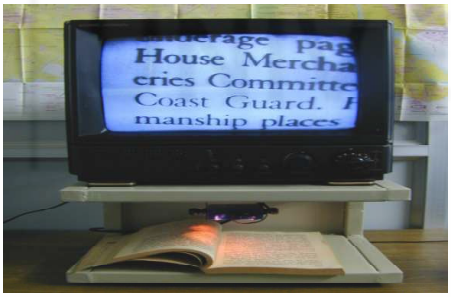

Fig: Visualtek

Activity II

1. Interact with a student with low vision and make a list of devices he/she is using for his/her daily activities.
2. Prepare a worksheet on simple two digit addition for a child with low vision studying in class III.

7.4.2 Aids, Appliances for Children with Hearing Disability

Hearing Aids

You have learned that children with hearing disability may have different degrees of hearing loss and they experience a range of limitations in communication with

others in the society, due to which, they try to explore different communication options. Some of them may prefer to communicate through oral expression i.e. speech reading or lip reading, called 'Oralism'. In Oralism, listening (aural) and speaking (oral) are considered to be the primary modes of communication and sounds are required to be amplified for a child with hearing disability (HD). Children with profound hearing loss usually prefer to use Sign Language to communicate. Each country has its own sign language. For example, the Indian Sign Language (ISL) is used by Indian children. Sign languages are natural languages and evolved out of the need of members of a community to interact and communicate with one another. Like all other languages, ISL also has its own grammar, but, not the same as that of other languages. ISL is considered to be the primary or first language of the child with HD. The 'verbal' or 'spoken' language of the hearing society (Hindi and English) is considered to be the second language and taught through the medium of ISL. This is known as Sign Bilingualism. However, children with different degree of hearing loss opt for total Communication approach for better communication with others in the society. Total communication includes the use of hearing aids, lip reading and the Indian Sign System (ISS). The ISS is not a natural language. It does not have its own grammar. It uses the signs of ISL and follows the grammar of a spoken language. ISS is becoming a powerful tool for teaching and learning a spoken language in a grammatically correct way in the inclusive classroom. Children with hearing disability may also explore using Alternative and Augmentative communication (AAC) with aided or unaided approach i.e. signing and body language without any use of equipment or use of an external tool e.g. Pictures and communication boards, speech generating devices etc. More about use of AAC is discussed in the next section.

As per the degree of hearing loss in children, the hearing aids are prescribed after testing the extent of hearing loss. There are different types of individual hearing aids like *Pocket Model, Behind the Ear (BTE), In the Ear (ITE), Spectacle Type and Bone Conduction (BC) hearing aid.*

*Pocket Model of hearing aid is w*orn in a pocket or harness at chest level. It consists of the body of the hearing aid containing the microphone, amplifier and controls. A cord transmits the electrical output to a receiver, which converts this signal into sound. The receiver is attached to a mould, which holds it in place. **Solar Battery Charger for Body Level Hearing Aids** Solar Battery Charger for these Hearing Aids is developed under Mission mode project scheme funded by Ministry of Social Justice and Empowerment (SJ&E) Government of India.

Fig: Pocket hearing aid

Behind the Ear (BTE) is worn behind the ear. It 'hooks' over the pinna. It is attached via plastic tubing to an ear mould, which holds it in place in

the ear. BTE hearing aids are more expensive to buy and maintain. They are small and thus easy to wear for children.

Fig: Behind the Ear hearing aid

In the Ear (ITE) The complete hearing aid is in the ear or ear canal. The hearing aid is housed in a hard plastic shell which is often custom made by taking an ear impression. In the ear and in the canal hearing aids also provide advantages of binaural amplification. They are expensive and not worthwhile for children because the entire hearing aid will need to be re cased if the size and shape of the ear changes. In- the- canal hearing aids fit in the ear canal and make use of the natural resonant properties of the external ear.

Fig: In the Ear hearing aid

Spectacle Type of the hearing aids is incorporated within a spectacle frame. It is useful for persons who require glasses along with hearing aids.

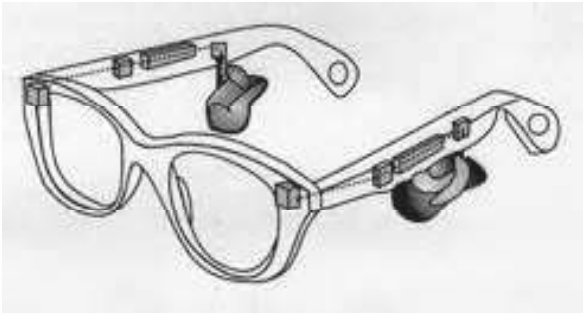

Fig: Spectacle Type of the hearing aid

Bone Conduction (BC) hearing aid is used when the ear canal is blocked or in cases where conventional amplification as described above cannot be given. BC vibrator is placed on the mastoid bone behind the ear. It converts the amplified electrical signal into vibrations.

Fig: Bone Conduction (BC) hearing aid

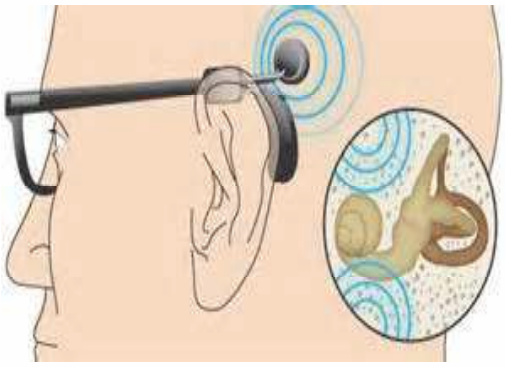

Fig: Bone conduction spectacle hearing aids

Activity III

1. Make a labeled diagram of the different parts of a hearing aid and explain how it works?
2. Interact with the mother or father of a child with hearing disability using hearing aid and find out the way they take care of the hearing aids of their child

Communication Aids

To facilitate better communication, different forms of communication aids with latest sound enhancement technology systems are used, which assist in the reception of sounds. Eg. Personal and group hardwire systems, infrared systems, loop induction systems and frequency modulation systems. In these systems, microphones pick up sound (incoming) and convert it into another form of energy. An amplifier then increases the intensity of this signal. Lastly a receiver converts the amplified signal back into acoustic (sound) energy so that the person with hearing disability can hear it.

Speech Trainer/Synthesizer

Speech trainer consists of an external microphone, amplifier and headphones. The instrument has volume and tone controls that can adjust the intensity of the output signal. This can be done separately for both the ears.

Fig: Speech Trainer

Fig: Speech Synthesizer

Induction Loop Systems

In Induction Loop Systems the amplified electrical signal is made to run through a loop of wire which may be enclosed in the walls of the room or worn as a neck-loop by the user. The electromagnetic field generated around the wire

can be picked up by the hearing aid kept in 'T' (telecoil) position and reconverted to amplified sound which the child with hearing impairment can hear. These systems have been installed at ticket booking counters of railway stations in some of the major cities of India. This would enable the child with hearing disability to hear announcements made over the microphone without being disturbed by the noise. The listener would have to wear his own hearing aid and set it to 'T' position. Induction loop systems are also used in schools, where children with hearing disability are studying.

Fig: Induction Loop Systems

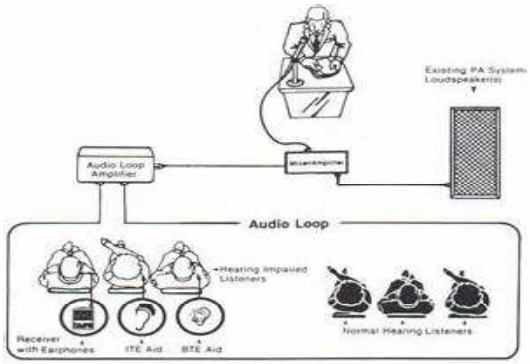

Fig: Induction Loop Systems in classroom

Group Hearing Aids

Fig: Group Hearing Aids

Group Hearing Aids are generally used in classrooms where children with hearing disability are studying. The teacher has microphone. The amplified signal is fed to earphones worn by the children sitting at their desks. Each earphone headset has a volume control adjustment on it or on the desk. There are microphones fixed to the desks so that whatever is spoken by one child can be heard by the others.

Frequency Modulated (FM) Systems

FM Systems are probably the best systems to combat the effects of noisy environment. The sound signal is picked up by the microphone (used by the person speaking) amplified and converted into a radio frequency modulated carrier waves. They are transmitted to a personal receiver worn by the child with hearing impairment. The receiver converts the signal to audible sound.

Fig: Frequency Modulation System

Infrared Systems

In Infrared Systems the sound picked up by the microphone is converted into infrared light waves, which are then dispersed throughout the listening environment. A special receiver is worn by the listener, which converts these light waves' back to sound.

Fig: Infrared hearing loop systems

Text Telephones/Telephone devices/Teletype writers

Both parties communicating must have the instrument. One child types the message. The signal is transmitted through the telephone line and displayed on the screen of the person receiving the message. With the sms facility in mobile phones today, communication of children with hearing disability using phone has become natural, easy and inclusive.

Fig: Text phones

Activity IV

1. Enlist various communication devices helpful for the child with hearing disability.
2. Differentiate between individual hearing aids and group hearing aids. Explain the suitability of both types of aids as per the context and environment.

Check Your Progress I

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

1) What do you understand by a manually operated Braille writer and mechanically operated Braille writer?

.....

.....

2) Differentiate between individual hearing aids and group hearing aids?

.....

.....

.....

7.5 AIDS, APPLIANCES FOR CHILDREN WITH NEURO-DEVELOPMENTAL DISABILITIES

Children with neuro-developmental disability include those with cerebral palsy and other movement disorders, autism spectrum disorder, intellectual disabilities and all other disabilities caused by malfunctioning of central nervous system. In this section, we will focus on the aids and appliances particularly used by children with cerebral palsy, because the range of aids and appliances used by these children covers majority of the aids and appliances used by other groups of children. The aids and appliances frequently required and used by these children can be grouped into following categories:

Mobility Devices

Some children with cerebral palsy require assistance in their mobility from one place to another. They may require wheelchair, tricycle, crutches or other walking or mobility aids to support them in their movement. Other than this they may require orthotics aids, which are an external support or brace worn or applied to the body e.g. hand splint, lower limb cast, and neck support/brace. Some people living with disability will find that the use of orthotics will aid them in walking, standing, using their hands more effectively or positioning their body more comfortably.

Fig: crutches, walker and wheelchair

Fig: Tricycle

Fig: Hand splint

Fig: Ankle Foot Orthosis

Positioning Devices: Seating, Standing, Walking

Sitting is an essential position in all of our lives. Children living with a neuro-developmental disability can find sitting in standard chairs difficult, especially when

using that chair many times a day. There are many seating aids available to help to position the child comfortably and to make getting in and out of the chair easier. These can include corner chairs, high chairs, side lyres, wedges, stools and the use of belts and harnesses. Specialized seating like custom moulded seating and accessories for wheelchairs, cars etc. may also be required by such children. In school, chairs and tables may be adapted as per the need of the individual children as special aids and equipment to support them in attending school and participating in activities. Some children with cerebral palsy are unable to stand independently. Standing frames provide support to enable such children to participate in a variety of activities. The use of walking equipment can assist them by improving their balance and stability. It can also help improve their confidence in walking. There are many different types of walking aids available from simple walking sticks and crutches, to walking frames that provide more substantial support.

Transfer and Transport Devices

Some children with cerebral palsy need assistance to move from one position to the next, for example, from their wheelchair to their bed. Others are unable to stand so a hoist may be needed to assist them in moving around. A range of equipments like stretcher, strollers etc. are available to help in transferring depending on individual need. Strollers are usually used for children under five years of age having motor disability and can assist in transporting the child comfortably and with ease. The safest way to travel in a vehicle is to sit in the standard passenger seat and use the standard vehicle restraints e.g. seat belt. There are many options available including specialist car seats, safety harnesses, booster seats and seat-belt covers. As children, get older, it can get harder to transfer them in and out of a car seat and they may need to use a wheelchair for travel. This may require a vehicle to be modified.

Fig: Accessible Vehicle for Wheelchair user

Communication Devices

Communication aids are used by those with a wide range of speech and language impairments, including congenital impairments such as cerebral palsy, intellectual impairment and autism. A terminology, which is wider in use, is Alternative-Augmentative Communication (AAC). AAC is the term used to describe a broad range of communicative behaviours and methods which support and enhance the speech attempts of individuals who are unable to speak clearly. This communication system is designed to supplement or replace an individual's speech. Children who have limited or no speech or who have difficulty in understanding others typically use some or several forms of AAC. Young children, who are slow to develop communication skills, can be trained to use AAC. An AAC aid is any device, either electronic or non-electronic, that is used to transmit or receive messages. Use of AAC will assist the individual to take

part in everyday life, such as in school AAC systems include signing and gestures, communication book like "About Me", picture dictionaries, daily and weekly schedules, communication boards or books with pictures, objects and/ or messages, alphabet board and speech generating devices etc.

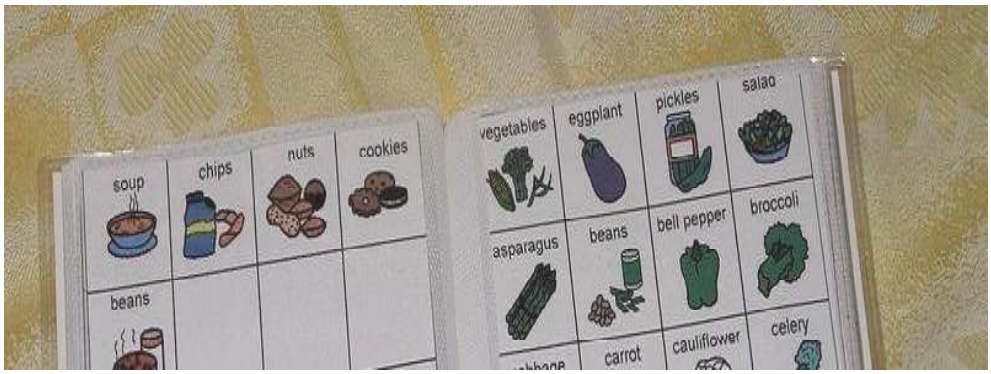

Fig: Communication book

Some people worry that if their child uses AAC, especially a speech generating device, they might not learn to speak or that they might "forget" to use speech altogether. However, research studies demonstrate that children who are slow to learn to speak actually benefit from using alternative ways of communicating, such as a speech generating device. Individuals with more severe forms of cerebral palsy may simply find talking just too difficult. AAC, such as a speech generating device, will help them to communicate effectively even if they are not able to speak.

Activity V

1. Differentiate between mobility aids and positioning devices. Draw diagrams of different mobility aids and positioning devices
2. What do you understand by AAC? Develop a communication book for a child with cerebral palsy with theme pages on 'my school', 'my home', 'my family', 'my daily routine' and 'my food habits'.

Speech Generating Devices

There are several different types of speech generating devices. Some are very simple switches with short pre-recorded messages. Others are more highly sophisticated speech generating devices that contain options for environmental control unit, access to the web, emails and other social media.

Fig: Electronic Communication book

Fig: Electronic Speech Generating Device

Speech generating devices displays may include pictures or words. The devices are activated through directly touching the screen or writing a message on a keyboard.

Daily Living and Household Activities Devices

Many people living with neuro-developmental disability need assistance with everyday household tasks. Aids and equipment are available that can support them in doing everyday household tasks such as cooking, making a drink, cleaning, laundry and shopping. This equipment can vary from scissors, clocks and timers, reaching and turning aids, to trays, protective clothing and trolleys and bags. There is a variety of equipment available to assist people who have difficulty eating, drinking, toileting, bathing, dressing and grooming activities. Adapted aids and appliances are mostly used in performing these day to day activities. Examples of this are cutlery with larger handles, slip resistant mats, cups with two handles. Toileting and Bathing Aids include toilet aids, rails, bath mats, shower seats, commodes and change tables which makes the washroom accessible and used safely and with ease.

Fig: Different Daily living and household activities devices

Computer Software and Accessibility

Computers are part of our everyday life. There is a variety of assistive technology available to support in using computers including specialised keyboards, desks and workstations, mouse and joysticks, tablets and smart phones, mouth-sticks and pointers, eye gaze control and touch screens.

Switches and Mounting

There is a range of switches and mounting equipment available which support people living with a disability who use a variety of electronic devices and other equipment in their everyday tasks. Using the right switch and/or mounting device are important for ergonomics, visibility and accuracy of access as well as to prevent damage to the device from being dropped.

Fig: Switches

Fig: Switches

Fig: Door activation switch instructions

7.6 AIDS, APPLIANCES FOR CHILDREN WITH LOCO MOTOR, MULTIPLE AND OTHER DISABLING CONDITIONS

Children with loco motor disability may have disability of the bones, joint or muscles leading to substantial restriction of the movement of the limbs. Some common conditions are poliomyelitis, cerebral palsy, and amputation, injuries of spine, head, soft tissues, fractures and muscular dystrophy. The child may not be able to raise both the arms fully or may not grasp objects or absence of any part of the limb or may have difficulty in walking. Children with loco motor disability generally require aids for positioning of their body or body parts, lifting and transferring and for mobility. These aids and appliances have been discussed in the earlier section 7.5. The aids and appliances available for the persons with loco motor disability include orthotic devices, prosthetic devices, and rehabilitative devices. The orthotic devices primarily include ankle foot orthosis (AFO), knee ankle foot orthosis (KAFO), hip knee ankle foot orthosis (HKAFO), reciprocating gait orthosis (RGO), and smart walker orthosis (SWO). Prosthesis is an artificial extension that replaces a missing body part. Prostheses are typically used to replace parts lost by injury (traumatic) or missing from birth (congenital) or to supplement defective body parts. In addition to the standard artificial limb for every-day use, many amputees have special limbs and devices to aid in the participation of sports and recreational activities. Rehabilitative mobility aids like wheelchair, crutches, tricycle and walker, surgical foot wears like special shoes, devices for daily living like adapted utensils, writing aids, items used in washrooms etc are recommended for such children as per their individual disability. Motorized tricycles and wheelchairs are provided for children with severe disability, quadriplegic, muscular dystrophy, stroke or any other person with similar conditions, where either three/four limbs or one half of the body are severely affected. Children with multiple disabilities and other multiple conditions may also require mobility devices, positioning devices, transfer and transport devices, communication devices, educational aids, hearing aids and daily living and household activities devices. These aids and appliances have been discussed in detail in different sections of this unit.

Children having intellectual disability, without any additional disabilities can be taught in natural environment using the material that other children use. The teacher should keep in mind that they need repeated instructions and step by step teaching. Adaptations in the existing equipment are used in work situations to enhance their employability. To name a few, instruments such as electronic

weighing machines that have a sound and light indicator for perfect weights, protective barricades in printing machine and baking units to prevent accidents, calculators and digital watches to make it easy to see time and do calculations and so on. An innovative teacher can adapt existing material to meet the specific need of a student with intellectual disability.

Activity VI

1. Interact with a child with cerebral palsy using computer and find out the ranges of adapted hardware and software he/she is using comfortably to operate it.
2. Differentiate between orthosis and prosthesis? Draw the labeled diagrams of five orthotic and five prosthetic devices with their explanatory notes.
3. List different mobility and positioning devices for an inclusive classroom.

7.7 FACILITATING TEACHING - LEARNING THROUGH ICT

In the new millennium, online teaching and learning has become the most prevalent way of presenting the up-to-date information to children in the quickest, most flexible and innovative ways possible. ICTs transform educational dynamics by providing alternative sources of information, which requires teachers to become facilitators and, in some cases, intermediaries between specific information sources and a child.

ICTs used as a learning tool have prompted a new dimension of education and launched the transformation of the educational approaches. A variety of technologies are utilized to facilitate learning and interaction between children. For example, asynchronous and synchronous communication and collaboration tools (e-mail, bulletin boards, whiteboards, chat rooms, videoconferencing, and teleconferencing), interactive elements (simulations, immersive environments, and games), various testing and evaluation methods (self-assessment, multiple choice testing, etc.). Educational content is presented in various media i.e. text on a website, multimedia, such as digital audio, digital video, animated images, and virtual reality environments. This content can be created in a multiple ways, utilizing a variety of tools. ICT application brings a variety of new teaching and assessment strategies for students with different educational needs. The educational needs of children with disabilities are vastly diverse. Though specific applications of ICTs are extremely diverse and varied, they may be grouped into compensatory, didactic and communication uses.

Compensatory Uses

ICT can recoup or substitute the lack of natural functions. For example, if a child has motor disability he may be helped to write, or to read if a person has a visual disability. ICTs develop the child's ability to control the environment, make choices about their experiences, support problem-solving, give access to information, and thereby enhance communication with others both in the immediate environment and around the world.

Didactic Uses

ICTs can be used as a didactical tool in order to enhance learning of children. A particular concept can be made easily available through ICT for a child to drill and practice. The didactic use of ICT facilitates learning of children with diverse needs, differences, and abilities.

Communication Uses

Technologies can mediate communication with people with disabilities. Assistive devices and software to meet the needs of students with definite communication difficulties are specific to every disability. We talk about the computer as a resource that eases and makes the communication possible. It allows a child with communication disorders to exhibit his/her abilities in a more convenient way, or children with motor and communicative disorders to start communication, show their needs and make their demands.

National Policy on Information and Communication Technology (ICT) In School Education (2012) has specially articulated national policy on ICT for Children with Special Needs under its section 4.6, which recommends that use of ICT will catalyze the cause and achieve the goals of inclusive education in schools. The ICT software and tools should be made available to facilitate access to persons with disabilities. Screen readers, Braille printers, etc. will be part of the ICT infrastructure in all schools. Special care should be taken to ensure appropriate ICT access to students and teachers with special needs. All teachers should be sensitized to issues related to students with special needs and the potential of ICT to address them. All capacity building programmes should include components of ICT enabled inclusive education. All web based interfaces developed for the programme including digital repositories and management of information systems, should conform to international guidelines for accessibility. Accessibility norms should be adopted as per the World Wide Web consortium, W3C guidelines (Web Content Accessibility guidelines, http://www.w3.org) to enable the content to be accessed by children with special needs. Web based digital repositories with W3C compliance should address the lack of availability of resources for persons with disabilities. Digital content and resources, for the exclusive use of persons with disabilities, talking books for example, should also be developed and deployed.

Check Your Progress II

Notes : a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

3) Differentiate between mobility devices and positioning devices.

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.....

.....

4) What do you understand by Alternate Augmentative Communication?

.....

.....

.....

7.8 LET US SUM UP

Aids refer to providing assistance, support, or relief to the needy to perform certain activities which may be necessary for his/her survival or to improve his/her life style. Appliances refer to the use or application of a technique and putting a technique into practice. There are machines and devices which are used as appliances to make our work easier.Information and communication refers to the fact that once information has been obtained and organized, it may need to be communicated to others. There are a range of technological resources available for handling, manipulation and communication of information such as television, satellite, video and telecommunication. Computer database and internet may have connections to global network.

Aids and appliances for children with visual disability include educational devices, mobility devices, daily living devices and low vision devices etc and for children with hearing disability there are hearing aids, assistive and alarming devices and communication aids.

The aids and appliances frequently required and used by children with different neuro-developmental disabilities are mobility devices, positioning devices, transfer and transport devices, communication devices, daily living and household activities devices and mobility devices and children with Loco motor, Multiple and other disabling conditions may generally require aids for positioning of their body or body parts, lifting and transferring and for mobility. The aids and appliances available for the persons with loco motor disability include orthotic devices, prosthetic devices, and rehabilitative devices.

The applications of ICTs in education of people with special needs are extremely diverse, there are three main areas for their use – compensation uses, didactic uses, communication uses. In order to implement inclusion in education there is a need to create appropriate conditions for Children with Special needs (CWSN). The achievement of conditions for successful inclusion in all areas of education can be realized by means of providing for appropriate technological infrastructure, modification of the curriculum, training of teachers involved in providing inclusive education, and build in them the capacity to use ICTs. National Policy on Information and Communication Technology (ICT) In School Education (2012) has specially articulated national policy on ICT for Children with Special Needs, which recommends that use of ICT will be helpful in achieving the goals of inclusive education in schools.

7.9 UNIT END QUESTIONS

7.9.1 Differentiate between the followings:

a) Aids and appliances

b) Group hearing aids and induction loop system

c) Long cane and smart cane

d) Wheel chair and tricycle

7.9.2 Write Short notes on the followings:

a) Educational aids for children with visual disability

b) Communication aids for children with hearing disability.

c) Mobility aids for children with loco motor disabilities.

d) Daily living assistive devices for children with neuro-developmental disabilities

e) Use of ICT in education of children with different disabilities.

f) If you have children with different disabilities in your class, what are the first few steps you will take in terms of use of aids and appliances/ ICT in your class?

7.10 ANSWERS TO CHECK YOUR PROGRESS

1. A manually operated Braille writers are the Braille frame, the Braille slate and the stylus, using these a child with blindness can write Braille on the Braille paper manually; whereas ***a mechanically Braille Writer*** is a Braille machine, similar to a type writer, enabling a child with blindness to type Braille using its nine keys, three for paper setting and six for Braille embossing.
2. Individual hearing aids are worn and used by an individual person. It consists of the body of the hearing aid containing the microphone, amplifier and controls. A cord/tube transmits the electrical output to a receiver, which converts this signal into sound. After assessing the hearing loss and residual hearing of a person, hearing aids are prescribed and undergoing a trial. *Group Hearing Aids* are used in classrooms for a group of children with hearing disability. The teacher uses microphone and sounds are amplified and received by the earphones worn by the children sitting at their desks.
3. Mobility aids assist children with loco motor disability in mobility from one place to another. For example, wheelchair, tricycle, crutches hand splint, lower limb cast, and neck support/brace etc. *Positioning devices* help to position the body/posture of the child in comfortable position in sitting, standing and lying down and in walking. For example, specialised seating like custom moulded seating and accessories for wheelchairs, cars, standing frames and walking frames etc.
4. Alternative-Augmentative Communication (AAC) is the term used to describe a broad range of communicative behaviours and methods which support and enhance the speech attempts of individuals who are unable to talk/speak clearly. An AAC aid is any device, either electronic or non-electronic, that is used to transmit or receive messages, which include signing and gestures, communication book and speech generating devices etc.

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UNIT 8 RESOURCES FOR INCLUSION

8.1 INTRODUCTION

You are now aware of how to adopt various strategies or use new techniques in order to ensure that your school is inclusive. Further, for ensuring that schools and classrooms become inclusive, you need to have access to resources and support. Let us discuss the same with an example. Amit is a student of class eight and has difficulty in seeing due to low vision. Unless the teaching -learning materials are clear, bigger and bright; he would not benefit from the classroom teaching. Things that would help him include: (a) well lighted classroom; (b) assigning a seat in the front row; (c) providing materials in enlarged fonts through a photocopier or a printer; (d) facilitating the child to have a tab/laptop so that he uses the provided contents or teacher made PPTs by enlarging them as per his needs. The list can be further expanded to have more resources and support. Many resources/support what you would propose for Amit can be made available in the classroom. Don't you think such support would benefit all children in the classroom-shifting from a dark to a well-lighted room or from a dull blackboard to a whiteboard or a smart board and so on? You need to note that resourcing your school would help everyone; therefore, why wouldn't you make the effort to improve overall teaching-learning conditions of your school? However, there can be some additional resources or support needed for children having diverse learning needs. Salma needs extra time from the teacher as she finds it difficult to catch all information because of her hearing loss; and Tudu Murmu needs extra attention from the teacher as he has difficulty in understanding Hindi or English since his mother tongue is different. But the case is different with Suni. Her pen (stylus) for writing in Braille is broken since the last two days; her teacher Mrs. Malti is worried where to get another one. Fortunately, she contacted a local school for the blind and they have assured that they will give her a stylus by the evening. Hence Mrs. Malti has requested John to make notes for Suni by using a carbon paper so that her parents can help her at home to revise the content. In the latter examples, resources and support were provided through contacts, collaboration and cooperation to help all students in the classroom.

Hence resources for inclusion are not only highly desired, but essential. Resources can be procured through your school's fund; or shared if available in your locality through collaboration or procured from government or non-government organizations free of cost or nominal cost. Support is also some kind of resource- either you provide yourself, or take help from a specialist or you can involve parents or even volunteers can be of good support. In this Unit, we would discuss how to arrange resources and support for facilitating inclusion in our schools and classrooms. Based on this, you can map possible resources for any school and plan accordingly to find and use resources for inclusion.

8.2 OBJECTIVES

After going through this Unit, you will be able to:

- Understand the need of various resources for supporting inclusion in the school and classrooms;
- Develop the skills for facilitating and mobilizing resources for your school and classroom;
- Appreciate the need of collaborating with various professionals and agencies for support and resources to facilitate inclusion;
- Develop skills to involve parents and community members efficiently for supporting students with diverse needs;
- Find the process of getting support from various government agencies to facilitate inclusion in your school and classrooms.

8.3 RESOURCES FOR INCLUSIVE PRACTICES

Resources are keys to a system whether it is educational, health or any other system. Don't you need classrooms, libraries, play grounds, laboratories as well as staff to run a school? Presence of good resources can be one of the factors that lead to the success of a school. Resources are not only the physical infrastructure, teaching-learning materials or technology; but also the staff, teachers, head of the school and other professionals and consultants who contribute to quality education of the students. When we talk about resources for inclusive practices, it indicates all such common resources besides some additional resources which are required to provide equal opportunity and quality education to all students including those with diverse needs.

Activity 1

In section 8.1 of this Unit, we have discussed about a student i.e. Amit who has low vision. What are the resources that would help Amit?

(A) Important common resources that would help not only Amit, but all students:

(i) .....

(ii) .....

(iii) .....

(iv) .....

(v) .....

(B) Important resources that would help Amit as well as other students with different diverse needs:

(i) .....

(ii) .....

(iii) .....

(iv) .....

(v) .....

(C) Important resources that would help only Amit and other students with similar needs:

(i) .....

(ii) .....

(iii) .....

(iv) .....

(v) .....

When we talk about resources to promote inclusive practices, we cannot ignore the common resources. For example, internet can be a resource. Having internet and using it for classroom learning can be beneficial to all students including Salma who has hearing loss and prefers to watch YouTube videos to clarify her concepts. Use of models by the teachers not only helps students like Salma, but also students with other sensory disabilities or specific learning disabilities as well as students without disabilities. Hence resourcing the school well, irrespective of the types of students facilitates learning of all students and silently helps the students with diverse needs. Let's discuss some of these common resources.

Examples of Some Common Resources

Resources	Characteristics	Common Benefits	Specific Benefits
Classroom	Spacious	Beneficial for all students. It is more helpful while dividing the whole group and doing small group activities	Helps student who uses wheelchair and even mobility of students who are blind
	Well lighted	Beneficial for all students as it reduces stress on eyes as well as improves attention	Helps students with low vision. Also helps students with hearing loss who are largely dependent on speech (lips) reading and facial expression

Resources	Characteristics	Common Benefits	Specific Benefits
	Whiteboard/ Smart board/LCD Projector	Beneficial for all students. Smart board combines technology for better learning by all	Helps students with low vision, those with intellectual and specific learning disabilities as there is variety and multi-sensorial input
	Reducing background noise by fitting of rubber pads on furniture and replacing fans with AC	Silent classroom improves attention and concentration of the students	Helps hearing aid user for better listening; also helps students who have attention related difficulty and those with specific learning disabilities if they have auditory figure ground difficulties
Library	Besides text/ reference books; there are many simple illustrative books/manuals with interactive CDs/Software	Beneficial for all students. It improves students' engagement with learning and provides multiple means of representation of contents.	Helps students having learning and intellectual disabilities, also beneficial for deaf and hard of hearing students.
Activity Rooms	Facilities for learning activities related to vocational, art and craft, music, computer application.	Beneficial for all students to develop their interests.	The students with diverse needs may use as alternative to any subject that is very difficult as well as enjoy school life.
Technology integrated learning facilities	Computer based hardware, software and internet	Beneficial for accelerated and blended learning in all students	The students with diverse needs would compensate their sensory, perceptual and intellectual limitations while learning with the rest.
Counseling Cell	Counselor to help students for academic and personal difficulties	Beneficial for all students	The students with diverse needs would receive regular support and motivation

While planning the resources for the school we must keep students with diverse needs in mind. So that without any additional cost, the school can meet the special needs of diverse learners. Students with mild or moderate disabilities may not need additional resources other than continuous support by the teachers, staff, peers and parents.

Activity 2

What are the other common resources that you think would support all students and how?

(i) .....

(ii) .....

(iii) .....

(iv) .....

(v) .....

What are the other resources the school may require to meet out the needs of diverse learners? It is always good that a school keeps these resources in hand before the need arises. This makes the school inclusive and makes the school ready to welcome any student at any time. These resources may be diverse types and are discussed here.

Resources to Make School Inclusive

Resources	Purpose	Outcome
Training facilities for the teachers/Heads of schools	The teachers may need in-service training facilities to equip themselves to meet the demands of the inclusive classroom. The training facility may be in-house, out-sourcing, Open Distance Learning (ODL) or Massive Open Online Course (MOOCS). Example: Training on how to use Universal Design for Learning (UDL) and Differentiated Instruction (DI) in the inclusive classroom, how to make school accessible	School authority and teachers are sensitive and responsible towards inclusive practices.
Services of other Professionals	Services of Special educators may be required when the child has to be trained for using Braille, Sign language or related specific services. Services of other rehabilitation professionals such as audiologists, speech pathologists, psychologists, physiotherapists, occupational therapists may be required. The current educational system with the help of Sarva Shikshya Abhiyan (SSA) and Inclusive Education for Disabled at Secondary Stage (IEDSS) subsumed under (Rashtriya Madhyamik Shiksha Abhiya (RMSA) has arrangements for such services.	Support to classroom teachers so that they handle the diverse needs effectively with guidance from other professionals.
Assistive Technology	Computer software and hardware, such as voice recognition programs, screen readers, and screen enlargement applications, help people with mobility and sensory impairments as well as those intellectual and specific learning disabilities. Use computer technology-cognitive assistance, including computer or electrical assistive devices, can help students function following brain injury.	Improves confidence in teachers and removes barriers and enhances student's access to learning.
Consultation for Procuring & Using Assistive Devices	Students with low vision and blindness would require magnifying devices, Braille, Abacus and other assistive equipment. Students with physical disabilities having affected movement can be guided to use mobility aids, such as wheelchairs, walkers, crutches, prosthetic devices, and orthotic devices, to enhance their mobility. Cochlear implants and hearing aids also improve hearing ability in students with hearing problems.	School empowers its students as they compensate limitations in their functioning.
Resource Room/ Centre	The cell/centre that manages all the above activities to make the school resourceful. The cell/centre may have space to coordinate the activities, engages volunteers/parents, handle the specialized equipment, teaching learning materials if any.	Succeeds in inclusive practices.

To make all resources available, initially the school has to take lots of pain. However, once it is built up, then it would not be difficult to maintain them. Therefore, the Head and motivated teachers can lead the school with their leadership towards creating resources for inclusion. The school's mission and vision need to be cherished with inclusion as the school's policy and practice.

Check Your Progress 1

Note: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of the Unit

1. Do you think that resources for inclusion would require huge funds?

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2. What would be the impact of resourcing inclusion on students without diverse needs?

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8.4 BECOMING A RESOURCEFUL TEACHER

You can be a change maker for ensuring inclusive practices in your school and classrooms. Do not wait for the school to make provision for you to start working for inclusion. Know that inclusive education is not a program that can be handled by one classroom teacher. It requires a system of support from the principal to the teacher, bus driver, lunch supervisor and recess monitor. Parents can face many challenges when seeking an education for their child with disabilities in a school. Here, you can play an important role. You have to advocate for inclusion: motivate your colleagues to join with you, pursue the issue with the principal or if required you along with your colleagues can request the school management. To do that you need to be resourceful.

To become a leader in ensuring inclusion in your school, you need to undertake the following tasks:

- Take training on various issues related to inclusive practices in schools;
- Develop contacts with experts for regular guidance;
- Visit organizations/schools which support education of children with diverse needs;
- For gaining some hands-on training, volunteer with them;
- Update yourself with the latest acts and policies supporting inclusion in education;
- Support and advocate for inclusive practices in your school.

Each of the above steps would educate you and make you resourceful to lead your school towards inclusion. Do not expect that an expert and/or a special educator would come and help the school to become inclusive. There is a global shortage of teachers, particularly of teachers who are sufficiently trained and motivated to include children with special needs in regular schools. Yet such inclusion is vital for achieving "Education for All" goals and bringing the millions of currently excluded children into education. In order to develop the skills, experience and confidence to include all children, teachers need to learn about and practice inclusive education during pre-service and in-service training, and they need to be given opportunities for continuing professional development throughout their careers. Policy-makers and trainers responsible for developing and delivering teacher training and for recruiting teachers need to understand inclusive education and its importance in any drive for educational improvement. They need to grasp the concept of inclusive education as a twin-track approach which can improve the quality of education for all, and yet provide specialized support where needed, for children with disabilities. Every teacher needs to learn about inclusive education, from day one of their training. This should be achieved by embedding inclusion, rights and equality throughout all training and not simply covering these issues through standalone courses. Every teacher also needs opportunities for inclusive education practicum during their training, and to feel supported (for instance by specialists) to continue trying new ideas throughout their employment. There needs to be an effective balance of theoretical and practical learning for teachers at pre-service and in-service stages. Inclusive education training and continuous professional development need to be designed and delivered with inputs from diverse stakeholders, in particular community members and professionals with disabilities, to give a stronger sense of reality to teachers' learning experiences. The teaching workforce needs to be more diverse, and targeted efforts are needed to ensure that people with disabilities can also be trained as teachers, find work and be supported in their jobs.

Reflect Yourself

Think about your school where you studied. After you successfully complete this Programme, you may become a teacher in a school; what are the steps you think can be taken up by you to make the school inclusive. Think and write your ideas below:

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8.5 RESOURCE MOBILIZATION

Resource mobilization is the process of getting resource from a resource provider, and using different mechanisms to implement the organization's work for achieving the pre-determined organizational goals. It deals with acquiring the needed resources in a timely, cost effective manner. Resource mobilization depends on

having the right type of resource, at the right time, at right price with making right use of acquired resources thus ensuring optimum utilization of the same. Indeed, moving towards an inclusive school model can be viewed as one way of attracting additional resources. As discussed earlier, partnerships with community organizations with a focus on promoting inclusion can result in the acquisition of additional human and material resources. These can be used to the benefit of all students. For ensuring inclusive practices in a school, resource mobilization is a must which would ultimately resolve the problem of funding inclusion process. In Section 8.3, of this Unit we have discussed that to make all resources available, initially the school has to take considerable effort. But understanding the strategy of resource mobilization would open the way to resourcing inclusion.

The resources may be available within the community, local and government organizations, with NGOs and volunteers; but we need to learn how to mobilize them towards developing inclusive practices in your school.

Figure: Resource Mobilization for Inclusion

'Partnership' is a relationship created through an expressed or implied commitment between or among two or more parties who join together to achieve common goals. It is achieved best when the common goals are better achieved together than separately and tangible benefit to all partners. It is important to be aware that effective fundraising takes place with good governance over partnership. Collaboration' is an open and inclusive process, a tool to engage a broad array of diverse entities to come together to find solutions for any issue/problem. Partnership and collaboration are solutions for mobilizing resources when the problem is huge and beyond the capacity of an organization or group to handle.

Success Story: Rotary Club Supported the School towards Inclusion

Mrs. Aarti Sharma teaches in a school. One day she saw a poster on a road that the local Rotary Club was going to distribute free of cost 'Aids and Appliances (Assistive Devices)' to persons with disabilities. After coming to the school, she checked with such students if anyone was in need of assistive devices. Except Rajesh, she found everyone had devices in working condition. She contacted the parents of Rajesh and asked them to be in touch with the Rotary Club for getting a pair of hearing aids.

Later an idea came to her mind. She met the members of the Rotary Club and asked them to support her school. She requested them to support her students in repairing and maintenance of assistive devices on a regular basis. Collaboration started with Rotary Club and they tied up with an agency that repairs and maintains assistive devices. On the Annual day, the School did not forget to felicitate members of the Rotary Club for their support.

Collaboration can be with the clubs or village Panchayats or any corporate houses or banks that are always inclined to support for the social cause. In addition, the government has made it mandatory that all corporate houses/ companies make budget allocation for spending on Corporate Social Responsibility (CSR). Hence all companies look for effective ways of spending on social causes. Hence schools must find the ways to contact them and get required support for inclusive practices. There can be partnerships. A teacher training institute or a rehabilitation centre or an NGO can support your school for mutual benefit.

Success Story: Partnership Facilitated Inclusion

Modern Teacher Training Institute (MTTI) was looking for schools for practice teaching and internship of its student teachers. They were specifically looking for such schools where inclusive practices exist. During a visit of faculty from MTTI for their purpose, Vidya Bharati School put up a proposal for a partnership. The School authorities said that they would agree to provide their campus to the student teachers of MTTI on a condition that MTTI shall provide training and support to the school teachers in inclusive education. As it was beneficial to both, a partnership was built up and now the school is doing well in implementing inclusive practices in their teaching-learning process.

What did you understand from this Section? Hope you would appreciate the advantage of 'Resource Mobilization' for adequately resourcing inclusion process in a school. Therefore, collaborations and partnerships have a great role to play. We shall discuss in detail about possible collaboration and partnership in support of inclusive practices in schools.

Activity 3

Make a list of organizations/agencies/associations in your locality/ district which can be contacted for support of inclusive education in a school:

Type	Organizations/Agencies/Associations/ Expert/Individuals	Purpose
Collaboration		
Partnership		

8.6 COLLABORATING WITH OTHER PROFESSIONALS

To promote inclusive practices in schools, you know that it requires a high quality of service, well-trained teachers, support personnel and material resources. You are also well aware that collaboration and partnership by the school are at the heart of inclusive education. A responsible school promotes cooperative relationships, not only within the school but also between the school and the whole community. Inclusive education is diverse and often involves a range of various service professionals, approaches and working methods. At the same time, support structures that promote inclusive education are coordinated both within and between various sectors (such as education, health, social services) and teams of support personnel. In addition, holistically considering students' needs, such support structures should promote an interdisciplinary approach that integrates the knowledge and perspectives of various areas of professional expertise.

An important role in supporting inclusive education is therefore played by teamwork, exchange of experiences, and partnership with various professionals. To solve the problem, collaboration is typically carried out between teachers and other support professionals. They meet to solve specific problems, usually concerning a student or a group of students, focusing on classroom-based interventions thus increasing the students' chances for success. The successful realization of this task implies the availability of the professional support of various experts to help teachers, parents and students, thus ensuring a range of support and services that provide all students with genuine access to education. Assistance might involve interactions between classroom teachers and speech and language specialists, school psychologists, specialists in visual and auditory impairment, special educators or other professionals.

Depending on the diverse needs or challenges arising out of disability, the school may need to avail guidance from various professionals some of whom are mentioned above. These professionals may be available in a local hospital, rehabilitation centre or in a special school. However, school principals and parents may express uncertainty and confusion regarding the teaching-learning practice at regular schools and special schools. Staff at special schools may be anxious that students develop their skills and knowledge at inclusive schools. Their main concern is that inclusive school teachers may not have experience and 'are often uninformed about the needs of different children with diverse needs and how to work with them'. Despite the differences, professionals at special schools can be of help for teachers to solve their problems. The teachers must ensure that the professional support should always facilitate inclusion and contribute to the development of the student.

You must note that the elements of collaborative practice are: responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy and mutual trust and respect. This means that true collaboration is demonstrated only in teams in which the goal is clearly established, decision making is shared, and all of the members feel that they are respected and that their contributions are valued.

Activity 4

Visit the website of Rehabilitation Council of India and make a list of several types of professionals working for education, training and rehabilitation of persons with disabilities.

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8.7 COLLABORATING WITH OTHER INSTITUTIONS

There are governments as well as non-government organizations (NGOs) that can be contacted for collaboration to support persons with disabilities in India. Institutions under government mostly function under Department of Empowerment of Persons with Disabilities (Ministry of Social Justice and Empowerment). More than 5000 special schools also exist in the country which are mostly managed by NGOs. The government has established several national institutes as apex bodies to focus on specific disabilities. The list of such institutes is given here in a box. You can find out the URLs of these institutes and their regional centers from internet and find out the kind of activities they undertake.

List of National Institutes

1. National Institute for Empowerment of Persons with Visual Disability, Dehradun
2. Ali Yaver Jung National Institute for Speech and Hearing Disability, Mumbai
3. National Institute for Empowerment of Persons with Orthopedic Disability, Kolkata
4. Pandit Deen Dayal Upadhyay Institute for Empowerment of Persons with Physical Disability, New Delhi
5. Swami Vivekanand National Institute of Rehabilitation, Training and Research, Cuttack
6. National Institute for Empowerment of Persons with Intellectual Disability, Secunderabad
7. National Institute for Empowerment of Persons with Multiple Disability, Chennai
8. Indian Sign Language Research and Training Centre, New Delhi

To overcome the lack of adequate facilities for rehabilitation of persons with disabilities, the Ministry of Social Justice & Empowerment has set up several Composite Regional Centres for Persons with Disabilities at Srinagar (J&K), Sundernagar (Himachal Pradesh), Lucknow (U.P.), Bhopal (M.P.), Guwahati (Assam), Patna (Bihar), Ahmedabad (Gujarat) and Kozhikode (Kerala) and other places in various parts of India to provide both preventive and promotional aspects of rehabilitation like education, health, employment and vocational training, research and human resource development and rehabilitation of persons with disabilities. There are also District Rehabilitation Centers (DRCs) and you can find out whether you have a DRC in your district. You must visit the website of the Ministry of Social Justice and Empowerment to know more about all these centers that are established throughout India (www.disabilityaffairs.gov.in).

Organizations like National Council for Education, Research and Training (NCERT) at New Delhi or State Council for Education, Research and Training (SCERT) at state levels promote inclusive education. The schools can contact them for support. Ministry of Human Resource Development (MHRD) under Rashtriya Madhyamik Shikshya Abhiyan (RMSA) and the Scheme of Inclusive Education for Disabled at Secondary Stage (IEDSS) also supports inclusive practices in the secondary schools.

Scheme of Inclusive Education for Disabled at Secondary Stage (IEDSS)

Overview: The Scheme of Inclusive Education for Disabled at Secondary Stage (IEDSS) has been launched from the year 2009-10. This Scheme replaces the earlier scheme of Integrated Education for Disabled Children (IEDC) and provides assistance for inclusive education of disabled in classes IX-XII. This scheme is subsumed under Rashtriya Madhyamik Shiksha Abhiyan (RMSA) from 2013.

Aims: To enable all students with disabilities to pursue further four years of secondary schooling after completing eight years of elementary schooling in an inclusive and enabling environment.

Objectives: The scheme covers all children studying at the secondary stage in Government, local body and Government-aided schools, with one or more disabilities. Girls with disabilities receive special focus to help them gain access to secondary schools, as also information and guidance for developing their potential. Setting up of Model inclusive schools in every state is envisaged under the scheme.

Components: Student-oriented components, such as medical and educational assessment, books and stationery, uniforms, transport allowance, reader allowance, stipend for girls, support services, assistive devices, boarding and lodging facility, therapeutic services and teaching learning materials. Other components include appointment of special educators, allowances for general teachers for teaching such children, teacher training, orientation of school administrators, establishment of resource room and providing barrier free environment.

Implementing Agency: The School Education Department of the State Governments/Union Territory (UT) Administrations is the implementing

agencies. They may involve NGOs having experience in the field of education of the persons with disabilities in the implementation of the scheme.

Financial Assistance: Cent percent Central assistance for all items covered in the scheme. The State governments are only required to make provisions for scholarship of Rs. 600/- per disabled child per annum.

For more details visit: http://mhrd.gov.in/iedss

The schools can collaborate with such institutions for: (i) training of teachers, (ii) professional support, (iii) Aids and appliances- assistive devices, (iv) guidance for school to initiate and/or improve inclusive practices. For training of human resources in inclusive education, you can find out details on various training institutes from Rehabilitation Council of India (www.rehabcouncil.nic.in).

Check Your Progress I1

Note: a) Write your answer in the space given below.

b) Compare your answer with those given at the end of the Unit

3. What are the functions of Composite Rehabilitation Centres (CRC)?

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4. List the national level institutions that support education and training of children with hearing impairment and additional disabilities.

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8.8 PARENTS AND COMMUNITY AS RESOURCES

Engaging parents and the community is not a new concept. Involving them is an important principle of quality, both in and out of the classroom. It is even more relevant in the case of inclusive education, which is much broader than formal education and should not be restricted to the four walls of a classroom. Parents' collaboration is not only of benefit for children but also there are possible gains for all parties, for instance:

- Parents increase interaction with their children, become more responsive and sensitive to their needs and more confident in their parenting skills.
- Educators acquire a better understanding of families' culture and diversity, feel more comfortable at work and improve their morale.

- Schools, by involving parents and the community, tend to establish better reputations in the community.

Creating a climate and sustaining a culture of collaboration is a challenge for schools. But it is the one that pays large dividends through time. The first step for families to become involved in a collaborative way with schools is to promote a social and educational atmosphere where parents and partners feel welcomed, respected, trusted, heard and needed. Cultural factors and traditions strongly influence the relationship between schools and the community. In many places throughout the globe, schools are the centre of community life and are used to encourage and achieve social participation. The levels of family involvement in children's education might vary in accordance with the participation opportunities that the education system makes available to them. In the case of children with disabilities, the willingness of a family to engage in collaboration might be influenced by the type of disability, as well as the family's socio-economic status and the nature of the parent-child relationship.

UNESCO (2001) has introduced a detailed list of possible 'parent engagement' options aimed at making the experience a two-way-relationship:

Families as activists: Frequently, families – particularly those organized into networks or associations – play a lead role in moving education systems towards more inclusive approaches and policies. Some of the actions in which parent groups can have an impact are identifying schools that are willing to move forward, establishing links and partnerships with education authorities in support of inclusive education, organizing seminars and workshops to introduce new thinking and new practice, and supporting teacher development.

Families as contributors to inclusive education: Under this option, the role of parents is emphasized in supporting inclusion in the family and children's learning and development at home. The main idea is that families and communities should reinforce inclusive and learning experiences.

Schools, families and the community as partners: There are many opportunities for partnerships and collaboration, from exchanging information to family members supporting learning at home.

Families supporting other families: This is particularly advised in the case of parents of children with disabilities who live in poverty, isolated communities, or have culturally or linguistically diverse backgrounds. In this case the support of parents of children with disabilities who are in a better social or educational position can be extremely valuable.

Family and community involvement in school governance and management: Includes the participation of families in decision making and in supporting aspects of daily management of activities.

Recent research shows that empowering families and enabling them to participate in decision making is an effective contribution to the process of change in the context of education. Instead of 'involving' families, or proposing specific tasks or set roles for parents, the idea of 'engagement' seeks the active participation of parents within the process of improving education for all. Collaboration must be both constructive and efficient and this is more likely to happen when all parties feel comfortable in the process, the distinct roles are agreed and understood, and information is provided regularly in an open and democratic

way. Bear in mind also the need to provide regular opportunities for all participants to clarify their expectations, understand the complexities of the process (accomplishments as well as disappointments and drawbacks) and discuss how to strengthen positive practice as well as how to improve the quality of the collaborative process.

8.9 LET US SUM UP

Schools with useful resources not only promote inclusive education but also benefit all students. But to support children with diverse needs, the school may need additional resources. These resources for inclusion are not only highly desired, but essential. Resources can be procured through your school's fund; or shared if available in your locality through collaboration and partnership; or availed from government or non-government organizations. The school management and teachers need to develop required skills to make them resourceful for support of inclusion. Getting and managing resources for support of inclusion are challenging tasks and require the intensive engagement of the school and its teachers.

For ensuring inclusive practices in a school, resource mobilization is a must which would ultimately resolve the problem of funding the inclusion process. Resource mobilization is the process of getting resource from the resource provider, using different mechanisms, to implement the organization's work for achieving the pre-determined organizational goals. It deals with acquiring the needed resources in a timely, cost effective manner. Resource mobilization depends upon having the right type of resource, at the right time, at right price with making right use of acquired resources thus ensuring optimum utilization of the same. Developing collaboration and partnership is a must if the school wishes to adequately resource it self for the benefit of students with diverse needs. The collaboration can be made with government as well as non-government organizations. Parents and the community are two important resources for a school. Involving them is an important principle of quality, both in and out of the classroom.

8.10 UNIT END EXERCISES

1. "Improving general resources of a school would facilitate inclusive education". Discuss the role of the school in the light of aforesaid statement.

2. What do you understand by 'resource mobilization'? What are the steps a school can take for resourcing inclusive practices? Describe with suitable examples.

3. Why is professional collaboration important for inclusive education? Make a list of professional bodies and institutions that can be contacted for professional collaboration.

4. How would a school utilize parents and community as resources for inclusive education? Discuss.

8.11 ANSWERS TO CHECK YOUR PROGRESS

1. Not always. If school manages to have useful resources meant for all students- that would benefit students having diverse needs. Therefore, while planning resources school must take care of needs of all students including students with special needs.

2. Most of the resources meant for students with diverse needs can be used by all students; for example, ramp or a well-lighted classroom which might be considered for children with low vision.

3. It provides both preventive and promotional aspects of rehabilitation like education, health, employment and vocational training, research and manpower development, rehabilitation for persons with disabilities, etc.

4. Ali Yavar Jung National Institute for Speech and Hearing Disability, Mumbai; Indian Sign Language Research and Training Centre, New Delhi and National Institute for Empowerment of Persons with Multiple Disabilities (Deaf-blind).

8.12 REFERENCES AND WEB RESOURCES

1. **UNESCO (2001).** Open File on Inclusive Education

2. **UNICEF (2014). Conceptualizing Inclusive Education and contextualizing** it within the Mission, Webinar 1 – Companion Technical Booklet

National Institutes and CRCs: http://disabilityaffairs.gov.in/content/page/nationals-institutes-and-crcs.php

Parent, Family and Community Participation in Inclusive Education: http://www.inclusive-education.org/sites/default/files/uploads/booklets/IE_Webinar_Booklet_13.pdf

Education Resource Mobilization and Use in Developing Countries: http://www.resultsfordevelopment.org/sites/resultsfordevelopment.org/files/resources/R4D%20Working%20Paper%20-%20Education%20Mobilization.pdf