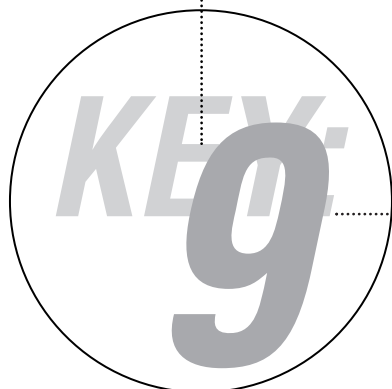


Key Components of Programming for Students with Learning Disabilities



Instruction

Students with learning disabilities vary in the severity and nature of their difficulties, and in the range and types of supports they need. Each student with a learning disability has a different pattern of strengths and needs which influences learning. Some may have weak language skills and experience their greatest difficulties in reading and written language. Some may have strong oral language skills and experience their greatest difficulties in written expression, including the physical act of handwriting, the organization of ideas and mechanics. Others may be successful in the acquisition of literacy skills but experience difficulties with nonverbal problem solving, arithmetic and social interactions.

Instruction is most effective when it is guided by an understanding of the pattern of difficulties experienced by individual students with learning disabilities. One approach to understanding students' strengths and needs is to organize information about students' characteristics into interacting domains.

These domains include:

- the metacognitive domain—knowledge and control of thinking and problem solving
- the information processing domain—attention, memory, speech and motor output
- the communication domain—auditory and language skills
- the academic domain—reading, written expression, mathematics
- the social domain.

Students' characteristics must be considered in context because they interact with the demands of the task and setting. Students may show strengths in a social studies class when the task requires an oral presentation of knowledge but experience great difficulty when required to express the same knowledge in a written essay. As students progress through school, there are changes in curriculum demands, expectations, workloads and settings.

In this section, instructional strategies for students with learning disabilities are described, followed by instructional emphases important during the early school years, elementary years and junior high/senior high school years.

Instructional Strategies to Facilitate Learning

The following instructional strategies are applicable for students with learning disabilities across all grade levels.

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- Use flexible groupings to organize instruction to maximize active student involvement; e.g., large group, small group, pairs, individual, cooperative learning, peer tutoring.
- Differentiate instruction. Where possible, offer students multiple options with regard to the degree of structure or open-endedness of the task, the pace of learning, the degree of independence, the abstractness and reading level of materials, and the products and assignments to demonstrate learning.
- Maximize students' access to the curriculum by providing accommodations, and varying the instructional time, environment, resources, materials, presentation formats, assignments and assessment techniques. (See Accommodations and Ongoing Assessment sections, pages 47–52 and 23–28.)

- Implement effective strategies for IPP development and implementation, transition planning, and the development of self-advocacy. (See IPPs, Transition Planning and Self-advocacy sections, pages 29–33, 35–40 and 41–45.)
- Consider three key characteristics of effective instruction for students with learning disabilities when planning instruction.
 - Explicit instruction—Provide systematic, clear, overt, detailed explanations, and demonstrate steps, reasons and connections among concepts.
 - Intensive instruction—Provide opportunities for highly concentrated individualized learning experiences, such as individual and/or small group instruction with modelling, demonstration and feedback that is systematic and responsive to the specific needs of students. The more significant the learning needs of students, the greater the need for intensive instruction.
 - Extensive instruction—Provide increased instructional time with frequent opportunities for students to engage in learning experiences and to practise over time. Students with more severe needs may require more intensive instruction for a longer period of time.

Tips for Teaching Strategies

Students with learning disabilities often lack strategies, fail to apply or generalize strategies, choose ineffective or inappropriate strategies and/or experience difficulty engaging in effective self-monitoring behaviour. Students' acquisition and use of strategies can be facilitated by the following tips.

- Involve students throughout the strategy teaching process.
- Actively involve students in setting personal and academic goals, and self-monitoring the use of strategies.
- Prepare students. Provide explicit instruction. Students are more likely to learn a strategy if they are well-informed about what is expected, what is being learned, why it is being learned and how it can be used.

- Model the steps of a strategy. Demonstrate both processes and procedures by thinking aloud as the strategy is applied.
- Plan for a gradual release of responsibility. Provide many opportunities for students to apply the strategy with guidance and specific feedback. Dialogue and interaction assist students in understanding tasks, and in knowing when and how to use strategies effectively. Provide cues, prompts and assistance responsive to a student's understanding, and gradually withdraw support as the student gains independence.
- Collaborate to teach for transfer. Provide modelling, prompts and cues to encourage strategy use in different classes with different content. If the student has several teachers, all teachers should be aware of the strategies and encourage students to use them. Teachers may need to demonstrate how to adapt a strategy to apply it successfully to their particular content area.
- Monitor strategy use. Strategies are only effective if students actually use them. Encourage students to use cue systems to remind them of strategies and their steps. Include demonstration of the use of a strategy as part of the requirement for a project. If this expectation is explicit from the beginning of an assignment, it encourages strategy use.

Tips for Teaching Strategically

In addition to teaching students to use strategies, effective instruction for students with learning disabilities involves strategic teaching.

- When delivering information, strategic teachers use instructional strategies that address the information processing needs of students with learning disabilities. For example, graphic organizers may be used as an instructional strategy to activate and organize students' prior knowledge about a topic and pre-teach vocabulary.
- Strategic teachers model strategies and prompt students to think about strategies.
- Strategic teachers promote the use and adaptation of strategies by students.

Early School Years

The early school years are vital for students with learning disabilities. The optimal approach to teaching students with learning disabilities is to provide effective assistance as early as possible. Early identification and intervention lead to better school adjustment and performance in the primary grades. To help young children with learning disabilities successfully participate in the classroom, it is important to use instructional strategies that address the common areas of difficulty. These strategies are applicable in all content areas. In addition, early literacy instruction should be emphasized. The majority of students with learning disabilities have disorders of language, and difficulty learning to read and write. Students who encounter serious reading difficulties often have problems at the phonological level which interferes with learning how to identify individual words accurately and fluently, recognizing words by sight, and applying phonetic cues to decipher unknown words.

Metacognitive Domain

- Establish classroom routines. Provide structure and clear expectations.
- Think aloud. Model problem solving. Talk about thinking and remembering. Talk about how to approach tasks, and how and why things are organized in certain ways.
- Provide visual organizers and visual models; e.g., pictures of steps for problem solving, a planning board with the sequence of activities for the day.

Information Processing and Communication Domains

- Model and demonstrate. Present information using a multisensory approach so students hear, see, feel and experience information.
- Explicitly teach attending, listening and memory strategies.

- Activate prior knowledge. Label and show connections between new and known information; e.g., graphic organizers, K-W-L: What I Know, What I Want to Know, What I Learned (Ogle, 1986).
- Explicitly teach new concepts and vocabulary, including math vocabulary.
- Use themes across curriculum areas. The exposure to similar vocabulary and concepts throughout the school day limits the vocabulary and language demands, provides repetition and many applications of new vocabulary and concepts, and facilitates the development of vocabulary and the transfer of skills across subject areas.
- Request paraphrasing to check for understanding. Rephrase and restate directions, and provide visual or hands-on prompts if needed.
- Identify and implement necessary accommodations, such as where the student sits, types of writing instruments, reduced demands for copying, fewer problems on a page, graph paper for writing and math.

Social Domain

- Model and provide direct instruction in socially appropriate behaviour.
- Provide explicit and specific feedback when students demonstrate positive social skills. Follow the “I FEED” principle: Immediate, Frequent, Enthusiastic, Eye-contact, Describe.
- Demonstrate the application of problem-solving steps in social situations.

Academic Domain

Early Literacy Instruction

- Provide balanced literacy instruction which includes a combination of “meaning” emphasis and “code” emphasis.
 - Provide frequent authentic opportunities for reading and writing.
 - Organize a literacy-rich environment.
 - Use themes to organize instruction.

- Provide systematic explicit direct instruction in:
 - phonemic awareness—breaking apart and manipulating sounds in words
 - letter-sound associations and the alphabetic principle
 - word identification strategies
 - text elements
 - comprehension and monitoring strategies.
- Provide systematic explicit modelling and instruction in:
 - the writing process
 - story structure
 - mechanics: letter formation, punctuation, spelling.
- Monitor student progress frequently to guide programming decisions.
 - Consider using observations during oral reading, timed readings, daily journal writing and responses, written work samples and checklists to test a learning objective.
- Consider the following for students who are making slow progress in the acquisition of literacy skills:
 - more explicit systematic direct instruction and strategy instruction
 - more intense instruction: individual and small group (the more severe the difficulties, the more individual instruction is needed)
 - extensive instruction: more time devoted to teaching and learning to read
 - practice; e.g., sight words, guided oral reading with guidance and feedback; apply skills to authentic materials
 - provide frequent modelling, guided practice and specific feedback
 - select and adjust instruction and materials based on the specific needs of students.
- Organize frequent communication with parents and opportunities for parent involvement.

Upper Elementary School Years

As students progress through school, there are increasing demands to read to learn, demonstrate what has been learned through writing and learn more content. Students with learning disabilities continue to require opportunities to further develop and practise literacy skills. They need to develop strategies for approaching increasingly complex tasks, and accommodations to allow them to access information and express what they have learned. The strategies described below can be applied to all content areas.

Metacognitive Domain

- Provide explicit instruction in systematic problem solving.
 - Model problem-solving steps by thinking aloud.
 - Provide students with a general framework to guide them through the problem-solving process. (What is my problem? How can I solve it?) (For a Student’s Guide to Problem Solving, see Appendix 15, page 98.)
 - Paraphrase and label student behaviour to give students specific vocabulary and descriptions of the strategies they are using successfully. For example, “When you used your story map, I saw it helped you follow a plan.”

- Provide explicit instruction in study and organizational skills.
 - Involve students in setting personal and academic goals, and evaluating their progress.
 - Model and teach strategies for time management.
 - Teach students how to organize their notebooks.
 - Teach strategies for note taking, studying, memory and test taking.

Information Processing and Communication Domains

- Provide explicit instruction in strategies for attending, organizing and remembering.

- Teach and prompt active listening strategies, such as making connections with known information or personal experiences, asking clarifying questions, self-questioning and note taking.
 - Use graphic organizers to assist in organizing and remembering information.
 - Use techniques to emphasize patterns and the sequence of events or steps.
 - Provide opportunities for feedback to encourage the active use of memory strategies. Apply and adapt strategies for different content areas.
- Use teaching strategies that facilitate learning.
 - Activate prior knowledge; e.g., brainstorming and categorizing information into a semantic map, K-W-L: What I Know, What I Want to Know, What I Learned (Ogle, 1986).
 - Teach relevant vocabulary.
 - Provide organizational structures; e.g., graphic organizers that provide a visual display of relationships among concepts.
 - Provide opportunities for students to actively think about new information; e.g., Think-Pair-Share: individually think and make a list, map or diagram; pair up with a partner and add to the ideas generated individually; share these responses with the whole group (McTighe & Lyman, 1992).

Social Domain

- Assist students in taking responsibility for their learning and their successes.
 - Provide specific feedback acknowledging students' roles in their successes.
 - Involve students in the IPP process, in transition planning, in setting goals, in assessment and in self-advocacy.
- Regularly acknowledge students' strengths.
- Model and teach prosocial skills.

Academic Domain

Literacy Instruction

- Continue to develop students' automatic word recognition and fluency skills.
 - Organize frequent opportunities to practise reading authentic text at the independent level.
 - Provide modelling and feedback about word identification strategies.
- Explicitly teach reading comprehension strategies.
 - Teach a variety of strategies to use before, during and after reading; e.g., graphic and semantic organizers, K-W-L, question asking and answering, predicting, summarizing, using story mapping and text structure.
 - Emphasize comprehension monitoring; e.g., Does this make sense?.
 - Provide cues to use strategies across curriculum materials to encourage generalization and transfer.
- Explicitly teach strategies for writing.
 - Demonstrate and model critical steps in planning, writing and revising.
 - Include specific instruction in spelling and punctuation.
 - Provide organizational frameworks; e.g., semantic maps, compare-contrast graphic organizers.
 - Include self-monitoring strategies; e.g., think sheets, mnemonics.
 - Ensure that students engage in frequent meaningful writing activities.

(See the DEFENDS writing strategy, Appendix 16, pages 99–100.)
- Monitor student progress and provide more explicit, more intensive and more extensive instruction for students who continue to make slow progress in the acquisition of literacy skills.

Mathematics Instruction

- Teach specific math vocabulary.
- Model and demonstrate explicit steps for analyzing math problems; e.g., read for understanding, paraphrase, visualize, make a plan, estimate, compute, check.

- Use techniques to emphasize the sequence of steps.
- Provide frequent meaningful and engaging practice of skills to promote mastery.
- Highlight instructions or key words in instructions.
- Provide exemplars and models that students can use for reference.
- Provide modelling and cues for self-questioning and self-monitoring.
- Model and encourage frequent translation of math symbols and mathematical explanations into everyday language.
- Explicitly teach math study skills.
 - Demonstrate how to adapt text reading and memory strategies so that students are effective in dealing with the unique aspects of math textbooks and math content.
 - Provide practice in using memory and problem-solving strategies under safe “mock test” conditions.
 - Encourage self-analysis of text results to identify areas for further practice and more effective strategies.

Junior High/Senior High School

Students with learning disabilities face complex challenges at the junior high and senior high school levels. Students' learning strengths and needs interact with the evolving demands of schooling which include increases in the workload, the complexity of curriculum demands, the speed of presentation of material, the volume of reading and writing, the abstractness of language and the demands on memory. There may be larger classes and many instructors with a wide range of expectations. Students are expected to be increasingly independent. The organizational structures and curriculum demands make it more difficult to individualize programming, and social and emotional factors have a significant impact.

In addition to programming considerations for students identified with learning disabilities during the elementary school years, it is important to have processes in place to identify students with learning disabilities in junior high and senior high school. Learning disabilities are lifelong and, for some students, their particular learning needs do not interfere with academic success until they face increasing demands in junior high or in senior high school. (See Identification and Assessment section, pages 17–21.)

Decisions made in the junior high/senior high school years have an impact on students' options as adults. Adolescents with learning disabilities need to have access to the highest academic challenges appropriate to their cognitive abilities. They should not be automatically assigned to lower-level courses. It is important not to underestimate students with learning disabilities and to maximize their opportunities for access to post-secondary programs. Although increasing numbers of students with learning disabilities are entering post-secondary institutions, they continue to be underrepresented. Employment trends indicate that 30 percent of all new jobs will be occupations requiring post-secondary education or technical and trades training, and a further 16 percent will require university degrees (Goodman, 2000).

- Maximize the benefits of educational programming in the junior high and senior high school years with particular emphasis on:
 - transition planning
 - meaningful parent involvement (with the gradual transfer of responsibility to students in senior high school)
 - self-advocacy
 - knowledge of learning strengths and needs
 - knowledge of effective accommodations
 - metacognitive skills: problem solving and higher order processing, self-management
 - continued development of literacy skills
 - content-area instruction with appropriate accommodations, assessment and instructional strategies
 - instructional strategies to facilitate learning: explicit direct instruction, strategy instruction and strategic teaching are all important in junior high and senior high school.

- Coordinate supports for students with learning disabilities.
 - Organize ongoing dynamic transition planning throughout junior high and senior high school.
 - Organize transitions from junior high to senior high school. The transfer of information about students is extremely important. Schedule transition planning meetings well before the transition to senior high school to provide students, parents and school personnel with key information to facilitate the continuity of programming and the successful adjustment to senior high school.
 - Designate a key contact person on staff to whom a student can go for assistance, who monitors student progress and coordinates the student's program. Some students need daily communication with a key contact person.
 - Organize the involvement of teachers in the IPP process. All teachers need to be aware of and implement appropriate instructional strategies and accommodations necessary for individual students.
 - Build in time for students to receive additional instruction/mentoring in literacy, learning and organizational strategies.
 - Collaborative teaming can facilitate the implementation of accommodations. For example, the school librarian may help find taped books and alternative materials at lower reading levels. Volunteers may read and scribe for students.
 - Consider the workload and students' areas of difficulty. Where possible, adjust students' timetables to balance the number of courses with heavy demands for reading and written assignments taken in a term.

- Support students as they take increasing responsibility for their learning.
 - Involve adolescents in all aspects of planning and implementing their instructional programs, including assessment, program planning, goal setting (IPP), selecting accommodations, monitoring, evaluation and transition planning.

- Involve students in selecting accommodations. Adolescents are sensitive to the reactions of their peers and prior discussion can help avoid embarrassment.
- Provide coaching and opportunities for self-advocacy, such as approaching a content-area teacher to discuss accommodations.
- Provide opportunities for students to try out accommodations and evaluate their effectiveness.
- Provide support in learning to use assistive technology, particularly computer technology. Keyboarding skills and basic word processing skills are important to success after senior high school.

Metacognitive Domain

- Provide explicit instruction in strategies to enhance independent functioning, such as goal setting, note taking, studying, remembering, test taking, researching, self-management and self-monitoring.
- Provide instruction in classroom survival skills, such as attending class daily, arriving promptly, being prepared for daily lessons, meeting assignment deadlines, addressing teachers appropriately, and following written and oral directions.
- Collaborate to facilitate the development of learning and study strategies. Resource personnel and school librarians are key team members in supporting students. Communication with content-area teachers facilitates the transfer of strategies to the classroom. To enhance generalization, teach strategies explicitly to students, plan for practice in targeted classes, and provide positive and corrective feedback. (For an Assignment Completion checklist for use by students, see Appendix 17, page 101.)

Information Processing and Communication Domains

- Use teaching strategies that facilitate learning.

- Model a problem-solving approach. For example, process skills in science can be presented as a sequence of problem-solving steps which are transferable to other academic areas.
- Activate prior knowledge and teach relevant vocabulary.
- Present information in a user-friendly way for students who have difficulty understanding and processing spoken language. Pair auditory information with visual information. Provide opportunities for discussion and note taking. Provide graphic organizers. Write key words on the board or an overhead. Encourage questions. (For more information on user-friendly presentations, see Appendix 18, page 102.)
- Provide explicit organizational structures to indicate goals of lessons and where the lesson fits in the context of the unit.
- Demonstrate organizational frameworks, note-taking strategies and memory techniques that are most appropriate for particular content areas. Assist students to adapt textbook reading and other strategies to be effective in particular subject areas. (For information on evaluating textbooks, see Appendix 19, pages 103–105.)

Social Domain

- Demonstrate, model and provide opportunities for role-playing positive social interaction skills. The health curriculum provides a context for focusing on interpersonal skills.
- Assist students in taking responsibility for their learning and successes by involving them in the IPP process, transition planning, assessment and self-advocacy.

Academic Domain

Literacy Instruction

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- Provide explicit modelling and instruction in written language.
 - Provide exemplars and clear specific criteria for written assignments. Performance assessment approaches and rubrics help students develop self-monitoring skills.
 - Teach explicit strategies for planning written assignments, and provide planning frameworks for different types of narrative and expository writing.
 - Identify and provide accommodations as necessary. Many students with learning disabilities require extra time for tests and assignments that require reading and writing. Scribes, readers, taped questions and answers may be appropriate. Access to a computer with word processing features, such as grammar checkers, spell checkers and a read-back function for editing written work may be needed. Encourage keyboarding skills. (See the DEFENDS writing strategy, Appendix 16, pages 99–100.)

Mathematics Instruction

- As adolescents are given more responsibility for preparing for tests, they continue to need explicit instruction in math study skills.
 - Demonstrate methods for understanding and mastering math vocabulary; e.g., use of math vocabulary section in math binder, use of glossary or math dictionary, creating study cards.
 - Highlight key terms used in instructions on math assignments and tests; e.g., “evaluate,” “factor fully.”
 - Provide and encourage practice in using memory and problem-solving strategies under safe “mock test” conditions.
 - Encourage self-analysis of test results to identify areas for further practice and more effective strategies.

- Provide explicit modelling and instruction for mathematical literacy and skill development.
 - Model and encourage frequent translation of math symbols and mathematical explanations into everyday language.
 - Model thinking processes and strategies used in approaching math questions and word problems.
 - Provide exemplars and models that students can use for reference.
 - Encourage discussion about the application of math skills and frequent meaningful applied math activities.
 - Identify and provide accommodations as necessary, such as extra time for completion of math tests, a reader for word problems or test instructions, use of a calculator or times table chart for basic skills when basic skills are not being tested; e.g., for completing algebra questions.

Outcomes

The outcomes below describe potential results from implementing the strategies, activities and practices in this section.

- Students use metacognitive strategies in learning and social situations.
- Students have access to the highest academic challenges appropriate to their cognitive abilities.
- A range of instructional strategies is used to meet individual student needs across levels of schooling.
- A flexible approach to organizing for instruction is employed across levels of schooling.
- Students develop literacy skills.

- Students are successful in acquiring and demonstrating knowledge in content areas.

Connections to Other Alberta Learning Resources

- See the following pages in *Teaching Students with Learning Disabilities* (Alberta Education, 1996), Book 6 of the *Programming for Students with Special Needs* series:
 - Strategies and Components of a Strategies Lesson, pages LD.91–LD.94
 - Metacognitive Domain, pages LD.101–LD.115
 - Information Processing Domain, pages LD.125–LD.145
 - Communication Domain, pages LD.146–LD.150
 - Academic Domain, pages LD.151–LD.199
 - Social/Adaptive Domain, pages LD.200–LD.215.
- See the following pages in *Teaching for Student Differences* (Alberta Education, 1995), Book 1 in the *Programming for Students with Special Needs* series:
 - General Adaptations and Adaptive Techniques, Language Arts, Mathematics, pages TSD.18–TSD.30
 - Strategies by Categories of Differences, Learning Disabilities, pages TSD.31–TSD.42
 - Strategies by Categories of Differences, Managing Behaviours in the Classroom, pages TSD.43–TSD.48
 - Prosocial Skills, pages TSD.5–TSD.7.
- See *Make School Work for You: A Resource for Junior and Senior High Students who Want to be More Successful Learners* (Alberta Learning, 2001) and *Teacher Implementation Guide for Make School Work for You* (Alberta Learning, 2001).

