



**Teachers Make the Difference:**  
Teaching Students with Learning Disabilities  
at Middle and Secondary Levels

*LIVING DOCUMENT*  
2009

---

# TABLE OF CONTENTS

<b>A. INTRODUCTION</b> .....	1
<b>B. WHAT ARE LEARNING DISABILITIES?</b> .....	1
<b>1. Characteristics of a Student with Learning Disabilities</b> .....	2
<b>2. The Cognitive Profile of Students with Learning Disabilities</b> .....	3
<b>3. The Achievement Profile of Students with Learning Disabilities</b> .....	3
<i>i. Curriculum-based Assessment</i> .....	4
<i>ii. Norm-referenced Assessment</i> .....	4
<b>4. Unexpected Academic Underachievement</b> .....	4
<b>5. Information Processing</b> .....	5
<i>i. A Model for Receiving and Processing Information for Learning</i> .....	5
<i>ii. Processing Difficulties</i> .....	6
<b>6. Recognizing a Student with a Learning Disability</b> .....	7
<b>7. Determining Educational Courses for Students with Learning Disabilities</b> .....	8
<i>i. Course Options for Students based on Cognitive and Achievement Profiles</i> .....	8
<b>C. EFFECTIVE AND DIFFERENTIATED INSTRUCTION AND ASSESSMENT</b> .....	9
<b>1. Planning for Effective and Differentiated Instruction and Assessment</b> .....	9
<i>i. Flow Chart: Planning for Effective and Differentiated Instruction and Assessment</i> .....	10
<i>ii. Classroom Environment Checklist</i> .....	11
<b>2. Effective Instruction</b> .....	12
<i>i. Differentiated Instruction and the Adaptive Dimension</i> .....	12
a. Adaptive Dimension Components.....	13
<i>ii. Brain Compatible Instruction</i> .....	13
<i>iii. Instructional Groupings</i> .....	14
<i>iv. Explicit Instruction</i> .....	16
<i>v. Scaffolded Instruction</i> .....	16
<i>vi. Metacognitive Instruction</i> .....	18
<i>vii. Strategy Instruction</i> .....	19
a. Examples of Specific Learning Strategies using Mnemonic Devices.....	20
b. Strategic Learning of Students with and without Learning Disabilities.....	21
<i>viii. Content Enhancement</i> .....	22
<i>ix. Effective Feedback</i> .....	23
<i>x. Performance Monitoring</i> .....	23
<b>3. Effective Assessment</b> .....	25

---

<b>D. EDUCATIONAL, LITERACY, AND PROCESSING DEMANDS</b> .....	27
<b>1. Educational Demands</b> .....	27
<b>2. Literacy Demands</b> .....	28
<i>i. Components of Reading in Content Areas and the Comprehension of Text</i> .....	29
<b>3. Processing Demands</b> .....	29
<i>i. Increased Processing Demands</i> .....	30
<b>E. REFERENCES</b> .....	34
<b>F. CHECKLISTS</b> .....	37
<b>1. Effective, Research-Based, Instructional Strategies to Enhance Student Learning</b> .....	37
<i>i. Frequency Chart</i> .....	40
<b>2. Adaptations</b> .....	41
<b>3. Instructional / Assessment Strategies and Adaptations for Specific Areas of Difficulty</b> .....	45

## A. INTRODUCTION

This document is a tool for teachers and professionals striving to address the unique learning needs of students who are struggling academically. These students may have characteristics of learning disabilities, or they may be identified as students with learning disabilities.

### The document:

- identifies characteristics of students with learning disabilities;
- describes cognitive and achievement profiles of students with learning disabilities, detailing unexpected academic underachievement and processing difficulties;
- provides an overview of effective, research-based instruction and assessment strategies;
- identifies educational, literacy, and processing demands relevant to students with learning disabilities; and
- provides checklists for teachers seeking to determine the needs of students with learning disabilities.

The Ministry of Education promotes the multi-tiered *Response to Intervention* (RTI) process which provides a continuum of services, supports, and interventions to students. The RTI process is effective in serving the needs of all students (including students with learning disabilities) because of its focus on school-wide, group, and individual interventions.

## B. WHAT ARE LEARNING DISABILITIES?

---

“Learning Disabilities” refer to a number of disorders that may affect the acquisition, organization, retention, understanding, or use of verbal or non-verbal information. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual deficiency. Learning disabilities result from difficulties in one or more processes related to perceiving, thinking, remembering, or learning. These include, but are not limited to, language processing, phonological processing, visual spatial processing, processing speed, memory and attention, and executive functions (e.g., planning and decision-making).

*Adapted from Learning Disabilities Association of Canada (LDAC), 2002*

---

The LDAC definition of learning disabilities can be found at <http://www.ldac-taac.ca> .

## 1. Characteristics of a Student with a Learning Disability

A student with a learning disability is not part of a homogenous group, but rather has unique learning needs and strengths that are different from other students with learning disabilities.

### A student with a learning disability:

- has average or above average cognitive ability, demonstrating average or above average abilities required for thinking and reasoning;
- may have difficulty with verbal or non-verbal information, in regards to acquiring, retaining, organizing, and understanding information;
- will have difficulties in one or more of the processes related to perceiving, thinking, remembering, or learning such as language processing, visual spatial processing, processing speed, memory, attention, planning, and decision-making (executive functions);
- may have difficulty with acquiring and using skills related to oral language, reading, written language, and/or math;
- may have difficulty with other skills that may impact life and learning, such as organizational skills, social perception, social interaction, and perspective taking;
- typically has unexpected academic underachievement, or achievement maintained only by unusually high levels of effort and/or support;
- has altered brain functioning due to genetic and/or neurological factors or injury, which will result in lifelong implications;
- may have difficulties that range in severity from mild to severe; and/or
- may, at the perceptual level, have difficulty with visual perception, (e.g. tracking when reading, remembering letter sequences, or transferring answers to a sheet), or auditory perception (e.g., organizing information presented orally, or remembering and following oral directions).

### A learning disability *is not*:

- a global intellectual deficiency or a cognitive deficit,
- a physical disability,
- a visual or hearing problem,
- a mental health or emotional problem,
- Attention Deficit Hyperactivity Disorder (ADHD),
- a behavioral problem,
- a cultural difference,
- a lack of motivation.

### A learning disability *is not caused by*:

- poverty,
- poor parental support,
- inadequate opportunity for instruction,
- ineffective teaching,
- health-related problems,
- sensory deficits.

**It is important to understand that though these factors do not cause a learning disability, they may contribute significantly to the negative impact of a learning disability on a student's learning progress and opportunity for academic and future success.**

## 2. The Cognitive Profile of Students with Learning Disabilities

Typically, a registered psychologist conducts a psychoeducational assessment to determine a student's cognitive ability. In such cases, an intellectual assessment will be measured by an individual test such as the Wechsler Intelligence Scales (WISC- IV or WAIS-III).

### Diagnosis of learning disabilities is important to:

- explain why students are underachieving and clarifies for everyone that students are not “lazy” or “just not trying”;
- build the students' self-esteem, as the students, parents, and teachers come to understand, perhaps for the first time, that the students have average or above average thinking and reasoning skills and are not “stupid”;
- support both teachers' and students' efforts towards advocacy for appropriate supports; and
- give students access to specialized programs and supports at all levels. In some instances, students may also gain access to additional technology or funding options.

### Teachers may:

- request a cognitive assessment if a student is experiencing academic difficulty, but has not had a cognitive assessment;
- check for the psychoeducational reports (including the student's cognitive profile);
- ask questions about the results of the cognitive assessment or the written report to the registered psychologist who performed the assessment;
- continue to work closely with the student, making an effort to provide the instruction and adaptations that are necessary for the student to progress academically; and
- learn more about the student's strengths and needs and share this information with the registered psychologist completing the assessment.

## 3. The Achievement Profile of Students with Learning Disabilities

### Achievement scores for students with learning disabilities:

- typically fall in the below average range in at least one skill area and, often, in several skill areas;
- may show considerable variation, appearing extremely low in some areas and above average in others; and
- indicate students' skills and knowledge in a particular area.

By studying the pattern of scores, an educator may begin to determine some of the students' underlying strengths and areas of need. Assessment may be determined through curriculum-based assessment or norm-referenced assessment. When students have low achievement, it may be helpful for the teacher to have both curriculum-based and norm-referenced achievement measures, helping to guide the teacher in providing instruction and adaptations.

*i. Curriculum-based Assessment*

Teachers measure student achievement at various critical points throughout the instructional process (before, during, and after instruction). A variety of curriculum-based assessment and evaluation tools can be used by teachers to determine a student's achievement. Checklists, portfolios, observations and anecdotal comments, student-teacher conferences, quizzes, and tests are some of the tools used to collect information about a student's achievements. When a teacher has concerns about a student's level of achievement following the use of curriculum-based classroom assessments, a request for additional achievement assessments should be made in order to learn more about the student's skills and weaknesses, and to identify in which particular areas instructional support will be required.

*ii. Norm-referenced Assessment*

Norm-referenced standardized assessments (administered by the student support services teacher or the registered psychologist) typically measure a number of sub-skills in the area of concern, and the student's achievement will be compared to other students of the same age or at the same grade level. These norm-referenced assessments help a teacher realize the student's skill level in relation to his or her peers, as well as the specific areas of strength and need.

## 4. Unexpected Academic Underachievement

Unexpected academic underachievement occurs when there is a significant difference between students' thinking and reasoning ability (cognitive ability) and their academic performance or achievement (Walcot-Gayda, 2004).

**Students who demonstrate unexpected underachievement may:**

- achieve considerably less than expected given their cognitive abilities;
- achieve as expected, but only when there is an unusually high level of effort on the part of the students, and/or support from parents and/or teachers;
- produce written products that are extremely limited in volume and quality and not representative of their knowledge or skills in a given area;
- show strengths in learning through material presented orally, but display unexpectedly weak skills in reading comprehension;
- speak with understanding and insights on self-selected topics, but have difficulty answering questions posed by the teacher;
- display an understanding of concepts when discussed orally, but be unable to demonstrate this same level of understanding in written test responses;
- invest unusually high levels of effort, completing assignments and homework very slowly when compared to peers; and/or
- be required to take a reduced course load each semester in order to be successful with courses.

**Students who require unusually high levels of support may:**

- require tutoring over several semesters to keep up with peers; this may involve up to an hour per day of tutoring or learning assistance tutorials, and may involve support in several subject areas; and/or
- require a disproportionate amount of support from parents in order to complete homework and projects.

## 5. Information Processing

The National Definition of Learning Disabilities states: “Learning disabilities result from difficulties in one or more processes related to *perceiving, thinking, remembering* or *learning*.”

i. *A Model for Receiving and Processing Information for Learning*

PERCEIVING	THINKING AND REMEMBERING		LEARNING
<i>Sensory Input</i>	<i>Processing of Information</i>		<i>Student Output</i>
<p><b>Sight</b></p> <p><b>Sound</b></p> <p><b>Touch</b></p> <p><b>Taste</b></p> <p><b>Smell</b></p> <p><b>Movement</b></p>	<p><b>Processing Following Sensory Input</b></p> <ol style="list-style-type: none"> <li>1. <i>Sort information</i></li> <li>2. <i>Categorize information</i></li> <li>3. <i>Connect information to prior knowledge</i></li> <li>4. <i>Store for later recall</i></li> </ol>	<p><b>Processing in Preparation for Output</b></p> <ol style="list-style-type: none"> <li>1. <i>Find information</i></li> <li>2. <i>Select and organize for intended purpose</i></li> <li>3. <i>Plan response</i></li> <li>4. <i>Produce response</i></li> </ol>	<p><b>Speak</b></p> <p><b>Read</b></p> <p><b>Write</b></p> <p><b>Represent</b></p> <p><b>Produce a Variety of Products</b></p>

*Adapted from Walcot-Gayda, 2004*

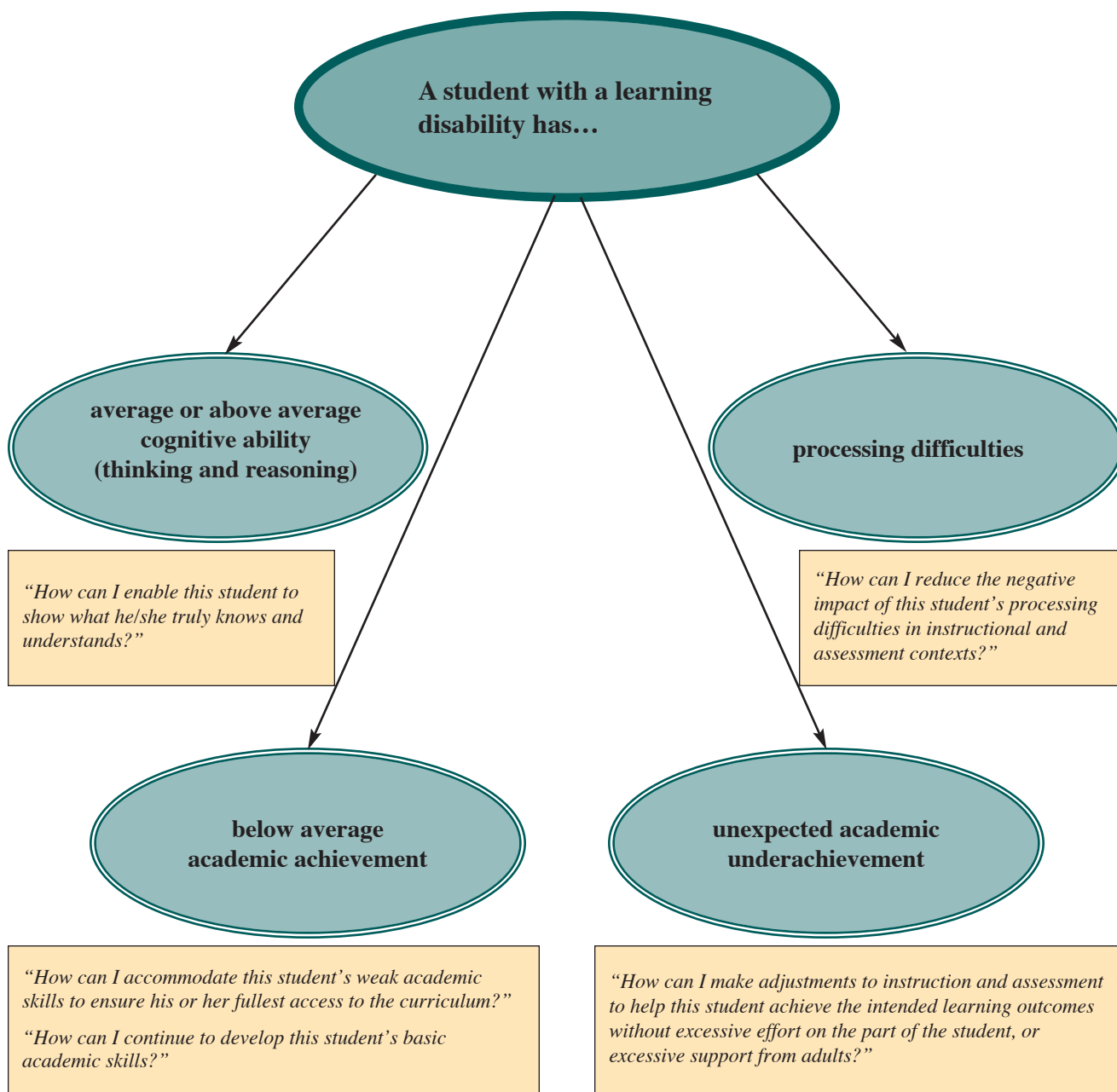


ii. Processing Difficulties

Difficulties in processes related to:	Perceiving	Thinking	Remembering	Learning
<b>Language Processing</b>	Difficulties in processing sarcasm or understanding when someone is joking  Difficulty taking another's perspective	Difficulties in understanding: long or complex sentence structure; and with figures of speech	Difficulties with: retrieving vocabulary words; orally presented task demands	Difficulties with new vocabulary and responses to teacher-directed questions
<b>Phonological Processing</b>	Sounds in words (e.g. bat/bag) are confused; poor sound sequencing in words; limited automaticity in decoding	Difficulty with comprehension of content caused by lack of fluency in decoding	Difficulty retaining sounds/symbol correspondence	Difficulty extracting essential concepts due to focus on decoding
<b>Visual - Spatial Processing</b>	Difficulty with oral or written directions for an activity; perceiving organization of ideas in a text	Difficulty identifying main ideas in a text	Difficulty with left/right; north/south, hierarchical structures	Poor integration of sequential information (days of the week, recipe)
<b>Processing Speed</b>	Poor social interactions; does not keep up with fast-paced lessons	Few connections between isolated bits of information in texts	Slow linking of new with previously learned information	Less material covered or takes extra time and much effort to cover material
<b>Memory</b>	Few strategies when trying to remember content or concepts	Difficulty writing since spelling may not be automatic	Difficulty retrieving previously learned information	Forgets spelling words after test; difficulty recalling significant events in history; any new learning is difficult
<b>Attention</b>	Difficulty knowing when to pay attention  Poor reading of social situations; impulsive	Poor concentration when putting ideas together	Little effort expended for remembering	Work may be disorganized; goes off on tangents
<b>Executive Functions (planning or decision making)</b>	Poor recognition of value of planning; impulsive	Difficulty problem solving and understanding consequences of decisions	Difficulty in linking new with previously integrated knowledge; Few strategies	Difficulties in higher levels of learning, but has isolated pieces of knowledge

*Adapted from Walcot-Gayda, 2004*

## 6. Recognizing a Student with a Learning Disability



**Relative to their peers, students with learning disabilities tend to be:**

- less engaged in learning tasks;
- less confident in their ability to learn;
- less willing to take risks in learning situations;
- unable to cope with multiple instructions;
- poorly organized thoughts and work habits;
- frustrated with many learning tasks due to the difficulty of these tasks; and
- burdened by a history of unsuccessful learning experiences.

## 7. Determining Educational Courses for Students with Learning Disabilities

The decision to place students in modified courses has significant implications for the students’ post-secondary and career options.

**Prior to having students placed in modified courses, it is the teacher’s responsibility to ensure that:**

- appropriate adaptations have been provided for students as they strive to achieve the course outcomes;
- educational assessments have been completed and support the decision to place these students in modified courses; and
- the students and the students’ parents have been informed of the planned course change, understand the future educational implications of such a decision, and agree to the course change.

### i. Course Options for Students based on Cognitive and Achievement Profiles

Student	Cognitive Profile	Achievement Profile	Regular Course Options
<b>with Average or Above Average Cognitive Ability</b>	<ul style="list-style-type: none"> <li>• student has average or above average cognitive ability</li> <li>• most subtest scores fall in the average or above average range</li> </ul>	<ul style="list-style-type: none"> <li>• overall, achievement scores fall in the average or above average range</li> <li>• most achievement scores fall in the average or above average range</li> </ul>	<ul style="list-style-type: none"> <li>• Core (10, 20, 30)</li> <li>• Locally Modified: Advanced (10A, 20A, 30A)</li> </ul>
<b>with a Learning Disability</b>	<ul style="list-style-type: none"> <li>• student has average or above average cognitive ability</li> <li>• subtests scores may show considerable variation</li> </ul>	<ul style="list-style-type: none"> <li>• in at least some areas, achievement scores fall in the below average range</li> <li>• achievement scores typically show significant variation not only among subtests, but also between subject areas</li> <li>• there is unexpected underachievement in one or more subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Core (10, 20, 30)</li> <li>• Locally Modified: Advanced (10A, 20A, 30A)</li> </ul> <p><i>Only in extremely rare circumstances when the student is unable to achieve success in a Core course</i></p> <ul style="list-style-type: none"> <li>• <i>Locally Modified: Basic (11, 21, 31)</i></li> </ul>

## C. EFFECTIVE AND DIFFERENTIATED INSTRUCTION AND ASSESSMENT

### Effective and differentiated instruction and assessment:

- occur daily within classroom teaching and learning experiences, ensuring that the majority of students will have their learning needs met through classroom instruction, with less need for additional instruction, intervention, and adaptations; and
- need to be supported by a variety of interventions and adaptations outside of the classroom, such as in a resource or tutorial setting.

### 1. Planning for Effective and Differentiated Instruction and Assessment

Prior to planning instruction and assessment, teachers integrate their insights and knowledge about both the *curriculum* and the *students as learners* in order to achieve a good fit between these two critical components to identify and provide appropriate and effective learning opportunities for all students.

#### At the pre-planning stage, the teacher is required to bring together two critical sets of knowledge.

1. *An extensive knowledge of the curriculum and the learning outcomes is needed:*

- clearly identify the learning outcomes for the course and for the particular unit of instruction, or for a specific period of instruction;
- identify the critical knowledge, skills, and strategies that all students must know and demonstrate; and
- prioritize learning outcomes for students by using a framework that identifies what *all students*, *most students*, and *some students* will learn (Lenz, 2000).

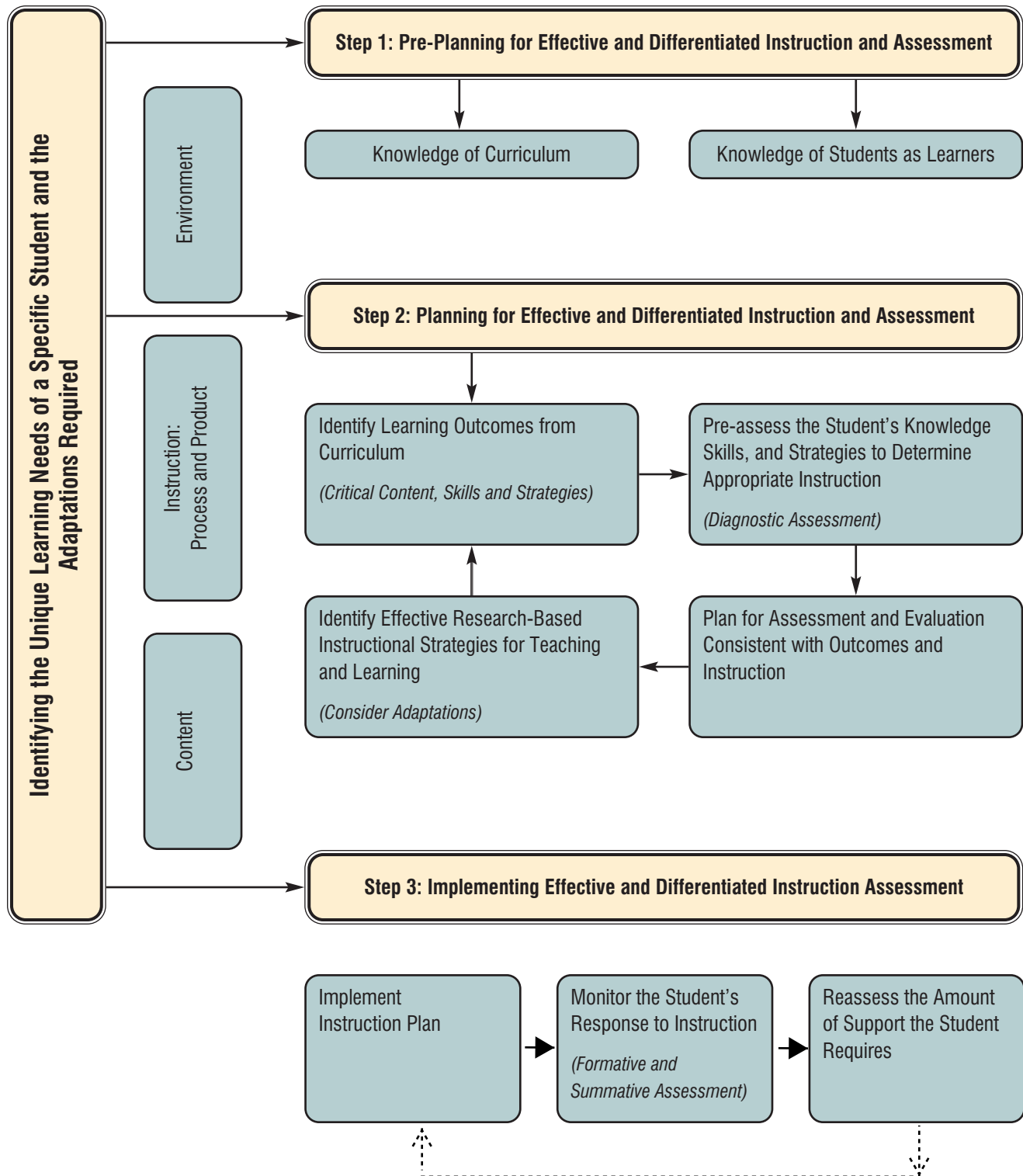
2. *A clear understanding of the existing knowledge, skills, and strategies of students is also required.*

*Knowledge about students as learners will come from:*

- curriculum-based assessments conducted at the classroom level;
- information gathered from various student assignments;
- large-scale assessments;
- assessments that have occurred outside of the classroom; and
- teacher observations, student-teacher conferences, and checklists.

When planning for effective and differentiated instruction and assessment, the teacher strives for an instructional approach that is outcome-driven, meaningful, contextualized, related to other learning, and learner-friendly. Active learning is promoted through engaging and motivating instruction, support of students' efforts to acquire knowledge, skills, and strategies, and is designed to overcome students' learning frustrations. Throughout the planning and implementation stages of effective and differentiated instruction and assessment, the teacher assumes an active role as a decision-maker and a reflective practitioner.

i. Flow Chart: Planning for Effective and Differentiated Instruction and Assessment



ii. Classroom Environment Checklist

**A teacher who provides a highly structured, well-organized classroom environment is likely to:**

- have a clear image of what the classroom should look like when it is functioning smoothly (share this image with the students);
- establish and display classroom rules that have been developed with input from students;
- post a daily schedule;
- provide clear simple instructions for learning tasks and transitions between tasks;
- provide a lesson outline to help students see the “big picture” and to track progress through the various learning steps;
- provide advance organizers (many students benefit when this information is presented to them using a graphic organizer, with the information offered in both a visual and a text form);
- ensure that the students know the learning outcomes, as well as the material considered critical to developing a deeper understanding of the course;
- provide alternative learning activities with the same content and learning goals, but at different instructional levels for students with different needs;
- plan opportunities for students to take short breaks or to make “shifts” during learning activities, without creating a negative effect on the lesson flow;
- encourage students to use a consistent heading format in note taking to identify the subject, date, unit, and so on;
- encourage students to keep their desks clear except for current work materials;
- ensure that handouts for students are uncluttered and well organized;
- use a consistent approach to post and keep track of homework and assignments (this may be an assignment notebook, a school calendar, or an assignment sheet that follows a consistent format);
- allow sufficient time, prior to the end of class, for students to record their homework and assignments, to check for clarification if needed, and to receive a detailed response before the class ends;
- establish class routines with which students may become familiar and in which they can participate without a great deal of explanation; and
- provide students with a written overview of course and unit plans.

## 2. Effective Instruction

Research on effective teaching has identified a number of *direct instruction practices* or specific teaching behaviours that lead to higher achievement results for all students. These teaching behaviours have received overwhelming research support over three decades, and this body of research is commonly referred to as *effective teaching research*.

### Effective direct instruction practices:

- lead the instruction;
- visually monitor student behaviours;
- conduct orientation to the lesson, including a clear statement of the instructional outcomes;
- provide daily reviews;
- present new material and model the lesson tasks (remember to “think aloud”);
- ask questions;
- provide both guided and independent practices (require regular assignments from students);
- provide regular and timely feedback to students;
- ensure that each student has achieved the identified outcomes; and
- praise students frequently for successful work.

(Bender, 2002; Swanson, 2001; Swanson & Deshler, 2003)

### i. Differentiated Instruction and the Adaptive Dimension

*Differentiated instruction* is the term used in the literature to refer to helping students learn by making adaptations to key learning variables. The *Adaptive Dimension* is an essential part of all approved Ministry of Education courses.

### Teachers may need to differentiate instruction or make adaptations because of students’:

- achievements or skills in the subject;
- interests;
- motivation;
- language proficiency;
- family constructs;
- cultural or economic background; or
- experiential background.

**The Adaptive Dimension may include:**

- changes to the sequence of the learning outcomes;
- the addition of learning outcomes to develop needed skills;
- changes to the manner in which the learning outcomes are taught;
- extra materials to teach the learning outcomes;
- different ways to group for instruction; and/or
- changes to the manner in which a deeper understanding of the learning outcomes are assessed.

a. Adaptive Dimension Components

***Content***

The content, determined in large part by the curriculum in each subject area, may need to be adapted if:

- students require instruction in prerequisite skills or experience, in order to benefit from upcoming instruction;
- the reading level of selected materials is too difficult and simpler reading materials or selected resources are needed for students to experience success; and/or
- learning resources need to be selected to incorporate students' areas of interest, to keep students motivated and engaged in the process of learning.

***Instructional Approach***

The instructional approach involves a plan for how students will interact with the content and the adaptations. The learning products involve a plan for how the students will demonstrate learning and a deeper understanding of critical content, considering which adaptations can be made to the manner in which students demonstrate deeper understanding.

***Learning Environment***

The learning atmosphere or the environment may involve variations to classroom climate, student grouping, support services, technological support, and the physical setting.

ii. *Brain Compatible Instruction*

Brain compatible instruction, or ***brain-based learning***, refers to instructional strategies that incorporate many of the new understandings about how the brain works. An important principle of brain compatible instruction is getting students involved and having them assume personal responsibility for their learning.

One of the first requirements, in order for students to learn, is that they feel safe and supported. Recent research uses brain imaging technologies, such as functional Magnetic Resonance Imaging (fMRI), to watch the living brain perform a variety of learning tasks (Shaywitz, 2003). As a result of this research, we know more about the learning process. These understandings about the brain and learning have resulted in many recommendations for educators to help students learn better (Shaywitz, 2003; Sousa, 2001).



**Recommendations for Brain Compatible Instruction:**

- provide a safe and comfortable learning environment;
- provide comfortable furniture;
- provide access to water and nutrition;
- encourage frequent student response;
- pair physical movement to learning tasks;
- use visual stimuli for increasing novelty in the learning task;
- use music and rhythms for learning;
- provide adequate wait time;
- give students choices; and
- use students to teach each other.

(Bender, 2002, p. 26)

*iii. Instructional Groupings*

Classrooms should be thought of as learning communities. In a democratic learning community, individuals interact with each other in a variety of formats and for a variety of purposes. Currently, the largest percentage of instructional time in many classrooms is spent in total or whole group instruction. There are many exciting learning opportunities when students have an opportunity to work in pairs or small groups (Gregory & Chapman, 2002; Tomlinson, 1999).

The acronym TAPS (Total group, Alone, Pairs, Small group) may be used as a reminder to include a variety of instructional groupings when planning instruction (Gregory & Chapman, 2002).

**Total Group**

- Total group instruction is a good choice when introducing a unit organizer, teaching a mini lesson, or reviewing student learning for the day by going back to discuss the critical question related to the learning outcomes.

**Alone**

- Students work alone in a variety of learning situations, such as when additional practice is needed to acquire specific skills or strategies.
- Teachers work one-to-one with students to provide feedback and targeted instruction specific to the individual student to scaffold his or her learning.
- The teacher and student review the student's portfolio and establish learning goals in and preparation for an upcoming three-way conferencing with parents.

**Pairs**

Students work in pairs to complete a variety of tasks. This might involve students working together to

- brainstorm ideas for two or three minutes before the teacher asks for a response;

- develop a study guide for an upcoming test;
- revise and edit written work;
- summarize information that has been obtained either through reading, video, or an oral presentation using a Think-Pair-Share format (Lyman, 1981);
- develop possible test questions and prepare answers;
- check knowledge of critical concepts in Science, Mathematics, or Social Studies;
- review critical concepts from a unit in Social Studies or Science to ensure that all group members have a deeper understanding of critical content; and/or
- practice answering test questions.

### Small Group

- Research suggests that small-group, teacher-led instruction may be a more effective instructional approach for all students (Elbaum, Vaughn, Hughes, Moody, & Schumm, 2000).
- Students might work in small groups to complete many of the same tasks that were identified for students working in pairs.
- In some cases, a teacher may establish small groups of students or instructional groups for teacher-led instruction when:
  - students need assistance at the pre-writing stage and they are grouped for a guided writing lesson;
  - small, interest-based reading groups are established, and the teacher works with these groups to focus on developing higher level thinking and comprehension skills;
  - students are grouped in Mathematics with other students who have similar problem-solving abilities (Students work to solve problems collaboratively and record each step in their problem-solving process. The teacher checks with each group to listen in on the students' problem solving skills. The teacher may challenge student thinking or offer prompts and share strategies from other instructional groups if the group of students is experiencing difficulty); and/or
  - students are grouped with peers to practice interview skills for an upcoming project.

### Peer Tutoring

Peer tutoring is an instructional procedure that increases instructional time for students while reducing the amount of time the teacher needs to spend with individual students. Much of the research on the effects of peer tutoring, in a variety of school contexts, indicates that peer tutoring does improve academic achievement as students involved in peer tutoring outperform control groups (Fuchs, Fuchs, & Kazden, 1999; Mastropieri et al., 2001; Van Zant, 2002). Often, there are also significant improvements in students' attendance, attitude, and behaviour.

*A teacher will need to make a number of decisions to ensure successful peer tutoring.*

- There are certain tasks that are only appropriate for a qualified teacher and are not appropriate for a tutor – initial instruction in a content area, planning the next set of instructional activities, and so on.
- Certain activities will require more training for tutors.
- Classmates, students from other grades in the school, and students from other schools or university are potential tutors.

An excellent website for further information about grouping is provided by Vaughn, S., Hughes, M. T., Moody, S. W., and Elbaum, B. (2001). *Instructional Grouping for Reading for Students with LD: Implications for Practice*. <http://www.ldonline.org/article/6308?theme=print>

*iv. Explicit Instruction*

Explicit instruction involves modeling both the overt processes and the covert processes (or the mental processes) that take place to complete a task successfully. Too often, covert processes are not explained and students are required to infer the mental processes that take place. Many students with learning disabilities are never able to learn these strategies without explicit instruction (Larkin & Ellis, 1998).

For example, given the task of writing an essay, a student is required to apply a problem-solving process and complete a number of steps, both covert and overt. The process involved in selecting a topic may seem very simple when the student observes a teacher write down a phrase or sentence that has been selected as the topic; this is the overt or observable behaviour. The covert or cognitive process that the student will not see (unless the teacher makes a special effort to share this) is the thinking and self-talk that have occurred as the teacher identified and rejected several topics.

**Covert processes include cognitive strategies such as:**

- visual imagery;
- paraphrasing;
- prioritizing ideas;
- generating hypothesis;
- relating new information to prior information; as well as
- metacognitive strategies such as:
  - analyzing the task;
  - making decisions about topic selection;
  - setting goals; and
  - self-monitoring.

*(Larkin & Ellis, 1998)*

*v. Scaffolded Instruction*

Scaffolded Instruction (a metaphoric reference to the scaffold of a building under construction) is an approach to teaching students that enables teachers to provide highly explicit and organized instruction, targeted to students' learning levels and needs, enabling them to move from their current skill or knowledge levels to more advanced levels.

- The teacher provides a temporary scaffold or support only when students are unable to complete the task on their own. As soon as students are able to complete the task independently, the teacher's support is removed.
- When using scaffolded instruction, the activity or skill that students are asked to complete is slightly beyond what they are currently capable of achieving independently.
- The teacher assists students, enabling them to be successful with a somewhat "too difficult" task.

Initially, the teacher models completion of the task, making explicit (i.e., verbally describing) the cognitive or covert thinking processes that take place while performing the task. Later, as students become more skilled, and attempt to complete the task on their own, the teacher will provide verbal prompts to guide the students, but only when the students need guidance. As the students begin to work through the task independently, the

teacher provides ongoing feedback to let the students know when they are on the right track and when adjustments are needed. The level of teacher support is continually tailored to match the students' ever-changing skill level in accomplishing the task.

**The teacher plans to scaffold students' needs by:**

- identifying students' current understanding or skill levels and the specific area in which students are experiencing difficulty;
- identifying the strategies that will assist the students; and
- providing only the amount of support determined necessary for the students to successfully complete the task.

**Using scaffolded instruction, teachers help students to:**

- understand the requirements of the task;
- identify, plan, and organize the steps needed to accomplish the task;
- select effective and efficient strategies to complete the task; and
- work through the steps to complete the task in a timely fashion.

**Examples of Scaffolded Instruction**

*Mathematics Problem-Solving*

Teachers might use a "think aloud" approach while working with a student or group of students in mathematics. Using a "think aloud" approach, teachers share their internal thinking as they:

- clarify the task to be completed (model and explicitly share thinking processes involved in the task);
- identify each step required for the problem-solving process (begin by asking, "Does anyone have a suggestion as to how we might begin to answer this question?");
- select the information needed to complete each step (this step could include self-talk about rejecting information that is not necessary);
- identify the proper sequence and work through the steps to complete the task (providing self-talk and inviting students to share their thinking); and
- "talk aloud" as they carry out the computations required to solve the problem and complete a self-check.

This "think aloud" approach provides a model for students. With repeated practice, students will internalize the language the teacher uses during the "think aloud." Students will then use this internalized language to guide them through the problem-solving steps when they are required to solve similar problems independently.

*Reading Comprehension Strategies*

In presenting reading comprehension strategies, teachers share their internal thinking to make sense of a story being read aloud:

- predict what will happen next, using personal experiences;
- visualize what is happening in the scene (self-talk about what the author is talking about);
- make a story map to show an underlying structure; and
- clarify anything that is confusing.

(Beers, 2003, p.42)

vi. *Metacognitive Instruction*

Metacognition means “thinking about thinking,” and involves helping students complete academic tasks by thinking about their assignments, planning the steps to complete assignments, and monitoring progress along the way (Brown, 1987; Butler, 1998; Frender, 1990). Students are trained to use “inner language” to guide and monitor their completion of tasks (Bender, 2002).

Many students know little about the learning process, their own strengths and weaknesses in a learning situation, and the effective strategies and techniques to use in a specific learning situation. Explicit instruction in using strategies is needed, and teachers can help students by introducing and modeling strategies, prompting students to use strategies when appropriate, monitoring strategy use, and providing feedback and reinforcement when strategies are used by students.

The goal in metacognitive instruction is to have students “own” the thinking and learning processes that will make it possible for them to become competent independent learners who are able to develop a deeper understanding of factual knowledge. When teaching metacognitive skills, the focus is on learning the *processes required for a deeper understanding of knowledge* so that students will be able to apply these to future learning situations. When students are trained in using metacognition, over time they become better able to plan, organize, and complete complex assignments.

***Metacognitive Knowledge***

Students must have knowledge of the particular cognitive processes or strategies that support learning tasks. Competent, strategic learners typically use the following metacognitive process to ensure that learning tasks are completed successfully. Students with learning disabilities typically tend to use haphazardly whatever learning strategy they have at hand, often applying a single strategy to every situation, or they may use no strategies at all. Research indicates that the metacognitive problems of students with learning disabilities are greater than those of their successful peers (Butler, 1998).

***The Metacognitive Process***

Students must understand how to self-regulate a particular cognitive process or strategy by:

- knowing where and when to use the cognitive strategies to support particular learning goals, and
- actively and purposefully using this knowledge to achieve a variety of learning tasks.

The ability to self-regulate (or self-manage) refers to an individual’s capacity to evaluate work and make choices about what to do next. It involves the ability to:

- analyze and understand the problem or task;
- select appropriate strategies to efficiently complete the task;
- implement the selected strategies;
- sequence problem-solving activities efficiently;
- monitor progress to ensure that selected strategies are working;
- make adjustments to selected strategies, if required; and
- evaluate success.

### *Conscious Reflection on Knowledge of Learning Processes*

To be truly metacognitive, students must be able to reflect on both their metacognitive knowledge and the metacognitive process they have employed to achieve a learning task, and to self-evaluate in order to refine the process for completing future tasks.

#### **Questions a competent, strategic student might ask when approaching and completing a task.**

- Do I understand the assignment and the requirements of this task?
- What do I know about my skills, knowledge, and previous experience in relation to this task?
- What do I know about the product that is required? (Will it require a great deal of reading or writing? Might I present this information a different way, through video or orally? Have I created a similar product in the past?)
- What do I know about the learning strategies I can use? (What are some strategies that might be useful? Am I competent with these strategies, or where might I get support?)
- Have I divided the task into manageable components?
- Have I planned a timeline for completing the various components of this task?
- What do I know about the materials required to complete this task? (Will I require access to a computer, a library, a performance, or particular texts?)

### *vii Strategy Instruction*

Strategy instruction (i.e., teaching a student the sequence of steps to complete a specific academic task) provides a framework or structure for students when planning the steps to complete an academic task. Teachers assist students in working sequentially through the steps to complete the task. Also, teachers monitor progress and completion of the task. A strategy may include a mnemonic device that helps a student to remember the steps necessary in completing a specific academic task. Teachers should teach the strategy by using students' strengths and using material with familiar concepts at an easy reading level.

**Depending on the researcher, either six or eight stages of instruction or steps are used for strategy instruction. These stages are very similar among the various models. Many different strategies have been developed for students to use in completing tasks. There are strategies for:**

- reading comprehension;
- visual imagery to support and improve comprehension;
- self-questioning;
- searching for answers in text;
- test-taking;
- word identification; and
- completing written assignments, and many others. (Wong, Harris, Graham, & Butler, 2003)

**The Steps Recommended for Strategy Instruction**

- Pretest to determine if students need a strategy.
- Inform the students of the benefits possible from using the strategy.
- Encourage the students to make a commitment to learn the new strategy.
- Describe the strategy.
- Model the strategy.
- Verbally rehearse the strategy.
- Practice with controlled materials (provide teacher feedback).
- Practice with grade appropriate materials in a variety of contexts (the teacher may need to prompt students to use the strategy and provide feedback).
- Commit to generalize the strategy to other situations once deeper understanding is achieved (the teacher continues to monitor the student’s use of the strategy).
- Generalize and maintain the use of the strategy in a variety of contexts.

*(Alley & Deshler, 1979; Bender, 2002; Larkin & Ellis, 1998; Graham & Harris, 2003; Schumaker & Sheldon, 1985)*

When teaching strategies to students, it is important to teach each strategy thoroughly. Students need to develop a deeper understanding of a strategy before they will be able to successfully use it independently and apply it appropriately in a number of learning contexts. It is better to have students truly “own” a few strategies that they are able to use independently and apply to new learning situations than to have a limited knowledge about many strategies that they are unable to use independently or apply to new learning contexts.

a. Examples of Specific Learning Strategies using Mnemonic Devices

**SQ3R:** *A reading comprehension strategy for texts and passages.*

- S Survey (Scan):** Skim the passage looking at headings, illustrations, and the bold face type, as well as introduction and summary, if appropriate.
- Q Question:** Write down two or three questions that you think the passage might answer or turn titles and headings into questions.
- R Read:** Look for answers to your questions as you read.
- R Recite:** Close your book and recite answers to your questions. Write down answers.
- R Review:** If you cannot remember the answer, go back to your book and review the text again. Try to review the questions and answers within the next 24 hours to help you remember the important points.

*(Robinson, 1946)*

**RAP:** *A reading comprehension strategy for checking paragraph comprehension.*

- R Read** the paragraph.
- A Ask** questions about the content.
- P Paraphrase** the content.

*(Ellis, 1996)*

**PROJECT:** *A project planning strategy.*

- P Preview** the task.
- R Rough** out a plan.
- O Organize** tasks and resources.
- J Jot** down job assignments.
- E Examine** obstacles and develop strategies.
- C Commit** to goals.
- T Target** time-lines.

*(Larkin & Ellis, 2004)*



b. Strategic Learning of Students with and without Learning Disabilities

Competent, Strategic Learners Typically	Learners with Learning Disabilities Typically
<p><b>1. Ask Questions</b></p> <ul style="list-style-type: none"> <li>to establish the purpose and goals of a task; and</li> <li>to relate the task to previous work.</li> </ul>	<p><b>1. Do Not Ask Questions. They tend NOT to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> establish a clear purpose when completing a task and may ignore key components or critical requirements of the task;</li> <li><input type="checkbox"/> relate the current task to previous work they have done;</li> <li><input type="checkbox"/> ask questions (perhaps because they are intimidated - they may be processing the information too slowly to keep up with the discussion).</li> </ul>
<p><b>2. Plan to</b></p> <ul style="list-style-type: none"> <li>decide on strategies and timelines;</li> <li>reduce the task or problem into components; and</li> <li>determine the physical or mental skills required to complete the task.</li> </ul>	<p><b>2. Do Not Plan. They tend NOT to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> plan strategies and may use the first strategy that comes to mind, or the most familiar strategy;</li> <li><input type="checkbox"/> be aware of the need to establish a timeline, or to complete work on time;</li> <li><input type="checkbox"/> think of the assignment as a whole and may be unable to break it into manageable components; and</li> <li><input type="checkbox"/> realize or plan for the demands of the task.</li> </ul>
<p><b>3. Monitor</b></p> <p>They continuously refer back to the initial questions or purposes of the task to check:</p> <ul style="list-style-type: none"> <li>personal efforts;</li> <li>emerging answers; and</li> <li>discoveries.</li> </ul>	<p><b>3. Do Not Monitor</b></p> <p>They:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> fail to refer back to ensure that they are on the right track;</li> <li><input type="checkbox"/> tend to put effort into tasks they prefer rather than matching the amount of effort to the importance of the task;</li> <li><input type="checkbox"/> may work far too long on a part of the assignment that is unimportant and have little time left for a major section; and</li> <li><input type="checkbox"/> tend not to monitor answers in relation to the initial question.</li> </ul>
<p><b>4. Check</b></p> <ul style="list-style-type: none"> <li>to assess progress in accomplishing the task.</li> </ul>	<p><b>4. Do Not Check</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> to assess how they are progressing with the task or to adjust effort based on their assessment.</li> </ul>
<p><b>5. Revise</b></p> <ul style="list-style-type: none"> <li>to set revised goals; or</li> <li>to refine the final product.</li> </ul>	<p><b>5. Do Not Revise</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> their product or their goals along the way, due in part to failure to monitor performance, and failure to check back on the requirements of the task.</li> </ul>
<p><b>6. Self-Assess</b></p> <ul style="list-style-type: none"> <li>to conduct a final evaluation of both product and personal performance related to the required task.</li> </ul>	<p><b>6. Do Not Self-Assess</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> to evaluate the product or their own performance; or</li> <li><input type="checkbox"/> when they do self-evaluate, they are often unrealistic in their evaluation, being either far too demanding or too easy in their assessment.</li> </ul>

(Alley, & Deshler, 1979; Brown, 1987; Butler, 1998; Graham, Harris, & Reid, 1992; Nisbet & Schucksmith, 1986)



### viii. Content Enhancement

Content Enhancement includes a variety of research-based teaching and learning routines. Teachers can use these routines to: plan and lead learning, teach concepts, explain tests, topics, and details, and increase student performance. Used in combination, these routines constitute a powerful and well-organized approach to instruction and learning that incorporates many of the effective research-based instructional practices described throughout this section on effective instruction.

#### **Benefits of using an Advance Unit Organizer**

“The Unit Organizer Routine can help teachers plan for, introduce, and build a unit so that *all* students can do the following:

- Understand how the unit is part of bigger course ideas or a sequence of units.
- Understand the ‘gist’ of the central idea regarding the unit through a meaningful paraphrase of the unit title.
- See a structure or organization of the critical unit information.
- Define the relationships associated with critical information.
- Generate and answer questions associated with key unit information.
- Monitor their progress and accomplishments in learning.
- Keep the ‘big ideas’ and structure of the unit in mind as they learn the unit content.”

*(Boudah et al., 2000, p 49)*

An overview of the upcoming course or unit enables students to activate prior knowledge, make connections within and beyond the subject area, connect the new information to their experiential background, and become more motivated and engaged with the material to be learned (Boudah, Lenz, Bulgren, Schumaker, & Deshler, 2000; Dufour & Eaker, 1998). Some course and unit organizers that have been well researched are part of Content Enhancement (based on the work of Donald Deshler and his colleagues at the Center for Research on Learning, at the University of Kansas). As an approach to teaching and learning in the content areas, Content Enhancement has proven effective for all students, including students with learning difficulties (Boudah et al., 2000; Deshler et al., 2001).

#### **A comprehensive course or unit overview includes:**

- the name of the course or the title of the current unit;
- the name of the previous unit and upcoming unit;
- the central topic;
- the key ideas or “big ideas” to be developed in the course or unit;
- an indication of how these “big ideas” relate to the central idea and perhaps to each other;
- a schedule of the learning activities (in a unit overview);
- a list of the key questions that students should be able to answer at the conclusion of the course or unit; and
- a description of the expectations of students for assignments and assessment.

*(Boudah et al., 2000)*

ix. *Effective Feedback*

Effective feedback is positive and corrective (Larkin & Ellis, 1998).

**To be effective, feedback must be:**

- **timely:** the greater the delay between the performance and the feedback, the less likely the feedback will help the student improve;
- **specific:** grade scores are not considered feedback because they are not sufficiently specific to help a learner improve; positive comments such as “Well done,” are not specific enough to help a student advance learning;
- **understandable to the receiver:** the student must clearly understand what they have done well and what they can do differently next time to improve (rubrics that have been jointly developed with students, as well as models and exemplars can help students to better understand precisely how to improve work); and
- **allowing for adjustment:** the student needs opportunities to use the feedback in a similar context to make improvements.

(Tomlinson & McTighe, 2006)

**Effective feedback:**

- focuses on the correct aspects of the work as well as on errors or areas that need to improve;
- focuses on the strategies the student has employed as well as the product produced, helping a student gain strategy and metacognitive skills;
- assists students to understand clearly the expectations and the criteria prior to completing their work;
- provides students with opportunities to set goals; and,
- fosters students’ self-evaluation.

(Larkin & Ellis, 1998)

x. *Performance Monitoring*

Performance monitoring involves frequent and repeated assessment of targeted skills, knowledge, or strategies in a particular subset of academic skills necessary for students to attain curricular outcomes, charting not only accuracy, but also speed and/or fluency. Results from this type of assessment will help a teacher know what instruction adaptations students need to help them achieve learning outcomes, as well as when outcomes have been achieved, and when instruction and practice of a particular outcome is no longer required.

When students have developed a deeper understanding of the learning outcomes and are ready to move on, they should not be held back. However, when students have not achieved the learning outcomes, and the required knowledge, skills, or strategies have not been attained, additional instruction and practice are required before students receive instruction in new learning outcomes.

Frequent assessment encourages students to self-monitor, which helps students become more engaged with their learning and take more responsibility for their academic progress. Many students will benefit from knowing how they are progressing and be motivated by seeing their progress charted on a regular basis. However, the teacher will need to be sensitive to students’ feelings about such charting.

### **How often does assessment need to occur for performance monitoring?**

Some teachers suggest that assessment should occur weekly; others suggest daily. Black and Wiliam (1998) explain that any assessment becomes a formative assessment when a teacher uses evidence from it to adapt teaching to meet the student's needs. Many of the studies they reviewed found that improved formative assessment helped low achievers even more than other students. They explain that not only was the overall achievement increased, but the range of achievement was reduced.

### An Example of Performance Monitoring

A Grade Ten teacher teaches a lesson on predator-prey relationships. The following day, the teacher reinforces this concept when he divides the class into groups and involves them in an investigative lab on predator-prey relationships. The students perform a dissection of owl pellets to strengthen their understanding of the predator-prey relationship.

The following day, the students are given a quiz to determine their understanding of this concept. Results from the quiz indicate that six students do not yet understand the critical concepts of this area of study. Therefore, the teacher groups the students for instruction. Those who understand the concepts are given an opportunity to work independently or in pairs to explore additional examples of predator-prey relationships and create a summary chart of the information they have discovered to be shared at the end of the class.

The teacher then gathers the six students who have not attained the concepts and returns to the original lesson, reteaching the key concepts to these students using additional graphic organizers, and providing opportunities for the students to add ideas and visual reminders into the graphic organizer as they progress through the instruction. The teacher also shows the students pictures of some additional predator-prey relationships. With a smaller group, the teacher is able to directly question each student about various aspects of the lesson to check for understanding.

At the end of this instructional session, the teacher feels confident that the students have acquired the important concepts. He may choose to retest the students using the previous quiz as a tool to monitor student progress and to ensure that all students have indeed acquired the critical concepts, or he may move on to teach the next critical concept in this unit, again checking for student understanding as instruction progresses.

### 3. Effective Assessment

**Assessment** involves gathering and documenting evidence of student development and achievement, while **evaluation** involves judging student development and achievement. Assessment and evaluation that are consistent with outcomes and instruction are directly linked to the learning outcomes identified by the teacher at the beginning of the instructional unit and the course of study. Such assessments and evaluations are directly related to the knowledge, skills, and strategies the teacher identifies as critical, and that will be the focal point of the instructional activities.

There are many different purposes for assessment. However, assessments designed primarily for ranking students are typically not good assessment instruments for helping teachers adjust instruction to meet learner needs, or for helping students understand where they are in the learning process (Black, Harrison, Lee, Marshall, & William, 2004; Davies, 2005; DuFour, 2004; Gursky, 2003).

#### **Assessment Used Before Instruction (diagnostic)**

Also referred to as assessment for learning, this assessment provides important information about students' existing knowledge, skills, and strategies. Teachers use diagnostic assessment to make appropriate choices about the type and scope of teaching and learning experiences they will provide for students, as a whole class, and also of individual students.

#### **Assessment Used During Instruction (formative)**

This typically occurs during, or as part of, a unit of study, focusing on assessing the knowledge, skills, and strategies currently being taught. Formative assessment is used to determine students' progress toward achieving learning outcomes, while providing feedback to students about their learning, and identifying areas where additional instruction or practice, or instructional adaptation, is required.

Formative assessment can be used as performance monitoring if the assessments are repeated regularly and frequently throughout the unit of instruction. It helps students recognize their learning growth as well as where additional learning needs to occur, encouraging students to engage in their learning, set personal learning goals, and become involved in self-assessment.

#### **Assessment Used After Instruction (summative)**

This typically occurs at the end of a unit of study, or at the end of the term or the year, and is used to measure how students' knowledge, skills, and strategies have developed over a period of time. Comparing diagnostic and summative assessment results, sometimes referred to as "response to instruction," helps teachers determine students' academic growth. When students' responses to instruction are less than expected relative to peers, this is an indication that the students need additional instruction or, perhaps, specific adaptations.

#### **What do teachers need to know about assessment?**

Black and Wiliam (1998) examined how teachers might improve formative assessment and revealed that, often, the assessment methods that teachers are using are not effective in promoting good learning. Feedback often has a negative impact, particularly on low-achieving students, who are led to believe that they "lack ability" and so are not able to learn. Further, grading practices tend to emphasize competition rather than personal improvement.

### Requirements of Assessments

Gursky (2003) is firm in his position that if teachers want to use assessments to improve instruction and student learning, then assessments must be:

❑ **useful**

Classroom assessment must reflect the concepts and skills that the teacher emphasized in class, and that align with the teacher's instructional activities and with the provincial curriculum. Classroom assessments should not be kept a secret (students are informed that teachers will be "testing what they taught") and should not surprise students. Students should see the connection between their hard work, the effort they invest, and assessment results. This builds trust between teachers and their students. Assessments should be an important and meaningful source of information for teachers, identifying what was taught well and what needs additional instruction.

❑ **followed by high quality instruction to address the learning gaps identified through assessment**

The assessment should not be the end of instruction or of learning, but, instead, should be indicative of where additional instruction and learning needs to be targeted. When concepts or skills have not been learned, they need to be presented in a new way and more understanding of students' instructional levels and learning needs. Reteaching, which involves simply restating the original instruction, will not meet the needs of students. Students who have attained the learning outcomes and developed a deeper understanding of the required knowledge and skills require enrichment activities to expand their learning. In most cases, additional instruction is best done in class under teacher direction. However, as students become aware of the process and come to see the benefits, some of this additional instruction may be provided through special study sessions, before or after school, as well as through homework assignments.

❑ **part of an on-going effort to help students learn**

When students have not been successful with an assessment on the first attempt, and require additional instruction, they should be given a second chance to demonstrate competence and understanding of concepts and skills. This allows students to experience learning success.

## D. EDUCATIONAL, LITERACY, AND PROCESSING DEMANDS

*Putting a Canadian Face on Learning Disabilities (PACFOLD)*, published in 2007, is an applied research study that started in 2004 by the Learning Disabilities Association of Canada (LDAC). The research group examined ten Statistics Canada data sets, making it the most comprehensive investigation around the impact of living with a learning disability in Canada. Six key areas were identified as significantly impacting persons with learning disabilities and their families. One of these areas was education.

### 1. Educational Demands

There are certain aspects of formal education that become progressively more challenging for students with learning disabilities. These students require a level of knowledge and skill that accumulates and becomes refined throughout their primary years and impacts future academic progress. Students with learning disabilities find their education impacted by limitations in the following areas.

- **Literacy Skills**

Historically, basic literacy was considered adequate to be successful academically. Today, students are required to have skills far beyond basic literacy and even the definition of what it means to be literate has evolved in our information age (Catts & Kamhi, 2005). The challenge is to keep the limited literacy skills typical of so many students with learning disabilities from creating an insurmountable barrier that will prevent these students from accessing the regular curriculum.

- *Basic literacy* involves the ability to say the words on a written page and to say what the words mean.
- *Critical literacy* requires the ability to interpret, analyze, synthesize, and explain.
- *Dynamic literacy* requires the ability to read multiple texts, compare and contrast content in these texts, and integrate ideas. It also requires the ability to act on the content gained from texts and to interrelate the content from these texts for effectively solving problems.

- **Capacity to Learn Skills**

Students are required to:

- know how to learn (be metacognitive and strategic);
- access changing information (be flexible learners with research and reading skills);
- apply what they have learned (be able to generalize from one situation to the next); and
- address complex academic and real life problems (be effective and creative problem solvers).

- **Organizational Skills**

Students are required to juggle numerous assignments, projects, and tests assigned by as many as six different teachers each semester. This requires that students have effective organizational and time management skills.

- Many students, in particular students with learning disabilities, experience a significant challenge in planning and organizing in all aspects of their lives.
- Organizational difficulties may influence students' abilities to organize personal belongings, ideas in written work, school materials such as notebooks, assignments, and projects, and work and study schedules.

- **Social Skills**

Students are often required to work collaboratively with their peers to complete assignments, labs, and projects. Success with collaborative work requires effective interpersonal and communication skills. These skills are often compromised for students with learning disabilities who have serious difficulties in both of these areas (Vaughn & Sinagub, 1998).

## 2. Literacy Demands

In order to understand the importance of learning to read in content areas, a teacher needs to appreciate how students' comprehension of text will impact their ability to learn in a given subject area.

### **What a teacher needs to know about reading in the content areas.**

Teachers in content areas may assume that all students in their classroom are able to read and comprehend the texts successfully. However, many students have limited reading skills. When students cannot read fluently and with comprehension, they are restricted in developing content area knowledge.

Since the content schema and grammars of expository texts are generally not available to students prior to the first reading, students are required to hold content facts in memory as they organize them into content schema and search for a text structure to facilitate the processing of this information (Catts & Kamhi, 2005).

Teachers who instruct students in content areas may consider the "teaching of reading" to be the responsibility of the English Language Arts (ELA) teacher. ELA teachers do teach reading, but they do not teach students how to comprehend text in specific subject areas. Content area reading instruction will be most effective when taught by the content area teacher.

### **Content area teachers may be able to help students comprehend texts in the content area by:**

- introducing new vocabulary related to their content area;
- highlighting and explaining content facts related to their content area;
- developing and organizing schemata (schemata refers to a network of knowledge a student has, related to a specific idea or event) related to their content area;
- identifying and explaining text grammars for texts in the content area; and
- directly teaching reading strategies appropriate for content area reading.

Fisher, Frey, and Williams (2002) reported on the impact that content area teachers can have on students’ reading and writing development. At Herbert Hoover High School (San Diego, CA), students’ achievement scores were amongst the lowest in the state. Content area teachers identified seven research-based instructional strategies and then made a school-wide commitment to include these reading and writing strategies in all content area classes on a regular (almost daily) basis. After three years, the average student was reading more than two grade levels higher than students at the same grade level were reading prior to the reading and writing strategies implemented by content area teachers.

*i. Components of Reading in Content Areas and The Comprehension of Text*

When reading in content areas, a student must be able to:	There are increased language and reading demands when reading in content areas.
<input type="checkbox"/> comprehend new words;	<ul style="list-style-type: none"> <li>• Text language is more specific and explicit, and is less familiar.</li> </ul>
<input type="checkbox"/> comprehend complex sentence structure;	<ul style="list-style-type: none"> <li>• In text, language is more embedded and sentences are longer and more complex.</li> </ul>
<input type="checkbox"/> access content facts;	<ul style="list-style-type: none"> <li>• Students must be able to read in a way that allows them to locate, process, and recall the simple ideas conveyed in text.</li> </ul>
<input type="checkbox"/> access content schemata; and	<ul style="list-style-type: none"> <li>• Students must have knowledge of the hierarchical organization of sets of facts related to many different ideas and events.</li> </ul>
<input type="checkbox"/> access text grammars.	<ul style="list-style-type: none"> <li>• Students must understand the organizational pattern of text elements for different genres and subjects.</li> </ul>

*(Catts & Kamhi, 2005)*

### 3. Processing Demands

The chart that follows is intended to identify some of the increased curricular, instructional, and environmental demands associated with instruction and assessment, and to indicate how these increases are related to each of the six processing areas. In addition, this chart will identify some of the challenges (that result from these increased processing demands) for students with learning disabilities, and present some suggestions to teachers for adjusting instruction to help students manage these increased demands.



i. Increased Processing Demands

Language Processing Demands	Students with Learning Disabilities
<p><b>Increasingly abstract and complex concepts:</b></p> <ul style="list-style-type: none"> <li>• may be presented with little or no support from visuals or concrete materials;</li> <li>• are more likely to be presented auditorily through teacher lecture; and</li> <li>• may need to be understood through reading text.</li> </ul> <p><b>Increased oral language production:</b></p> <ul style="list-style-type: none"> <li>• increased oral discussions among students and teachers;</li> <li>• expectation for increased quality of students’ oral responses;</li> <li>• the speed and accuracy with which students provide oral responses may contribute to the students’ feelings of success and self-esteem;</li> <li>• greater expectations for students to participate in cooperative learning experiences, involving the need to communicate and negotiate.</li> </ul> <p><b>Increased communication skills – the student is expected to:</b></p> <ul style="list-style-type: none"> <li>• adjust language to match the audience, the context, and the communicative intent;</li> <li>• repair communication when it breaks down;</li> <li>• communicate effectively with peers: introduce and maintain a topic, and take turns.</li> </ul> <p><b>Increased written communication – the student is expected to:</b></p> <ul style="list-style-type: none"> <li>• write for specific purposes and for diverse audiences;</li> <li>• integrate existing knowledge, personal experiences, observations, opinions, and creative ideas into writing;</li> <li>• be competent reading and writing in a range of genres;</li> <li>• move from a first person perspective to a third person perspective.</li> </ul>	<ul style="list-style-type: none"> <li>• may have more difficulty understanding concepts. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from a variety of visual supports and the use of concrete materials.</i></li> </ul> </li> <li>• find auditory learning the most difficult way to learn. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from a multisensory approach to instruction whenever possible.</i></li> </ul> </li> <li>• have limited reading skills. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may require materials at a simpler reading level, additional time to read and comprehend text, reteaching of concepts, and other methods of support.</i></li> </ul> </li> <li>• process language very slowly and, therefore, find it difficult to comprehend the discussion. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit when the oral discussion is summarized at intervals during the discussion.</i></li> </ul> </li> <li>• have difficulty organizing and explaining ideas fluently. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need to be cued in advance in order to feel prepared and successful in front of peers.</i></li> <li><input type="checkbox"/> <i>may require additional “wait time” for an oral response.</i></li> </ul> </li> <li>• have difficulty with communication skills. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from many opportunities to engage in listening and speaking activities in non-threatening contexts.</i></li> </ul> </li> <li>• have limited writing skills. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from support at the pre-writing stage with purpose and audience clearly identified and reminders throughout the writing process to ensure that these continue to be used as a reference point.</i></li> </ul> </li> <li>• tend to be less familiar with a variety of genres. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from explicit instruction about genres and a framework (scaffold) to support initial writing in a specific genre as well as examples and models.</i></li> </ul> </li> <li>• have difficulty taking the perspective of others. <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need explicit instruction in writing from a third person perspective.</i></li> </ul> </li> </ul>

Visual Spatial Processing Demands	Students with Learning Disabilities
<ul style="list-style-type: none"> <li>• Teachers expect that students are competent at reading in content areas and that learning will occur through reading written text.</li>   <li>• Content area teachers may assume that all students can identify the words in texts, understand the meaning of these words, comprehend the written information, use the information to construct knowledge, and demonstrate their understanding.</li>   <li>• Text materials involve new genres and more complex text structures.</li>   <li>• Informational texts are used increasingly and include a number of text features (such as a table of contents, index, glossary, titles and subtitles, bold print to identify key words, charts and diagrams, and chapter summaries) intended to support the reader.</li>   <li>• There is an increased requirement to copy notes from the overhead or the board.</li> <li>• There is an increased requirement to make own notes from information presented orally.</li>   <li>• There is an increased requirement for writing fluency, accuracy, and neatness.</li> </ul>	<ul style="list-style-type: none"> <li>• have considerable difficulty with reading.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need a number of adaptations to benefit from text.</i></li> </ul> </li>   <li>• have difficulty with each of these areas and, when unable to read at grade level, are hindered in developing content area knowledge.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need explicit, scaffolded instruction to learn from text.</i></li> </ul> </li>   <li>• find it difficult to organize ideas.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>will need help to identify a hierarchy for superordinate ideas.</i></li> <li><input type="checkbox"/> <i>will need help to identify main ideas and supporting details in a paragraph.</i></li> </ul> </li>   <li>• have a limited understanding regarding the use of various text features, which may actually add to confusion when reading, rather than assisting reading comprehension.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need instruction in using text features to support reading comprehension.</i></li> </ul> </li>   <li>• have difficulty copying from the overhead or board, difficulty sequencing letters and spelling words correctly.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need guided or structured notes, a copy of notes provided by a peer or teacher, and/or explicit instruction in developing graphic organizers to replace standard notes.</i></li> </ul> </li>   <li>• have difficulty with letter formation, organizing written work on a page, general neatness in written work, and sufficient writing fluency and legibility to meet the expectations of teachers.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need access to a computer, extended time on quizzes and tests, and explicit strategies for organizing not books and other written work.</i></li> </ul> </li> </ul>

Processing Speed Demands	Students with Learning Disabilities
<ul style="list-style-type: none"> <li>Lessons become increasingly fast paced.</li> <li>Communication between teachers and students, including questions and answers, occur at a rapid rate.</li> <li>There is an increased number of assignments and compact exam schedules.</li> <li>Timed tests and assignments place an additional burden on students.</li> </ul>	<ul style="list-style-type: none"> <li>experience difficulty keeping up with the rapid exchange of ideas and information.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need explicit instruction, advance organizers, graphic organizers outlining critical concepts and identifying relationships among concepts.</i></li> <li><input type="checkbox"/> <i>may need time spent activating prior knowledge and many examples to help link new information to existing knowledge.</i></li> <li><input type="checkbox"/> <i>may need to be frequently re-engaged with the learning task, perhaps through visuals, summaries, and connecting back to the purpose for learning the new information.</i></li> </ul> </li> <li>invest an unusually high level of effort, but the increased workload makes this level of effort impossible to maintain.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need support with establishing timelines and lists of tasks to be completed, and may need some assignments reduced.</i></li> </ul> </li> <li>process more slowly than peers during exams and timed assignments.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may require extra time for some assignments and tests.</i></li> </ul> </li> </ul>
Attentional Demands	Students with Learning Disabilities
<p><b>Middle and secondary classrooms tend to be very busy and noisy places with many different stimuli competing for attention.</b></p> <ul style="list-style-type: none"> <li>Increasingly, students are required to divide their attention among a number of task components in order to complete tasks successfully.</li> <li>An increased amount of information requires that students quickly identify key concepts and focus attention on these.</li> <li>Students are required to sustain attention over a longer period of time, and there is an increase in the length of assignments and tests.</li> <li>Critical concepts may be discussed only once; since new concepts are often related to previously taught concepts, missed information may have a very negative effect on learning outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>when required to attend to multiple aspects of a task may find it almost impossible to maintain the proper balance of attention for each component.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need a system to support self-monitoring for attention to tasks, visual or auditory prompts, and a structured learning environment.</i></li> </ul> </li> <li>find it difficult to identify and attend to important and relevant information.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need advance organizers to cue critical concepts and graphic organizers to focus attention on these critical areas.</i></li> </ul> </li> <li>have difficulty staying focused for longer periods of time.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may benefit from instruction and assignments that are “chunked” and allow for a variety of learning activities.</i></li> </ul> </li> <li>may be uncomfortable asking peers when work is missed because of inattention or absence.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>the teacher may need to establish a buddy system for these students so that they have someone from whom they can quickly and easily obtain missed work.</i></li> </ul> </li> </ul>

Memory Demands	Students with Learning Disabilities
<ul style="list-style-type: none"> <li>• There are increases in factual information and course content (e.g., mathematical formulae).</li> <li>• There are increased demands on memory as quizzes and assignments are scheduled back to back.</li> <li>• When students have different teachers for five or six classes each semester, there is more variability in the expectations these individual teachers have for memory.</li> </ul>	<ul style="list-style-type: none"> <li>• have few strategies to help remember large amounts of material.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need teachers to support memorization efforts by providing guidance in developing study guides, weekly reviews of critical concepts, and assistance in developing visual supports, mnemonics, and acronyms.</i></li> <li><input type="checkbox"/> <i>may need teachers to focus on deeper understanding of critical content and reduce the emphasis on memorization in assessment.</i></li> </ul> </li> <li>• may have underlying skills that are not at a level of automaticity; therefore, there will be less cognitive capacity available for comprehension and problem solving (Pressley, 2002).                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need a variety of memory aids.</i></li> </ul> </li> <li>• have difficulty adjusting to the requirements for various teachers.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need explicit directions to clarify the expectations for each teacher.</i></li> </ul> </li> </ul>
Executive Functioning Demands	Students with Learning Disabilities
<ul style="list-style-type: none"> <li>• The cognitive demands for processing information increase since there is more information to take in, organize, understand, store, and recall.</li> <li>• Academic tasks become more complex as students are required not only to recall information, but also to work with this information in new ways as they compare and contrast, analyze, synthesize, and integrate information from various sources.</li> <li>• More complex assignments require greater self-regulation as the student must plan, select appropriate strategies, monitor progress, check, revise, and self-evaluate to complete assignments and projects successfully.</li> <li>• More academic tasks and assignments require that students be well-organized strategic learners to manage the work load.</li> <li>• More complicated time schedules may now involve school, work, sports, and social events, requiring students to focus on more than just school expectations.</li> </ul>	<ul style="list-style-type: none"> <li>• have difficulty with some or all of the processes related to perceiving, thinking, organizing, remembering information, and demonstrating learning.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need individual scaffolded instruction to assist with these processes.</i></li> </ul> </li> <li>• have limited skills to complete more complex cognitive tasks.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need explicit instruction, scaffolding, modeling, and graphic organizers to learn specific academic tasks.</i></li> </ul> </li> <li>• have not developed metacognitive and self-regulation skills sufficiently to support independent learning.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need additional instruction, modeling, and prompts to help think and work through tasks.</i></li> </ul> </li> <li>• tend to be disorganized or non-strategic learners, and consequently have to work longer and harder to achieve the same level of success as peers.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>need metacognitive instruction to become more strategic learners.</i></li> </ul> </li> <li>• have challenges organizing and managing time.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>may need assistance in completing daily and weekly schedules to develop a realistic balance for all activities.</i></li> </ul> </li> </ul>

## E. REFERENCES

- Alley, G. R., & Deshler, D. D. (1979). *Teaching the learning disabled adolescent: Strategies and methods*. Denver: Love.
- Beers, K. (2003). *When kids can't read: What teachers can do*. Portsmouth, NH: Heinemann.
- Bender, W. (2002). *Differentiating instruction for students with learning disabilities: Best teaching practices for general and special educators*. Thousand Oaks, CA: Corwin Press.
- Black, P., & Wiliam, D. (1998). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139-49.
- Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan*, 86(1), 8-21.
- Boudah, D. J., Lenz, B. K., Bulgren, J. A., Schumaker, J. B., & Deshler, D. D. (2000). Don't water down! ENHANCE: Content learning through the unit organizer routine. *TEACHING Exceptional Children*, 32, 48-56.
- Brown, A. L. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-116). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Butler, D. L. (1998). Metacognition and learning disabilities. In B. Y. L. Wong (Ed.), *Learning about learning disabilities* (2nd ed., pp. 585-656). San Diego: Academic Press.
- Catts, H. W., & Kamhi, A. G. (2005). *Language and reading disabilities*. Boston: Pearson Education.
- Davies, A. (2005 March). *Making classroom assessment work*. Paper presented at Finding Our Way: Assessment, Evaluation, and Accountability by The Saskatchewan Professional Development Unit and Saskatoon Regional Assessment Consortium, Saskatoon SK.
- Deshler, D.D., Schumaker, J. B., Lenz, B. K., Bulgren, J. A., Hock, M. F., Knight, J., & Ehren, B. (2001). Ensuring content-area learning by students with learning disabilities. *Learning Disabilities Research & Practice*, 16(2), 96-108.
- DuFour R. (2004). What is a "professional learning community?" *Educational Leadership*, 61(8), 3-6.
- DuFour R., & Eaker, R. (1998). *Professional learning communities at work*. Bloomington, IA: National Education Service.
- Elbaum, B., Vaughn, S., Hughes, M. T., Moody, S. W., & Schumm, J. S. (2000). A meta-analytic review of the effect of instructional grouping format on the reading outcomes of students with disabilities. In R. Gersten, E. Schiller, J. S. Schumm, & S. Vaughn (Eds.), *Issues and research in special education* (pp. 105-135). Hillsdale, NJ: Erlbaum.
- Ellis, E. S. (1996). Reading strategy instruction. In D. D. Deshler, E. S. Ellis & B. K. Lenz (Eds.), *Teaching adolescents with learning disabilities: Strategies and methods* (2nd ed., pp. 61-125). Denver: Love.
- Fisher, D., Frey, N., & Williams, D. (2002). Seven literacy strategies that work. *Educational Leadership*, 60(3), 70 -73.

- Freder, G. (1990). *Learning to learn: Strengthening study skills and brain power*. Nashville, TN: Incentive.
- Fuchs, L. S., Fuchs, D., & Kazden, S. (1999). Effects of peer-assisted learning strategies on high school students with serious reading problems. *Remedial and Special Education, 20*(5), 309-318.
- Gregory, G. H., & Chapman, C. (2002). *Differentiated instructional strategies: One size doesn't fit all*. Thousand Oaks, CA: Corwin Press.
- Gursky, T. R. (2003). How classroom assessments improve learning. *Educational Leadership, 60* (5), 6-11.
- Graham, S., & Harris, K.R. (2003). Students with learning disabilities and the process of writing: A meta-analysis of SSRD studies. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning* (pp. 323-344). New York: Guilford Press.
- Graham, S., Harris, K.R., & Reid, R. (1992). Developing self-regulated learners. *Focus on Exceptional Children, 24*(6), 1-16.
- Larkin, M. J., & Ellis, E. S. (1998). Strategic instruction for adolescents with learning disabilities. In B. Y. L. Wong (Ed.), *Learning about learning disabilities* (2nd ed., pp. 585-656). San Diego: Academic Press.
- Larkin, M. J., & Ellis, E. S. (2004). Strategic academic interventions for adolescents with learning disabilities. In B. Y. L. Wong (Ed.) *Learning about learning disabilities* (3rd ed. pp. 375-414). San Diego: Elsevier Academic.
- Learning Disabilities Association of Canada. (2002). *National definition of learning disabilities*. Retrieved April 1, 2009, from <http://www.ldac-taac.ca/>.
- Learning Disabilities Association of Canada. (2007). *Putting a Canadian face on learning disabilities (PACFOLD)*. Retrieved April 1, 2009, from <http://www.pacfold.ca>.
- Lenz, B. K. (2000, April). *A SMARTER routine that facilitates secondary school change*. Paper presented at the CEC Annual Convention, Vancouver, BC.
- Lyman, F. (1981). The responsive classroom discussion. In Anderson, A. S. (Ed.), *Mainstreaming digest*, College Park, MD: University of Maryland College of Education.
- Mastropieri, M. A., Scruggs, T. E., Mohler, L. J., Beranek, M. L., Spencer, V., Boon, R. T., & Talbott, E. (2001). Can middle school students with serious reading difficulties help each other and learn anything? *Learning Disabilities: Research & Practice, 16*(1), 18-27.
- Mather, N., & Goldstein, S. (2001). *Learning disabilities and challenging behaviors: A guide to intervention and classroom management*. Baltimor, ML: Paul H. Brooks.
- Nisbet, J., & Schucksmith, J. (1986). *Learning strategies*. Oxon, England: Routledge and Kegan Paul.
- Pressley, M. (2002). *Reading instruction that works: The case for balanced teaching*. New York: Guilford Press.
- Robinson, F. (1946). *Effective study*. New York: Harper and Brothers.
- Saskatchewan Education. (1992). *The adaptive dimension in core curriculum*. Regina, SK: Author.
- Schumaker, J. B., & Sheldon, J. (1985). *The sentence writing strategy: Instructor's manual*. Lawrence, KS: The University of Kansas.
- Sousa, D. A. (2001). *How the brain learns*. Thousand Oaks, CA: Corwin Press.



- Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. Toronto, ON: Random House of Canada.
- Swanson, H. L. (2001). Searching for the best model for instructing students with learning disabilities. *Focus on Exceptional Children*, 34(2), 1-14.
- Swanson, H. L., & Deshler, D. (2003). Instructing adolescents with learning disabilities: Converting meta-analysis to practice. *Journal of Learning Disabilities*, 36(2), 124-136.
- Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Tomlinson, C. A., & McTighe, J. (2006). *Integrating differentiated instruction and understanding by design*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Van Zant, S. (2002). Unlocking peer potential for tutoring. *Education Digest*, 67(5), 44.
- Vaughn, S., & Sinagub, J. (1998). Social competence of students with learning disabilities: Interventions and issues. In B. Y. L. Wong (Ed.), *Learning about learning disabilities* (2nd ed., pp. 453-487). San Diego: Academic Press.
- Vaughn, S., Hughes, M. T., Moody, S. W., & Elbaum, B. (2001). Instructional grouping for reading for students with LD: Implications for practice. *Intervention in School and Clinic*, 36(3), 131-37. Retrieved April 1, 2009, from <http://www.ldonline.org/article/6308?theme=print>.
- Walcot-Gayda, E. (2004). *Understanding learning disability? Fact sheet*. Canadian Education Association. Retrieved April 1, 2009, from <http://ldac-acta.ca>.
- Wong, B. Y. L., Harris, K. R., Graham, S., & Butler, D. L. (2003). Cognitive strategies instruction research in learning disabilities. In H. L. Swanson, K. R. Harris, & S. Graham (Eds.), *Handbook of learning*. New York: Guilford Press.

## F. CHECKLISTS

### 1. Effective, Research-Based, Instructional Strategies to Enhance Student Learning

#### *Use of effective direct instruction practices*

- Lead the instruction.
- Visually monitor student behaviours.
- Conduct orientation to the lesson (e.g., advance organizers).
- Model the lesson tasks (remember “think aloud”).
- Ask questions.
- Require regular assignments from students.
- Provide constant and timely feedback to students.
- Strive to help each student reach learning outcomes.
- Praise students frequently for successful work.

#### *Carefully planned, consistent, and well-organized environments*

- Organize desks, equipment, learning centers, and workspaces to optimize student learning.
- Pay close attention to work schedules and how students’ time is structured throughout the day.
- Structure individual lessons in a systematic and organized manner, and present course content in a structured easy-to-understand manner.
- Establish routines for student activities and use these routines consistently to enable independent work. Pre-established routines are used for partner activities, recording homework and assignments, library use, and many other teaching and learning activities that occur regularly in the classroom.

#### *Overview and reminders of courses and units*

- Provide students with a graphically organized overview of the course and each unit of study, relating the learning outcomes and the content to the larger course of study.
- Use this overview to help students organize new knowledge, understand the relationships among this new knowledge, and connect it to knowledge they have already learned.
- Return to the overview regularly during instruction to help students see how the unit and course are evolving, and help students understand where they have been, where they are now, and where to use this organizer routinely.
- Use this overview to keep students focused on the key learning outcomes and to help them monitor their progress towards a deeper understanding of these outcomes.



### ***Differentiating the key variables of instruction***

- Differentiate the content, selecting materials to match students' interests.
- Select reading materials that are appropriate to students' reading skills.
- Teach prerequisite skills if they are missing.
- Differentiate the learning processes (how the students will interact with the content) and the learning products (how students will demonstrate learning and deeper understanding of content).
- Differentiate the instructional setting or the environment, incorporating technological supports and support personnel, and paying attention to environmental stimuli that may need to be adjusted to meet students' learning needs.

### ***Brain-compatible instruction***

- Promote a safe learning environment.
- Recognize the importance of water and food for students, if they are to focus on learning.
- Structure frequent opportunities for student response and provide adequate wait time for students to respond.
- Pair physical movement to learning tasks.
- Use visual stimuli for increasing novelty in the learning task.
- Integrate music, when appropriate, to enhance student learning.
- Give students choices whenever possible and appropriate.
- Use peer-tutoring.

### ***Variety of instructional groupings***

- Be aware that a lecture method is not the most effective way for many students to learn.
- Over the course of the week, have students working in all of the following instructional groupings: total group, small groups, pairs, and alone.
- Instructional groupings sometimes include small teacher-led groups, cooperative learning groups, sharing groups, or multi-age groups.
- Groups may be formed based on student knowledge in a subject, student ability to perform a task, student interest in a specific area, teacher assignment, or randomly.

***Differentiation of the learning process through scaffolded and metacognitive instructional strategies***

***Scaffolded Instruction***

- Choose an activity or skill that is slightly beyond what students are currently capable of achieving independently.
- Provide a scaffold by observing the students, diagnosing the students' current understanding or skill levels, and providing the amount of support required for students to achieve success. Teach students more effective strategies to accomplish a task. Provide prompts and cues to guide students through a task.
- Gradually withdraw the support when students are able to complete the task independently.

***Metacognitive Strategies***

- Teach self-appraisal strategies.
- Teach students self-management or self-regulation strategies to assist them in accomplishing tasks, including instruction that helps students understand the task. Select appropriate strategies to accomplish the task and implement those strategies. Monitor to ensure that selected strategies are working, and adjust strategies, if required.

***Strategy training with a focus on specific strategies for specific tasks***

- Teach strategies, within the context of the curriculum, that are very specific to particular learning tasks.
- Provide students with a framework for cognitively planning a specific academic task, completing the steps involved in the task, and monitoring completion of the task.
- Teach students the strategy, how the strategy works, and when to use the strategy.
- Provide enough guidance and practice so that students can make the strategy their own.

***Effective Feedback and Performance Monitoring***

- Regularly and frequently assess and evaluate students based on knowledge, skills, and strategies identified as key outcomes in the curriculum.
- Provide frequent and explicit feedback to students to help them improve and meet curricular outcomes, and share assessment information with students to help them track personal growth and set learning goals.
- Use the information obtained from these assessments to individualize and inform upcoming instruction.

i. Frequency Chart

Subject area of reflection: \_\_\_\_\_ Date of reflection: \_\_\_\_\_

Effective, Research-based, Instructional Strategies	I Use This Regularly	I Use This Sometimes	I Need More Details
1. I use effective direct instruction practices.			
2. I provide a carefully planned, consistent, and well-organized environment.			
3. I provide students with an overview of my course and unit. Students are informed and routinely reminded of the learning outcomes.			
4. I differentiate the key variables of instruction.			
5. I use brain-compatible instruction.			
6. I use a variety of instructional groupings.			
7. I differentiate the learning process through the use of scaffolded and metacognitive instructional strategies.			
8. I provide strategy training with a focus on specific strategies for specific tasks.			
9. I provide effective feedback to students and incorporate performance monitoring to track each student's academic progress.			

## 2. Adaptations

Name: \_\_\_\_\_ School: \_\_\_\_\_

Grade: \_\_\_\_\_ Subject: \_\_\_\_\_ Date: \_\_\_\_\_

In the Classroom	Will the student require this adaptation?
Provide instructions both orally and in written form.	
Use visuals and semantic webs in presenting information.	
Use highlighting (for key words, mathematical signs, due dates, etc.).	
Check to ensure that the student understands the assignment requirements and has recorded the assignment correctly.	
Monitor note-taking and notebook organization for accuracy and readability.	
Provide preferential seating arrangement as required (near the teacher, close to the board, away from hallway distractions, etc.).	
Adjust the amount of note-taking and copying required when excessive effort is required.	
Provide photocopied notes (teacher or peer notes).	
Allow more time to provide oral answers and to complete written work and assignments.	
Provide an alternate setting for independent work to limit distractions.	
Assign a lab partner or a study buddy.	
Provide concrete materials or more visual supports to help develop critical concepts.	
Pre-teach vocabulary, and provide an overview for an assigned reading or large unit of study.	

In the Classroom (continued)	Will the student require this adaptation?
Allow use of a tape recorder to record key lectures.	
Provide access to a computer for word processing.	
Allow use of a calculator or math tables for computation (process for computation is known). Allow access to formula sheets and maps to reduce the pressure of memorizing.	
Adjust assignments, reducing the number of questions to be answered, or the length of the written assignment.	
Provide lower level reading materials that deal with similar topics as regular texts.	
Provide audio tapes of difficult reading assignments and/or of review notes.	
Build basic skills or select appropriate computer programs for drill and practice of new skills.	
Provide appropriate technological supports (e.g., WYNN, Kurzweil, AlphaSmart, etc.).	
Teach self-advocacy skills.	
Connect with parents on a regular basis.	
Connect with the resource/learning assistance teacher when concerns arise.	

For Homework and Assignments	Will the student require this adaptation?
Check that the student has the homework assignment written down correctly on a daily basis, or provide a written copy of assignment details for the student.	
Arrange for difficult reading assignment to be read with a peer, by an adult, on tape, or by a text reading program on a computer.	
Reduce the total amount of material to be read (teacher highlights key passages).	
Provide information in simpler language or rewrite critical information in simplified language.	

For Homework and Assignments (continued)	Will the student require this adaptation?
Break long-term assignments into several smaller, more manageable components.	
Provide intermittent due dates for longer assignments.	
Provide organizational support for homework and assignment schedules.	
Ensure that the student completes a daily planner.	
Monitor homework and assignment completion. Communicate this information to parents regularly.	
Adjust homework, reducing the number of questions to be answered or the length of the written assignment.	
Allow the student to dictate work to a scribe, provide the report on tape, or access typing support.	
Support the student to engage an editor or proofreader before submitting work.	
Encourage the use of a word processor and spell check.	
When spelling is a primary challenge, grade student with no marks removed for spelling errors.	

Preparing for Tests	Will the student require this adaptation?
Support the student will need to use this adaptation	
Re-teach difficult concepts.	
Teach test-taking and study skills.	
Teach memory strategies.	
Support the student in preparing study guides.	
Help the student to create “webs” to link information together.	
Create visuals and diagrams to develop and remember concepts.	
Create a glossary of terms and develop an understanding of vocabulary.	

<b>Test Taking</b>	<b>Will the student require this adaptation?</b>
Read test questions to the student.	
Clarify test questions, rephrasing questions using simpler language.	
Provide alternate settings for exams (e.g., in library, resource room, etc.).	
Extend time limits for exams or allow flexible scheduling (student writes exam in two sessions).	
Adjust test design (e.g., fewer questions on a page).	
Allow the student to use a calculator or math fact sheet.	
Allow open book tests or allow the student to bring in examination notes, dates, formulas, outlines.	
Allow the student to write the test on a computer with the support of spell check.	
Provide an exam reader, allowing exam questions and directions to be read to student.	
Provide an exam scribe.	
Allow the student to circle multiple choice answers directly on question sheet rather than having to transfer answers to an answer sheet.	
Allow the student to answer the test orally.	

### 3. Instructional / Assessment Strategies and Adaptations for Specific Areas of Difficulty

Student: \_\_\_\_\_ Teacher: \_\_\_\_\_

Subject: \_\_\_\_\_ Date: \_\_\_\_\_

#### PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Language</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has difficulty adjusting speech to the audience and situation.</li> <li><input type="checkbox"/> Has difficulty interpreting the listener’s needs for clarification, turn taking, etc.</li> <li><input type="checkbox"/> Length and complexity of sentences are limited.</li> <li><input type="checkbox"/> Has difficulty understanding oral discussions and reading passages.</li> <li><input type="checkbox"/> Has difficulty understanding figurative language and idiomatic expressions.</li> <li><input type="checkbox"/> Vocabulary is limited, resulting in a tendency to use nonspecific language.</li> <li><input type="checkbox"/> May experience word finding difficulties.</li> <li><input type="checkbox"/> May mispronounce some words consistently.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide many and varied oral language opportunities in pairs, small groups, etc.</li> <li><input type="checkbox"/> Provide prompts and cues in context.</li> <li><input type="checkbox"/> Provide explicit instruction in sentence construction.</li> <li><input type="checkbox"/> Encourage the student to use a variety of meaning-making strategies in both oral and reading contexts (e.g., predict, ask questions, confirm predictions, summarize).</li> <li><input type="checkbox"/> Provide partially completed graphic organizers with headings to help the student understand key ideas and supporting details.</li> <li><input type="checkbox"/> Provide opportunities during class for students to develop a better understanding of critical concepts and key vocabulary.</li> <li><input type="checkbox"/> Use graphic organizers to develop a deeper understanding of vocabulary words (e.g., Concept Definition Mapping, Semantic Feature Analysis).</li> </ul>

Assessment Strategies and Adaptations
<ul style="list-style-type: none"> <li><input type="checkbox"/> Ensure that the student understands the assignment.</li> <li><input type="checkbox"/> Have the student write out the steps he or she will follow to complete the assignment.</li> <li><input type="checkbox"/> Ensure that the student understands questions on the exam.</li> <li><input type="checkbox"/> Have the student ask the questions in his or her own words.</li> <li><input type="checkbox"/> When response is incomplete, prompt the student to add details to the answer.</li> <li><input type="checkbox"/> Accept the student’s oral response as a demonstration of knowledge.</li> </ul>



## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Processing of Information and Attending</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has difficulty with attention.</li> <li><input type="checkbox"/> Appears not to be listening.</li> <li><input type="checkbox"/> Misses instructions.</li> <li><input type="checkbox"/> Has difficulty selecting the relevant stimulus (e.g., what is important versus what is not important).</li> <li><input type="checkbox"/> Has difficulty starting tasks.</li> <li><input type="checkbox"/> Is slow to complete assignments and/or rushes through them.</li> <li><input type="checkbox"/> Has inconsistent performance.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Check vision and hearing to ensure these are not the source of the problem.</li> <li><input type="checkbox"/> Allow sensory fidgets if required (e.g., chewing gum, squeeze balls, etc.).</li> <li><input type="checkbox"/> Teach self-monitoring and self-assessment techniques and provide monitoring forms.</li> <li><input type="checkbox"/> Set clear expectations and establish routines.</li> <li><input type="checkbox"/> Acknowledge positive behaviour, be specific, and avoid negative comments (e.g., “I really liked the way you started your math assignment immediately and continued to work ...”).</li> <li><input type="checkbox"/> Break assignments into smaller components.</li> <li><input type="checkbox"/> Have the student develop a plan and establish a timeline to complete individual components.</li> <li><input type="checkbox"/> Set due dates for different components of the project to keep the student focused and working over a period of time.</li> <li><input type="checkbox"/> Work with the student to identify distractions and brainstorm ways to reduce distractions.</li> <li><input type="checkbox"/> Repeat important instructions.</li> <li><input type="checkbox"/> Work with the student to identify a strategy to get started on a task as quickly as possible.</li> <li><input type="checkbox"/> Post a list of tasks for students to do when assigned work is completed.</li> <li><input type="checkbox"/> Identify areas of interest and include these in instructional components.</li> <li><input type="checkbox"/> Provide preferential seating.</li> </ul>

### Assessment Strategies and Adaptations

- Ensure that the student has a complete set of notes available for studying.
- Work one-to-one with the student to develop an effective strategy for writing exams in class.
- Identify the best order to complete questions and explain why.
- Teach the student how to plan appropriate amounts of time for each section of the test.
- Remind students of the time remaining at 5, 10, or 15-minute intervals.
- Allow the student to write in a study carrel or out of the room to reduce the impact of distractions, or have the student write tests in two shorter time blocks.
- Provide additional space to allow the student to complete answers directly on the test.

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Memory</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Is unable to recall what was just seen, heard, or said.</li> <li><input type="checkbox"/> Does not remember concepts or information from one day to the next.</li> <li><input type="checkbox"/> Has difficulty retrieving information previously learned.</li> <li><input type="checkbox"/> Has difficulty recalling information by rote (e.g., math facts, formulas).</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use a multisensory approach (visual, auditory, kinesthetic, and tactile) to enhance memory.</li> <li><input type="checkbox"/> Activate student's prior knowledge before instruction.</li> <li><input type="checkbox"/> Use index cards to record key information.</li> <li><input type="checkbox"/> Teach mnemonics and other memory aids.</li> <li><input type="checkbox"/> Teach visualization.</li> <li><input type="checkbox"/> Remind the student to use memory aids (e.g., raps, acronyms, mnemonics).</li> <li><input type="checkbox"/> Provide visual cues when possible.</li> <li><input type="checkbox"/> Provide checklists to identify steps.</li> <li><input type="checkbox"/> Provide review in class, encourage frequent review of homework, and model how a review might look.</li> <li><input type="checkbox"/> Identify the student's preferred learning style and incorporate strategies targeted to an area of strength (e.g. auditory, visual, kinesthetic).</li> </ul>

### Assessment Strategies and Adaptations

- Assess regularly and before too large an amount of new information has been covered.
- Consider ways to assess deeper understanding of learning outcomes that are less dependent on the student's memory skills (e.g., performance tasks, portfolios, journals).
- Provide a scaffold for the student.
- Provide verbal prompts.
- A framework or guide to work through.
- Provide study guides prior to assessment.
- Teach students to prepare study guides.
- Have students predict exam questions.
- Provide test questions in advance.
- Allow students to bring information or fact sheets into the test.

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Metacognition - Part 1</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has difficulty approaching tasks in a logical sequence.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulty defining the problem.</li> <li><input type="checkbox"/> Difficulty setting goals.</li> <li><input type="checkbox"/> Difficulty choosing appropriate strategies for tasks.</li> <li><input type="checkbox"/> Difficulty developing an effective plan for completing tasks.</li> <li><input type="checkbox"/> Difficulty monitoring and adjusting effort and strategies during project.</li> <li><input type="checkbox"/> Difficulty assessing product and personal performance.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Be clear and concise when providing instructions and expectations.</li> <li><input type="checkbox"/> Provide instructions in both written and oral format.</li> <li><input type="checkbox"/> Explicitly teach and model steps for completing assignments.</li> <li><input type="checkbox"/> Provide explicit feedback to the student as steps are completed.</li> <li><input type="checkbox"/> Teach and model metacognitive strategies, including connecting their learning, interacting with text, and asking questions.</li> <li><input type="checkbox"/> Teach and model ways of problem solving when “stuck” on a project.</li> <li><input type="checkbox"/> Provide a checklist for projects with required steps identified.</li> <li><input type="checkbox"/> Have the student use this checklist for self-evaluation.</li> <li><input type="checkbox"/> Incorporate paired and cooperative learning opportunities to allow the student to learn strategies from peers.</li> </ul>

Assessment Strategies and Adaptations
<ul style="list-style-type: none"> <li><input type="checkbox"/> Work individually with the student to identify and assess effective and ineffective strategies.</li> <li><input type="checkbox"/> Monitor the use of metacognitive strategies and provide feedback to the student.</li> <li><input type="checkbox"/> Provide feedback to the student at various stages of the project.</li> <li><input type="checkbox"/> Give credit for using metacognitive strategies when completing projects.</li> <li><input type="checkbox"/> Provide opportunities for self-evaluation.</li> <li><input type="checkbox"/> Provide opportunities for peer-evaluation.</li> </ul>

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Metacognition - Part 2</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Makes the same errors repeatedly and does not seem to learn from practice.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Tends not to learn from experience.</li> <li><input type="checkbox"/> Is not an active learner.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Analyze task and break it down to determine the step at which errors are occurring.</li> <li><input type="checkbox"/> Analyze errors and work with the student to achieve success at this step in the process.</li> <li><input type="checkbox"/> Provide one-to-one, strategic tutoring (identify the student's current strategies and teach new strategies as appropriate to the task).</li> <li><input type="checkbox"/> Have the student complete a learning journal to encourage active learning and encourage the student to explain errors and correct processes.</li> <li><input type="checkbox"/> Monitor the student's progress at a number of check points prior to the completion of the project.</li> <li><input type="checkbox"/> Have the student use exemplars and/or answer sheets, and discuss where and perhaps why errors are occurring.</li> <li><input type="checkbox"/> Provide a unit and lesson overview at the beginning of each lesson to link the lesson to previous and upcoming instruction and to activate prior knowledge.</li> </ul>

### Assessment Strategies and Adaptations

- Assess and provide feedback to the student on progress at a number of stages prior to the completion of the project.
- Have marks from each stage contribute to the final grade.
- Have the student self-assess work at various stages using exemplars and rubrics.

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Metacognition - Part 3</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has poor self-monitoring skills.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has disorganized notes, desk, belongings.</li> <li><input type="checkbox"/> Is rarely prepared for class.</li> <li><input type="checkbox"/> loses things.</li> <li><input type="checkbox"/> has difficulty with advance planning for assignments or studying.</li> </ul> </li> <li><input type="checkbox"/> <b>Does not know when a task is complete or incomplete.</b></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide as much structure and routine as possible.</li> <li><input type="checkbox"/> Have students consistently use a calendar or day planner to support planning and time management.</li> <li><input type="checkbox"/> Post a class assignment calendar to model, as well as remind students of due dates.</li> <li><input type="checkbox"/> Involve parents in monitoring homework and progress on projects.</li> <li><input type="checkbox"/> Fax or email homework requirements to parents.</li> <li><input type="checkbox"/> Have parents review and sign assignments.</li> <li><input type="checkbox"/> Introduce organizational strategies such as a note-taking binder with a zipper that includes:                     <ul style="list-style-type: none"> <li><input type="checkbox"/> pencil case,</li> <li><input type="checkbox"/> paper,</li> <li><input type="checkbox"/> dividers for each subject,</li> <li><input type="checkbox"/> a monthly calendar,</li> <li><input type="checkbox"/> pockets for assignment sheets,</li> <li><input type="checkbox"/> a list of due dates.</li> </ul> </li> <li><input type="checkbox"/> Color code materials as needed.</li> <li><input type="checkbox"/> Explicitly teach organizational strategies.</li> <li><input type="checkbox"/> Provide a bin for materials and/or a second set of books (one for at school and at home).</li> <li><input type="checkbox"/> Provide self-monitoring checklists for getting organized.</li> <li><input type="checkbox"/> Assist the student with setting goals for projects.</li> </ul>

### Assessment Strategies and Adaptations

- Assess students on planning, organization, and time-management skills. Provide explicit feedback and recommendation for areas for improvement.
- Have students self-assess their planning, organization, and time-management on a project and identify areas of difficulty and strategies for improvement.

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Metacognition - Part 4</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Performs poorly on timed tests and assignments.</b><ul style="list-style-type: none"><li><input type="checkbox"/> Is impulsive on timed tests.</li><li><input type="checkbox"/> Has difficulty weighing the value of test questions and making necessary adaptations.</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Teach test taking strategies.</li><li><input type="checkbox"/> Teach the student to skim through the test and plan the order of “attack” and allocate time for each test section.</li><li><input type="checkbox"/> Teach the student to work on each section for an amount of time comparable to mark value.</li></ul>

Assessment Strategies and Adaptations
<ul style="list-style-type: none"><li><input type="checkbox"/> Assign a time allotment for each section of a test as a guideline for students.</li><li><input type="checkbox"/> Remind the students, during the test, of the time allotment, and encourage students to move to other questions if getting bogged down.</li><li><input type="checkbox"/> Do not penalize the student for spelling or grammatical errors.</li><li><input type="checkbox"/> Allow the student to demonstrate knowledge by completing a graphic organizer.</li><li><input type="checkbox"/> Allow the student to write test in shorter sections (e.g., two 20-minute time blocks on two consecutive days rather than one 40-minute block).</li><li><input type="checkbox"/> Allow the student additional time to write the test.</li><li><input type="checkbox"/> Focus on the student’s knowledge and deeper understanding of material rather than on the time required to complete the test.</li><li><input type="checkbox"/> Give partial credit for work and for identifying correct processes.</li><li><input type="checkbox"/> Provide alternative ways to demonstrate deeper understanding.</li><li><input type="checkbox"/> Provide a balance among various assessment strategies.</li></ul>

## PROCESSING DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Metacognition - Part 5</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has difficulty with study skills.</li> <li><input type="checkbox"/> Has difficulty with note-taking.</li> <li><input type="checkbox"/> Has difficulty with memory techniques.</li> <li><input type="checkbox"/> Has difficulty with test-taking.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Teach note-taking skills (subject, date, page numbers, two-column notes, summary section on the bottom of each page, notes on only one side of the page leaving the other side free for additional study notes, diagrams, graphic organizers, etc.).</li> <li><input type="checkbox"/> Provide photocopies of notes if required.</li> <li><input type="checkbox"/> Teach study skill strategies explicitly.</li> <li><input type="checkbox"/> Teach mnemonic strategies to assist memory.</li> <li><input type="checkbox"/> Provide adequate advance notice for tests.</li> <li><input type="checkbox"/> Provide study guides.</li> <li><input type="checkbox"/> Instruct students on how to develop study guides.</li> <li><input type="checkbox"/> Have students generate possible test questions prior to studying for an exam.</li> <li><input type="checkbox"/> Teach test-taking skills (e.g., strategy for questions to complete first, process of elimination for multiple choice and true and false questions, jot down a mini map or outline for an essay question, pay attention to signal words or key words).</li> </ul>

### Assessment Strategies and Adaptations

Always start with the simplest and least exclusionary adaptation and increase as needed to address the student's unique learning needs.

- Consider alternate ways to demonstrate deeper understanding of the subject.
- Include a variety of test questions: multiple choice, short answer, fill in the blank.
- Consider take home exams and open book tests in some cases.
- Allow test-taking adaptations as appropriate for each student:
  - Read the test question;
  - Allow the student to read his or her response aloud to you (the student may pick up on errors or identify where clarification is required);
  - Allow extra time;
  - Allow an alternate setting for writing the test;
  - Allow the test to be written in more than one sitting;
  - Allow access to a computer; and/or
  - Provide a scribe.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Reading - Part 1</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has limited comprehension.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Does not establish a purpose for reading.</li> <li><input type="checkbox"/> Problems recalling names of people, places, events, etc.</li> <li><input type="checkbox"/> Difficulty visualizing what is read.</li> <li><input type="checkbox"/> Difficulty deriving the main idea.</li> <li><input type="checkbox"/> Difficulty summarizing information.</li> <li><input type="checkbox"/> May also have difficulty comprehending what is heard and, therefore, may have difficulty following directions.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Teach critical vocabulary in depth.</li> <li><input type="checkbox"/> Teach comprehension strategies including skills in visualizing, summarizing, and determining the main idea.</li> <li><input type="checkbox"/> Provide a scaffold to help the student read actively.</li> <li><input type="checkbox"/> Clearly define the purpose for reading.</li> <li><input type="checkbox"/> Identify reading strategies that are appropriate for the identified task.</li> <li><input type="checkbox"/> Gradually transfer responsibility for defining purpose and selecting appropriate strategies to the student - provide monitoring and feedback.</li> <li><input type="checkbox"/> Teach comprehension with topics that the student has interest in and background knowledge about; help the student connect new information to existing knowledge (e.g., use Know/Want to Know/ Learned Charts).</li> <li><input type="checkbox"/> Use a variety of graphic organizers appropriate to the task (e.g., story maps, sequence of events charts, timelines, cause and effect charts, etc.); add visual cues.</li> <li><input type="checkbox"/> Have student highlight or underline important words and phrases in texts, handouts, and notes.</li> <li><input type="checkbox"/> Provide directions to students in simple, concise language and in sequential steps.</li> <li><input type="checkbox"/> Write directions on the board to provide both a visual and an auditory cue.</li> <li><input type="checkbox"/> Place the student away from sources of auditory and visual distraction.</li> </ul>

### Assessment Strategies and Adaptations

- Allow students to develop or complete a graphic organizer to demonstrate comprehension.



## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Reading - Part 2</b></p> <p><input type="checkbox"/> <b>Has difficulty interpreting information presented in a text.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Unable to differentiate relevant ideas from the details.</li> <li><input type="checkbox"/> Difficulty predicting.</li> <li><input type="checkbox"/> Difficulty making inferences.</li> <li><input type="checkbox"/> More of a literal than an abstract thinker.</li> <li><input type="checkbox"/> Literal interpretation of slang or figurative language.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Teach critical vocabulary in depth (identify essential and non-essential characteristics as well as examples and non-examples).</li> <li><input type="checkbox"/> Teach text structure for various genres.</li> <li><input type="checkbox"/> Teach students to use text format to support comprehension (title, subtitles, headings bold face and italicized words, glossary, chapter summaries, diagrams, charts, captions, etc.).</li> <li><input type="checkbox"/> Encourage student to ask questions prior to reading (SQ3R).</li> <li><input type="checkbox"/> Provide support for the student to monitor comprehension during reading (e.g., an outline, a graphic organizer, study guide, etc.).</li> <li><input type="checkbox"/> Provide summaries of the text and teach students how to develop summaries.</li> <li><input type="checkbox"/> Use partners for “Think-Pair-Share” to develop prediction and inferencing skills.</li> <li><input type="checkbox"/> Have students write the ending for a short story and listen to other students’ endings.</li> <li><input type="checkbox"/> Build students’ world knowledge.</li> <li><input type="checkbox"/> Build students’ schema knowledge.</li> <li><input type="checkbox"/> Build students’ understanding of motive.</li> <li><input type="checkbox"/> Cue students when figurative language is used and show meaning of figurative language.</li> </ul>

### Assessment Strategies and Adaptations

- Have students complete graphic organizers.
- Allow students to recall ideas orally.
- Assess the students’ understanding through a “Think-Pair-Share” and record answers.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Reading - Part 3</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has a slow reading rate (takes exceptionally long to read text).</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fluency or automaticity limited.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Reads slowly with a focus on identifying words.</li> <li><input type="checkbox"/> Words may be mispronounced, run together, or omitted.</li> <li><input type="checkbox"/> Lines may be skipped or reread.</li> </ul> </li> <li><input type="checkbox"/> May subvocalize or finger track print.</li> <li><input type="checkbox"/> Reading is choppy and disconnected.</li> <li><input type="checkbox"/> Little intonation or voice inflection.</li> <li><input type="checkbox"/> Silent reading is typically better than oral reading.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Select reading material at the student's instructional or independent reading level (may be several grade levels below current grade level).</li> <li><input type="checkbox"/> Set up buddy or paired reading with a fluent peer and have the buddy read grade-level text.</li> <li><input type="checkbox"/> Set up buddy reading with younger, less skilled readers, and have students do repeated readings to prepare for reading to buddy and develop fluency.</li> <li><input type="checkbox"/> Provide books on tape.</li> <li><input type="checkbox"/> Encourage students to reread selected passages to build fluency.</li> <li><input type="checkbox"/> Ensure that the student is well prepared in advance for any oral reading in front of the class.</li> <li><input type="checkbox"/> Encourage the student to use a ruler or a small index card to keep place when reading.</li> <li><input type="checkbox"/> Model dramatic reading and encourage students to do dramatic reading in partners.</li> <li><input type="checkbox"/> Use text to voice software programs.</li> </ul>

### Assessment Strategies and Adaptations

- Read test questions to the student.
- Provide a reader for exams.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Reading - Part 4</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has difficulty reading (decoding to identify words in print).</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fluency or automaticity limited.</li> <li><input type="checkbox"/> Difficulty distinguishing between similar speech sounds.</li> <li><input type="checkbox"/> Difficulty identifying letters or letter sounds.</li> <li><input type="checkbox"/> Difficulty matching letters and sounds.</li> <li><input type="checkbox"/> Difficulty developing sight word vocabulary.</li> <li><input type="checkbox"/> Unable to identify a word identified within a previous sentence or paragraph.</li> <li><input type="checkbox"/> Poor phonemic awareness.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulty sequencing sounds.</li> <li><input type="checkbox"/> Adds or omits letters, sounds, or syllables from words.</li> <li><input type="checkbox"/> Difficulty segmenting words into syllables or phonemes.</li> <li><input type="checkbox"/> Difficulty blending the sounds of phonemes together to form words.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Select reading materials at the student's instructional or independent reading level.</li> <li><input type="checkbox"/> Ensure that the student is well prepared and comfortable for any oral reading in class, or do not require the student to read aloud.</li> <li><input type="checkbox"/> Provide a reader (peer, teacher assistant, teacher) for tests.</li> <li><input type="checkbox"/> Set up buddy reading when appropriate.</li> <li><input type="checkbox"/> Provide books on tape for novels.</li> <li><input type="checkbox"/> Provide high interest - low vocabulary books (larger print, more white space, and other supports for the reader).</li> <li><input type="checkbox"/> Encourage the student to continue to develop phonological skills through special reading programs.</li> <li><input type="checkbox"/> Use available technological supports designed to assist weak readers (e.g., text to voice software).</li> <li><input type="checkbox"/> Mark written work for content with no discount of marks for spelling errors.</li> </ul>

### Assessment Strategies and Adaptations

- Read test questions to the student.
- Provide a reader or scribe for exams, as required.
- Do not discount marks for spelling errors.
- Allow the student to use a spell check for assignments and tests.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Written Expression - Part 1</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Limited ability to organize and/or communicate ideas in speaking and/or writing.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulties generating and organizing ideas.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulty choosing a topic.</li> <li><input type="checkbox"/> Unable to generate new ideas.</li> <li><input type="checkbox"/> Ideas are over simplistic.</li> <li><input type="checkbox"/> If complex ideas can be expressed orally, student is unable to write ideas on paper.</li> <li><input type="checkbox"/> Overuse of a few common words.</li> <li><input type="checkbox"/> Sentences are simplistic.</li> <li><input type="checkbox"/> Unable to write concise or logical sentences.</li> <li><input type="checkbox"/> Loses train of thought easily when composing.</li> </ul> </li> <li><input type="checkbox"/> Difficulty with production of written work.                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Extremely short, underdeveloped written product.</li> <li><input type="checkbox"/> Writing rambles without a clear beginning, middle, or end.</li> <li><input type="checkbox"/> Lacks knowledge of effective strategies such as prewriting, revising, and editing.</li> <li><input type="checkbox"/> Experiences extreme fatigue when composing.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide writing opportunities that are meaningful and interesting for the student.</li> <li><input type="checkbox"/> Model and facilitate brainstorming to generate ideas for writing.</li> <li><input type="checkbox"/> Provide a frame or structure to support writing.</li> <li><input type="checkbox"/> Explicitly model and facilitate each step of the writing process with students.</li> <li><input type="checkbox"/> Teach students the metacognitive skills required for writing well, and provide meaningful feedback.</li> <li><input type="checkbox"/> Teach students to use graphic organizers to support organization of writing (e.g., story maps/webs, flowcharts, time lines, outlines).</li> <li><input type="checkbox"/> Have the student write ideas on “post-it” notes to assist with sequencing ideas.</li> <li><input type="checkbox"/> Have the student use a checklist to ensure that steps in the writing process are followed and completed.</li> <li><input type="checkbox"/> Encourage the student to read written work aloud (to peers or teacher) to identify areas for improvement.</li> <li><input type="checkbox"/> Allow the student to improve a few selected writing pieces rather than producing many undeveloped pieces of writing.</li> <li><input type="checkbox"/> Set up “guided writing” groups to focus on developing specific skills (e.g., topic sentence, descriptive language, etc.).</li> </ul>

### Assessment Strategies and Adaptations

- Assign marks for completed steps in the writing process.
- Hold writing conferences with the student throughout various stages of the writing process to provide scaffolded support, more immediate feedback, and an opportunity to revise work with guidance.
- Provide rubrics and exemplars and encourage the student to self-assess and peer-assess written products.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Written Expression - Part 2</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Limited spelling, punctuation, capitalization, and/or grammar.</li><li><input type="checkbox"/> Phonetic spellings.</li><li><input type="checkbox"/> Letters improperly sequenced.</li><li><input type="checkbox"/> Difficulty with silent letters.</li><li><input type="checkbox"/> Achieves correct spelling on spelling tests but forgets very quickly.</li><li><input type="checkbox"/> Composition problems confounded by poor spelling.</li><li><input type="checkbox"/> Punctuation, capitalization, and grammar are compromised.</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Teach revising and editing strategies and provide checklists.</li><li><input type="checkbox"/> Provide opportunities for peer and adult editing with the student.</li><li><input type="checkbox"/> Encourage self-assessment.</li><li><input type="checkbox"/> Review work prior to final submission.</li><li><input type="checkbox"/> Provide a word bank of commonly used words that are misspelled.</li><li><input type="checkbox"/> Encourage the student to keep and use a personal dictionary of frequently misspelled words.</li><li><input type="checkbox"/> Have the student use a computer, spell check and/or word prediction software such as Co-Writer, What You Need Now (WYNN), or Kurzweil to support production of written work.</li></ul>

### Assessment Strategies and Adaptations

- Do not penalize the student for spelling errors on tests and assignments.
- Allow the student to use a computer and spell check for all assignments and tests.
- Encourage the student to self-assess using word lists.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Written Expression - Part 3</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has difficulty with motor aspects in the production of writing.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compromised fine motor skills.</li> <li><input type="checkbox"/> Difficulty remembering how to produce the appropriate letters and symbols (graphomotor difficulties).</li> <li><input type="checkbox"/> An inability to produce written text that is legible (i.e., text that is spaced, formed and sized appropriately).</li> <li><input type="checkbox"/> Lacks graphomotor fluency with symbols, words, and sentences.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide the student with partially completed notes.</li> <li><input type="checkbox"/> Provide a photocopy of a peer's notes.</li> <li><input type="checkbox"/> Set up a buddy system to support note taking.</li> <li><input type="checkbox"/> Accept alternatives to written products to demonstrate knowledge (e.g., oral presentations or models).</li> <li><input type="checkbox"/> Have the student present written product on a recorded tape.</li> <li><input type="checkbox"/> Experiment with an AlphaSmart computer.</li> <li><input type="checkbox"/> Encourage the student to develop keyboarding skills and access a computer.</li> <li><input type="checkbox"/> Consider the use of voice to text software such as Dragon Naturally Speaking.</li> </ul>

### Assessment Strategies and Adaptations

- Allow the use of a word processor to complete tests.
- Accept point form answers or a completed graphic organizer for assignments and/or tests.
- If extended time is required, consider a take-home test for part of the evaluation.
- Allow oral testing (may only be required in some instances, or for portions of the test).
- Provide a scribe.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 1</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has difficulty with mathematical reasoning.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulty with classification.</li> <li><input type="checkbox"/> Problems with spatial relationships.</li> <li><input type="checkbox"/> Problems with temporal relationships.</li> <li><input type="checkbox"/> Lack of estimation skills.</li> <li><input type="checkbox"/> Inability to recognize equivalence.</li> <li><input type="checkbox"/> Inability to transfer numerals from one form to another (e.g., 20 = twenty).</li> <li><input type="checkbox"/> Whispers when performing math.</li> <li><input type="checkbox"/> Difficulty with abstractions (e.g., needs manipulatives long after other students discard them).</li> <li><input type="checkbox"/> Difficulty putting mathematical ideas into words and/or difficulty understanding mathematical ideas when expressed verbally.</li> <li><input type="checkbox"/> Difficulty generalizing mathematics to new situations, other academic areas, or real life.</li> <li><input type="checkbox"/> Tries to memorize mathematics rather than learn concepts.</li> <li><input type="checkbox"/> Cannot use a calculator or computer for mathematics.</li> <li><input type="checkbox"/> Experiences math anxiety and avoidance.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Provide opportunities for easy computations in order to build a feeling of confidence until new math processes are more deeply understood.</li> <li><input type="checkbox"/> Allow students to use concrete supports and guide them to use more age-appropriate supports such as a ruler or calculator rather than counting on fingers.</li> <li><input type="checkbox"/> Provide opportunities for partner or small group math work, with an emphasis on thinking and discussing math problem-solving approaches.</li> <li><input type="checkbox"/> Have the student complete a math learning journal.</li> <li><input type="checkbox"/> Provide scaffolded instruction in areas of difficulty or misunderstanding.</li> <li><input type="checkbox"/> Reinforce math reasoning skills through games.</li> <li><input type="checkbox"/> Connect math to real life and daily living activities.</li> <li><input type="checkbox"/> Use real life examples.</li> <li><input type="checkbox"/> Incorporate mathematical thinking and reasoning into other subject areas.</li> <li><input type="checkbox"/> Work to ensure that the student feels supported as a learner (student and teacher working together against the task).</li> </ul>

Assessment Strategies and Adaptations
<ul style="list-style-type: none"> <li><input type="checkbox"/> Allow the student as much time as needed to work through math problems; initially, focus on deeper understanding rather than speed.</li> <li><input type="checkbox"/> Give the student credit for correct mathematical thinking even when the answer is not correct.</li> <li><input type="checkbox"/> Allow the student to use a calculator for sections of the test.</li> <li><input type="checkbox"/> Allow the student the opportunity to rewrite and work towards a deeper understanding of math problems when unsuccessful on the first attempt.</li> </ul>

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 2</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Has difficulty with problem solving.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Difficulty reading word problems.</li> <li><input type="checkbox"/> Approaches solving problems unsystematically.</li> <li><input type="checkbox"/> Does not know if an answer to a problem is logical.</li> <li><input type="checkbox"/> Solves mathematical problems very slowly.</li> <li><input type="checkbox"/> Inability to choose or focus on important details.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Have the student highlight key words in problems.</li> <li><input type="checkbox"/> Have the student represent the problem through pictures.</li> <li><input type="checkbox"/> Have the student explain the math problem in his or her own words.</li> <li><input type="checkbox"/> Read the word problems to the student.</li> <li><input type="checkbox"/> Teach students the problem solving steps.</li> <li><input type="checkbox"/> Reteach math vocabulary.</li> <li><input type="checkbox"/> Have the student estimate answer prior to doing the calculation.</li> <li><input type="checkbox"/> Encourage the student to solve the same problem using several different strategies.</li> <li><input type="checkbox"/> Encourage the student to “think about his or her thinking” in mathematics.</li> <li><input type="checkbox"/> Use mathematical problems that relate to the students’ life experiences and interests.</li> </ul>

### Assessment Strategies and Adaptations

- Read the word problems to the student.
- Have the student restate and explain the math problem in his or her own words.
- Expect fewer questions completed for an assignment or test, but provide additional marks for solving the same problem several different ways.
- Encourage the student to demonstrate mathematical thinking orally and provide the support of prompts if needed.
- Invite the student to describe what he or she will use as evidence of mathematical understanding.



## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 3</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Has difficulty with computation skills.</b><ul style="list-style-type: none"><li><input type="checkbox"/> Inability to remember basic facts or procedures.</li><li><input type="checkbox"/> Inability to perform basic operations.</li><li><input type="checkbox"/> Inability to choose correct procedures.</li><li><input type="checkbox"/> Inability to do simple mental arithmetic.</li><li><input type="checkbox"/> Resorts to counting on fingers.</li><li><input type="checkbox"/> Lacks fluency or automaticity in mathematical performance.</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Encourage the student to use multiplication tables, number lines, and fact sheets.</li><li><input type="checkbox"/> Allow the student to use a calculator.</li><li><input type="checkbox"/> Have the student “think aloud” as he or she completes a math procedure; provide scaffolded support and feedback as required.</li><li><input type="checkbox"/> Have the student talk aloud through the math procedure or write out math steps/procedure.</li><li><input type="checkbox"/> Have the student estimate the answer prior to completing the calculation when appropriate.</li><li><input type="checkbox"/> Have the student highlight operation signs in an equation.</li></ul>

### Assessment Strategies and Adaptations

- Allow the use of multiplication tables, number lines, fact sheets, formula sheets, etc.
- Allow the use of a calculator when appropriate.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 4</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Has difficulty with number concepts and place value.</b><ul style="list-style-type: none"><li><input type="checkbox"/> Lack of number sense (e.g. realizing that when you add to a number, the new number is larger, or that 1,000,000 is much bigger than 10,000).</li><li><input type="checkbox"/> Difficulty understanding number system, number organization, and quantity of numbers.</li><li><input type="checkbox"/> Inability to cluster visually (e.g., recognize the quantity of a few objects through observation, rather than counting).</li><li><input type="checkbox"/> Problems recognizing patterns.</li><li><input type="checkbox"/> Problems visualizing mathematics concepts.</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Teach math vocabulary explicitly in conjunction with math skills.</li><li><input type="checkbox"/> Apply math skills through simple mental math and estimating activities.</li><li><input type="checkbox"/> Reinforce math skills and concepts through games.</li><li><input type="checkbox"/> Connect math to daily living activities and use real life examples.</li><li><input type="checkbox"/> Have the student work through math questions with a “like-ability” peer or partner.</li></ul>

### Assessment Strategies and Adaptations

- Allow the use of manipulatives in an assessment situation.
- Encourage students to create visuals and use a variety of strategies in a testing situation.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 5</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Has difficulty sequencing numbers and steps.</b><ul style="list-style-type: none"><li><input type="checkbox"/> Problems with sequencing (e.g., counting, time, schedules, ideas).</li><li><input type="checkbox"/> Difficulty working in correct direction when performing math calculations.</li><li><input type="checkbox"/> Makes numerous, careless errors.</li><li><input type="checkbox"/> Difficulty following models.</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Provide models or cue cards for various math processes to show the sequence of steps.</li><li><input type="checkbox"/> Encourage the student to think and talk aloud through the process.</li><li><input type="checkbox"/> Have the student explain the steps in his or her own words in a math journal.</li><li><input type="checkbox"/> Provide acronyms (e.g., BEDMAS, FOIL) for math processes.</li><li><input type="checkbox"/> Use graph paper to help keep work organized and reduce errors.</li><li><input type="checkbox"/> Have the student self-check work by estimating rather than calculating the answer to some questions.</li><li><input type="checkbox"/> Have the student spot check work with peers.</li><li><input type="checkbox"/> Have the students work through math problems in “like-ability” pairs.</li><li><input type="checkbox"/> Allow the use of a calculator to self-check.</li></ul>

### Assessment Strategies and Adaptations

- Allow the student to use a number line or other concrete supports.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 6</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> <b>Has difficulty copying numbers accurately from the blackboard, textbook, or overhead to paper.</b><ul style="list-style-type: none"><li><input type="checkbox"/> Difficulty with one-to-one correspondence.</li><li><input type="checkbox"/> Misaligns written numerals on paper.</li><li><input type="checkbox"/> Leaves numerals out (e.g., 55 for 525).</li><li><input type="checkbox"/> Perseverates on numerals (e.g., 444 for 44).</li><li><input type="checkbox"/> Work is difficult to read and sometimes illegible.</li></ul></li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Have the student use graph paper (enlarged graph paper if necessary).</li><li><input type="checkbox"/> Provide a written copy of questions with room to do calculations directly on the question sheet to reduce copying errors.</li><li><input type="checkbox"/> Enlarge numbers.</li><li><input type="checkbox"/> Allow additional time for assignments to accommodate fine motor difficulties.</li><li><input type="checkbox"/> Allow the student to use a calculator.</li><li><input type="checkbox"/> Check that the student has work copied correctly and aligned correctly prior to calculations.</li><li><input type="checkbox"/> Monitor the student's progress throughout the work period.</li></ul>

### Assessment Strategies and Adaptations

- Allow additional time for tests.
- Allow the student to use a calculator.
- Monitor the student's progress throughout the work period.
- Provide prompts to repair errors in copying.

## ACADEMIC DIFFICULTIES

Description of Specific Areas of Difficulty	Instructional Strategies and Adaptations
<p><b>Mathematics - Part 7</b></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Has difficulty differentiating between similar numbers (13/31) and symbols (&lt;/&gt;).</li><li><input type="checkbox"/> Confuses mathematical signs and symbols (e.g., =, +, x, &gt;, &lt;).</li><li><input type="checkbox"/> Reverses numerals or symbols.</li></ul>	<ul style="list-style-type: none"><li><input type="checkbox"/> Combine number words with symbols (e.g. 10 (ten), + (add)).</li><li><input type="checkbox"/> Have the student highlight key words.</li><li><input type="checkbox"/> Use visual cues when the student must change operations.</li><li><input type="checkbox"/> Highlight or color code symbols.</li><li><input type="checkbox"/> Have the student articulate the mathematical process prior to completing the calculations.</li><li><input type="checkbox"/> Provide a written copy of questions with room to do calculations directly on the question sheet to reduce copying errors.</li></ul>

### Assessment Strategies and Adaptations

- Teach students strategies for checking work.
- Have the student read work aloud and check for errors.