The Students:

English language learners

- are adding English to one or more existing languages
- have a wide variety of strengths in addition to needs
- may have been born in Canada but speak a language other than English at home
- may be Canadian-born. Students may be Aboriginal, from a home that has maintained a distinct language and culture (for example, Mennonite), or live in immigrant communities where a language other than English is the dominant language
- may come from other countries around the world
- may have arrived from other countries where the variety of English spoken is very different than the English used in Ontario schools (for example, Caribbean or Creole English)
- may have acquired strong learning skills because they have had to survive and thrive in a new culture and community
- may have come to Canada for the rich academic opportunities available, which often provides great motivation to succeed and a strong respect for education
- may provide a global perspective to the classroom and may be able to offer insights related to science topics from unique vantage points
- may not have had the opportunity to attend school regularly and/or may have experienced a type of learning environment dramatically different from schools in Ontario
- may have experienced a different approach to teaching and learning such as "rote learning" (a memory-based teaching approach where analysis and critical thinking skills are not the focus)
- may be lacking prior knowledge in science. These students may not be familiar with skills and knowledge in areas such as estimation, metric calculations, North American technologies, the use of graphic organizers, and persuasive writing forms that we assume is in place

Learning English

If English language learners have strong first-language skills, they often learn English very quickly. Conversational fluency often develops within the first two years, but their grasp of academic language takes much longer. Most English language learners are at the same cognitive level as their Englishspeaking peers, but they have a temporary language hurdle to overcome. They often miss the "hidden curriculum" of school language, which includes instructional language, reading and writing formats, teaching and assessment approaches, cultural knowledge, and the many unique features associated with the new learning environment. These aspects of teaching and learning may require explicit instruction to help English language learners keep pace with their English-speaking peers.

For those English language learners who have not developed strong first-language skills, a greater challenge exists. If they have never learned to read or write in their first language they will be in the process of developing the full range of literacy skills in English in addition to science content. These learners often take longer to access the curriculum.

English language learners may avoid risk taking. Some students may feel self conscious about their level of English. Other students may come from a culture that discourages self advocating. Teachers can help learners to feel more confident by acknowledging first language skills. It is important to take the time to get to know these students as individuals. Informally talk to the students about the curriculum and their previous learning experiences. Understanding their circumstances will enable you to create an environment where students feel safe and where they can learn science as their knowledge and use of the English language grows.

Instructional Strategies for English Language Learners

It takes seven to ten years to become fully proficient in a second language. It can appear as if English language learners have proficient English skills when they are able to converse using basic interpersonal English skills. This ability to communicate with teachers and peers about everyday events using basic vocabulary allows these learners to interact and integrate into the social environment of the classroom. However, academic language presents considerable challenges to English language learners during this basic communication stage and for several years to come. Many of the complex sentence structures used in a science class will not be used in everyday language. Students will require additional on-going support to be able to understand and use these grammatical forms as well as to develop science-specific terminology, read new print formats, and wade through material that is embedded with new cultural information.

Science teachers support English language learners when they do the following:

- Know the Student's Starting Point
 - Consult and collaborate with the person responsible for English language learners in your school.
 - Find out about students' prior experience with English and which language they are most comfortable using.
 - Determine the level of students' previous schooling.
 - Find out about English language learners' educational background and previous learning experiences. English language learners may have learning exceptionalities that will influence progress. Find out to what extent each student is able to read, write, and speak in his or her first language.
 - Keep in mind that personality, aptitude and motivation can be a factor in language acquisition.
 - Be aware of the acculturation period—it is typical for immigrants to experience emotional volatility upon entering, and then settling into, a new country and culture. It is not atypical that learners may be elated, angry, depressed, or disconnected during this period of adjustment.
- Provide an Accepting Environment
 - See your English language learners as assets.
 - Challenge and engage students no matter what their starting point.
 - Encourage involvement and efforts to interact in English. English language learners need many opportunities to extend conversation with peers and teachers.
- Value Students' First Language
 - Provide students with the opportunity to brainstorm, take notes, and write first drafts in their first language.
 - Encourage English language learners to discuss concepts and processes with peers who speak the same first language in that language. Using their first language allows English language learners to focus on science concepts at a deeper level rather than being held back from learning because of their current level of English proficiency.
- Provide Scaffolds
 - Simplify language to make the content more accessible. At least 80 percent of the language that English language learners encounter should be understandable while the balance should be possible to infer within the context of learning.

- Provide visual support and rich, yet simplified, auditory support to minimize complex language structures.
- Print key instructional vocabulary on the board as it is being used. Provide synonyms, examples, and non-examples.
- Provide Wait Time
 - Allow additional time for students to process information and respond. It takes time to think in a second language.

Provide Specific Feedback

Making mistakes is a normal part of learning a second language. First respond to the content of what the student is saying or writing and then model or rephrase in a respectful way.

• Activate Prior Knowledge

• Do not assume that English language learners have the background knowledge on which many of the science concepts and skills are built. Find out what students know as it relates to their country of origin or prior learning experiences to effectively tap into prior knowledge. English language learners may not have been exposed to the Ontario curriculum so there may be gaps in their learning.

• Front-end Load Instruction

- Provide English language learners with a concept map at the beginning of a unit. This map can be revisited throughout each chapter to connect, review, and reinforce concepts as they are introduced. Add key information as the unit progresses, and show English language learners how to use the map as a study guide.
- Pre-teach critical vocabulary, and revisit it throughout the unit. Support comprehension of written instructions by highlighting key verbs and explaining them in simple language.
- Provide many pre-reading activities. Start with handson activities and then examine the text. Talk about print format, text features, and syntactical forms.
- Teach English language learners how to find references to the Big Ideas as they read, and to determine the meaning of unknown words (for example, by using a bilingual dictionary).
- Use graphic organizers to introduce students to key concepts and to relate concepts to one another before reading a section of text (to build background information and guide reading of dense text).

- Prepare an outline for students to fill in while reading, as a scaffold for note taking.
- Share reading the text: Use a jigsaw approach so the English language learner only has to be an expert on a small portion of text prior to using it in class.

These strategies for "front loading" allow English language learners to hear and use the language that they will encounter in the text. Using these techniques will ensure that learners get more out of instruction and that they are learning the academic language of the discipline.

Assessment for English Language Learners

• Check Understanding Often

Assessment for learning needs to happen on an ongoing basis to determine if English language learners are understanding the concepts, and to determine if there are any language barriers that are getting in the way. It is important to do quick, continuous checks of English language learners' understanding. Consider having them draw sketches or use other visuals, such as graphic organizers, which require less language usage to check understanding.

• Use a Variety of Grouping Strategies

Consider partnering English language learners with students with strong English skills. Triads allow English language learners to participate at a level suitable for their English proficiency while learning concepts. Encourage Englishspeaking students to clarify directions, discuss concepts, and review materials. Talk to students to determine their preferences for the types of peer support that they need.

• Provide Assessment Accommodations

It is essential to provide English language learners with accommodations that allow them to demonstrate their knowledge of science concepts while they overcome temporary English-language hurdles. Assessment can take a variety of forms: written pieces, audio-digital recordings, podcasts, observations, creative work, discussions, oral responses. As much as possible, assess students' progress to determine if learning has taken place.

Examples of Assessment Accommodations

- Be sensitive to English language learners' comfort and needs by asking for group responses (for example, thumbs up/thumbs down, response boards, self assessment).
- **2.** Adapt the number of items that the English language learner is expected to complete.

- **3.** Simplify or rephrase instructions.
- 4. Provide additional time, and break tasks into chunks.
- **5.** Read assessment items aloud to the English language learner. (If you are looking for an English language learner's content knowledge, not his or her ability to read directions, it is appropriate to have someone else help with the reading or with clarifying the expectation of the task.)
- **6.** Allow English language learners to use a dictionary (dual language, if suitable).
- **7.** Adapt what "product" you expect the English language learner to produce (for example, permit drawings as a method of explaining one's thinking).
- **8.** Allow for oral assessment if a student's writing skills lack sufficient clarity or if a student lacks the language skills to elaborate. (This could be in the student's first language, if appropriate.)
- **9.** Allow an English language learner's completed graphic organizer or concept map to be an assessment piece, accompanied by a student-teacher conference to clarify concepts represented in the visual product.
- **10.** Use observation and anecdotal assessment methods as a more authentic assessment strategy to observe English language learners demonstrating their knowledge during meaningful activities.

Placement

Initial placement in a course should be tentative. Monitor English language learners closely to determine if they may be better suited for the academic level. Consult with the student, the ESL teacher, and parents regularly to ensure that their aspirations can be realistically met.