
SECTION 4: DOCUMENT ORGANIZATION

Document Organization and Format 3

Guide to Reading the Specific Learning Outcomes and the Document Format 3

DOCUMENT ORGANIZATION

Document Organization and Format

The suggestions for instruction and assessment and the appendices contained within *Senior 3 Current Topics in the Sciences: A Foundation for Implementation* provide teachers and other science educators with a plan for achieving the specific student learning outcomes identified for this curriculum. The document is organized according to, and implementation is primarily driven by, four General Learning Outcomes (GLOs):

- GLO A: Nature of Science and Technology
- GLO B: Science, Technology, Society, and the Environment (STSE)
- GLO C: Scientific and Technological Skills and Attitudes
- GLO D: Essential Concepts

Due to the unique nature of these four foundation areas, there are necessary differences in how each of the GLO sections appears in this document. In keeping with a generally *constructivist* approach to the teaching and learning cycle, teachers will find headings such as **Activating**, **Acquiring**, and **Applying**. Within each of these are instructional suggestions that offer teachers a range of strategies from which to select appropriate directions with students.

In addition, the appendices comprise information on unit development, teacher support materials related to instruction and assessment, and assessment rubrics. These complementary resources are closely linked to the learning outcomes, and are designed to support, facilitate, and enhance student learning and assessment.

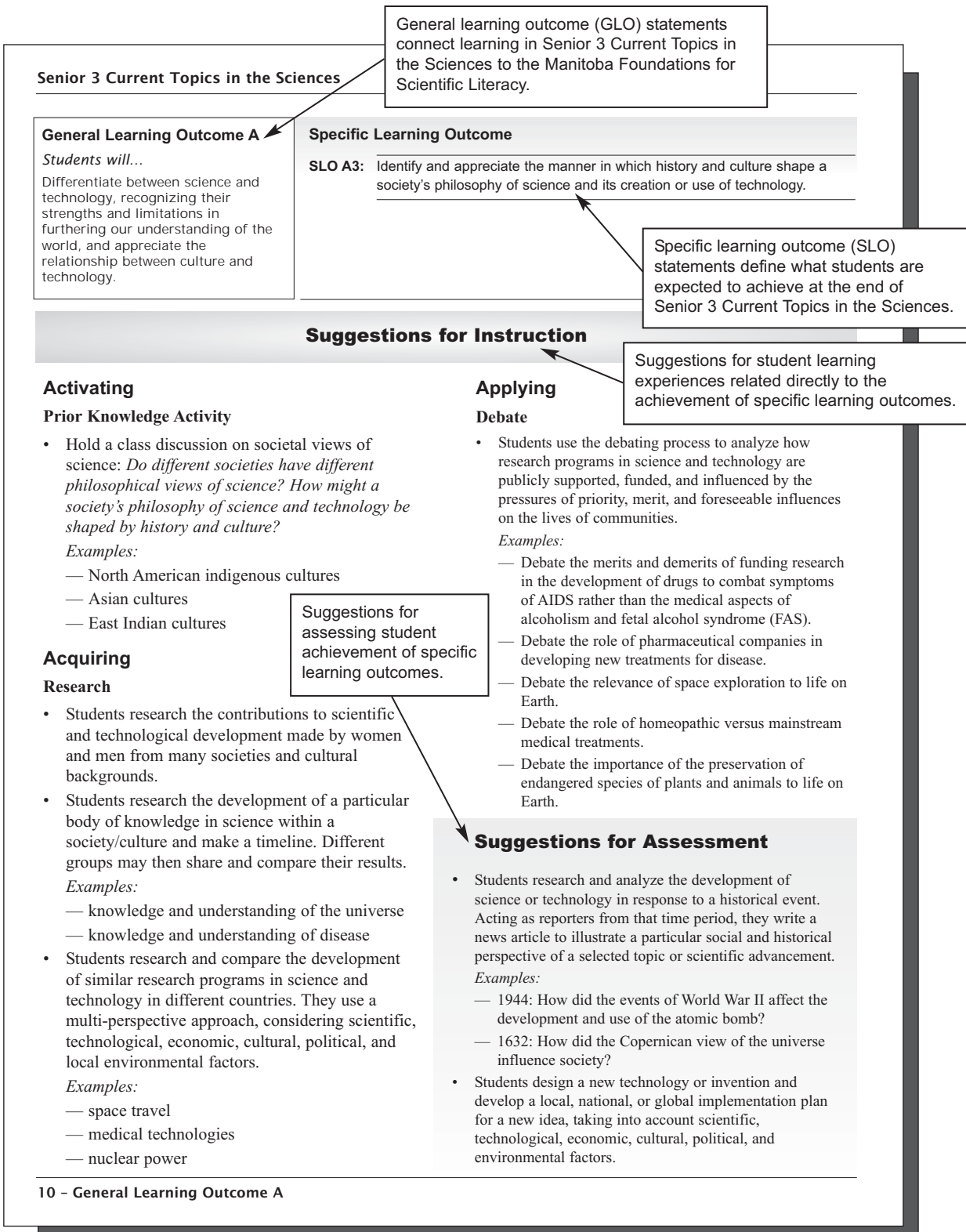
Guide to Reading the Specific Learning Outcomes and the Document Format

The GLO sections are organized as follows:

- The **General Learning Outcomes** identified in the header outline the intended learning to be achieved by the student by the end of the curriculum. The GLOs are supported by the **specific learning outcomes (SLOs)** related to the particular foundation area being addressed.
- The **Suggestions for Instruction** relate directly to the achievement of the specific learning outcome(s) identified at the top of a page.
- The **Suggestions for Assessment** offer strategies for assessing students' achievement of the specific learning outcomes.
- **Teacher Notes** boxes allow for handwritten planning hints, notes on special interest material, and depth of treatment on certain issues related to the learning outcomes. These are incorporated as text boxes throughout.

The pages that follow provide detailed clarification on reading the document format, and are based on a sample, two-page spread from *Senior 3 Current Topics in the Sciences: A Foundation for Implementation*.

Document Format



General Learning Outcome A | Nature of Science and Technology

General Learning Outcome A

Students will...

Differentiate between science and technology, recognizing their strengths and limitations in furthering our understanding of the world, and appreciate the relationship between culture and technology.

Specific Learning Outcome

SLO A4: Recognize that science and technology interact and evolve, often advancing one another.

Suggestions for Instruction

Activating

Prior Knowledge Activity

- In a class discussion, produce a web showing the interconnections between science and technology, using specific examples generated by the students.

Examples:

- Analyze the numerous steps involved in refining petroleum to obtain gasoline and a variety of additives for car engines.
- Examine the production of hydroelectricity.

Acquiring

Development of Concepts

- Students identify, analyze, and describe examples where scientific understanding was enhanced or revised as a result of the invention of a technology.

Examples:

- Investigate and describe how seismology has assisted geoscientists in furthering our understanding of the Earth’s interior through applications such as seismic tomography.
- How did the development of the telescope alter society’s understanding of the universe and humanity’s place within it?
- How did the refinement of X-ray crystallography techniques lead to the determination of the structure of deoxyribonucleic acid (DNA)?
- How do the following relate or interact: the development of particle accelerators, the discovery of subatomic particles, and the revision of atomic theory?
- Students analyze natural and technological systems to interpret and explain their structure and dynamics.

Applying

- Students describe the functioning of domestic, industrial, or medical technologies by identifying the scientific principles contained in their design.

Examples:

- What principles of physics are involved in the design and use of technologies related to computerized axial tomography (CAT scan) or magnetic resonance imaging (MRI)?
- Describe the development of the aerospace industry and the modern airplane.

Teacher Notes

Teacher Notes boxes provide opportunities to annotate and personalize the document. These occur throughout the GLO sections.

