

Why Do We Invent?

Mod.1.3b

TIME

120 minutes

OVERVIEW

Students explore the concept of “inventions.” Through investigation, students observe that an invention is the result of trying to meet a need that might make life easier or more pleasant. They write a paragraph explaining their choice for “the world’s greatest invention.”

Note: Mod.1.3b: Why Do We Invent? may be revisited periodically during the *Inventions, Innovations, and Discoveries* interdisciplinary unit, as students identify more inventions.

LEARNING OUTCOMES

Through this learning experience (LE), students will achieve specific learning outcomes (SLOs) in various subject areas. Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified.

English Language Arts

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 1.1.1 *Express Ideas* — Engage in exploratory communication to share personal responses, make predictions, and discover own interpretations.
- 1.1.2 *Consider Others’ Ideas* — Select from others’ ideas and observations to develop thinking and understanding.
- 1.2.1 *Develop Understanding* — Reflect on prior knowledge and experiences to arrive at new understanding.
- 1.2.4 *Extend Understanding* — Appraise ideas for clarity and ask extending questions; select from others’ experiences and ideas to extend ways of knowing the world.
- 2.3.3 *Vocabulary* — Experiment with ambiguity in language [such as puns, jokes based on multiple meanings, poetry...] in a variety of contexts.
- 2.3.4 *Experiment with Language* — Alter words, forms, and sentence patterns to create new versions of texts for a variety of purposes [such as humour...]; explain ways in which figures of speech [such as similes, metaphors...] clarify and enhance meaning.
- 2.3.5 *Create Original Texts* — Create original texts [such as letters, short stories, media broadcasts, plays, poems, video presentations, Readers Theatre...] to communicate and demonstrate understanding of forms and techniques.
- 3.1.2 *Ask Questions* — Formulate relevant questions to focus information needs for an inquiry.

Science

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- SLOs related to Scientific Inquiry or the Design Process in Cluster 0: Overall Skills and Attitudes.

Social Studies

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which SLOs students may achieve, in addition to those identified below:

- 6-KI-011 Describe daily life on a prairie homestead between 1890 and 1914.
Examples: survey system, role of women, challenges facing early settlers, education...
- 6-VL-010 Appreciate the efforts of people in early Canada to overcome environmental hardships.
- 6-KE-056 Relate stories of the Depression and describe its impact on Canada.
Examples: changes in agricultural practices, development of the social safety net, new political parties...
- 6-KE-057 Give examples of the impact of technological development on life in Canada from 1914 to 1945.
Examples: electricity, telecommunication, transportation, medicine, industrialization...
- 6-KE-058 Give examples of ways in which industry and technology have changed life in Canada since 1945.
Examples: urbanization, transportation, communication, education...
- 6-KE-059 Give examples of inventions and technologies created in Canada.
Examples: kayaks, snowmobiles, Canadarm, insulin, canola...
- 6-KL-026 Describe the influence of the natural environment on life in Canada.
- 6-KL-026A Describe the influence of the land on their First Nation, Inuit, or Métis identity.
Examples: values, beliefs, traditions, customs, art, clothing...

ICT LITERACY SKILLS AND COMPETENCIES

Consider the intent of this LE and your choice of instructional and assessment strategies to determine which skills and competencies students may achieve, in addition to those identified below:

- basic operating skills
- inquiry using electronic sources
- word processing

SUGGESTED LEARNING RESOURCES

Software

- word processor

Internet

- IMYM Links Database: <<http://www.edu.gov.mb.ca/ks4/tech/imym/resources/links.html>>
- Search the Internet using the terms “sayings” and “idioms.”

CD-ROM

- electronic encyclopedia

Video

- video about inventions

Print

- survival stories (see Fiction section of Selected Bibliography)
- Appendix C: Index of Teaching and Learning Strategies and Tools

BLMs

- BLM OLE.4#6: Reading Circle Response Log
- BLM Mod.1.3a#1: Sample Timeline of Discoveries
- BLM Mod.1.3b#1: Why Do We Invent?

- BLM Mod.1.3b#2: Categorizing Inventions

SUGGESTIONS FOR INSTRUCTION

Preparation and Set-up

- Place Bookmarks or Favourites of appropriate websites from the IMYM Links Database on the class computers, or place them as links on the class website.
- It may be useful to proceed with OLE.4: Reading Circles, and study a survival story such as *Hatchet* by Gary Paulson (see Selected Bibliography).

Activating Strategies

- **Note:** Teach concepts such as discoveries, inventions, and innovations separately to facilitate clearer understanding. Start with discoveries and proceed in a similar fashion on consecutive days for inventions and innovations.
- Students look up the meaning of “invention” in the dictionary. Observe whether students can describe how “invention” is different from “discovery.”
- Show a movie or a segment of a movie about inventing (e.g., classics such as *Swiss Family Robinson* or *Robinson Crusoe* and more recent movies such as *Flubber*).
- Find whether and when a TV show such as *Junkyard Wars* or *Red Green* is scheduled.
 - The participants in *Junkyard Wars* are told to create a machine that will perform a specific task using only materials that are found in the junkyard where the show is filmed.
 - Red Green invents many bizarre creations, to solve a “need” he identifies, using duct tape.
- Students brainstorm inventions that are based on behaviour or phenomena observed in nature (e.g., scuba palms and flippers from webbed duck feet, camera lens from dilating pupil of eye). What role does nature play in inventing?
- Discuss the saying “Necessity is the mother of invention.” What do students think it means? Can students think of other sayings that would apply to learning, inventions, or discoveries? (Examples: “You can’t teach an old dog new tricks.” “Build a better mousetrap.”)
- Students visit an Internet site that displays old technology in the home (see IMYM Links Database).

Acquiring Strategies

- Students interview parents, grandparents, Elders, and other members of their community about inventions that have improved their lives. They ask for stories about the past that show problem solving, determination, and resourcefulness in the face of challenges. Brainstorm for appropriate interview questions that will result in appropriate answers and useful information. (See TBLM ICT.10#1: Questioning.)
- As a class, list inventions that have been mentioned during the interviews. Students use BLM Mod.1.3b#1: Why Do We Invent? to list each invention, what it replaced, and how it has made a difference in people’s lives.
- Students use BLM Mod.1.3b#2: Categorizing Inventions to sort inventions identified in their interview into categories (e.g., transportation, work, communication, health, household, or any other suitable category). They identify which inventions are essential to our lifestyle (e.g., indoor plumbing), which have made a life-saving difference (e.g., antibiotics), and which are merely pleasant or have improved our comfort (e.g., CD players). Concept-mapping software can be used as an alternative to the BLM.
- Make a Picture Splash of “modern conveniences” or “technological inventions” made since 1900. Arrange inventions by decades on different posters. Discuss with students suitable categories such as homes, transportation, communication, health, occupations, or industry,

and make posters by category. Students contribute ideas for each poster and find or create matching illustrations.

Applying Strategies

- As a class, review the categories students have identified and the inventions they have included in each. Students attempt to explain patterns in the data. They may observe that one person considers an item to be essential, while another person considers it to be just pleasant. By reviewing the items listed in each category, can a conclusion be drawn about the kinds of inventions that are found in each category? (For example, those that have made a life-saving difference are mainly of a medical nature.)
- Students add to this list periodically as they identify other inventions throughout the *Inventions, Innovations, and Discoveries* interdisciplinary unit. Emphasize Canadian inventions and relate them to the social conditions and historical events of the time.
- Students write a paragraph based on the class discussion, using word-processing software. They make use of signal or transition words while explaining what they think is the world's greatest invention, giving reasons for their choice, and describing what needs the invention has met. This task could also be done using BLM OLE.4#6: Reading Circle Response Log.

Variations/Extensions

- Based on interviews with their parents, grandparents, Elders, or other members of their community, students write a text on whether they think it is easier growing up today than it was one or two generations previously. They support their claim with examples based on their research.
- Based on the class discussion, students complete an Exit Slip describing an invention they would like to see developed and what needs it would meet.
- Divide students into two groups. Publish two class newspapers (see OLE.9: Newspapers), one describing a day in the life of a Canadian family after the Second World War and another of a family today. Students write features on activities that might fill a day, such as cooking, sports, shopping, or cleaning, with an emphasis on modern inventions that facilitate each activity.
- Date the inventions on the list the class made up and include these as another category on BLM Mod.1.3a#1: Sample Timeline of Discoveries.

SUGGESTIONS FOR ASSESSMENT

- Review BLM Mod.1.3b#1: Why Do We Invent? Note gaps in student understanding and confer with individual students when needed.
- Review students' paragraphs. Have they successfully supported their choice for the world's greatest invention? Have they described the needs the invention has fulfilled? Have they used signal or transition words accurately to enhance their writing?
- Note students' participation in the discussions. Do they ask relevant questions? Do they make appropriate comments? Do they show respect for their peers?

CONNECTION TO INVENTION CONVENTION

- Through their interviews and investigations, students become aware that an invention meets a need. As they investigate and assess needs of people through this interdisciplinary unit, they gain a deeper understanding that will help them in creating their own useful inventions.

BLM Mod.1.3b#2: Categorizing Inventions

Name _____ Date _____

Inventions, innovations, and discoveries have come about because of people's needs to change and improve their lives. Sort inventions into appropriate categories and identify which are essential to our lifestyle, which are lifesaving, and which merely make our life more pleasant.

Invention Category	Essential	Lifesaving	Pleasant
Transportation			
Health			