

Lesson Plan Information	
Subject/Course: Trans-Disciplinary Potential. Integration possible in: Language Arts, Sciences, Math, History, and Social Studies.	Name:
Grade Level: 7-12	Date: Time:
Topic: Discovery of Insulin	Length of Period: 150 minutes
Expectation(s)	
Big Idea OR Framing Question (<i>Directly from the Ontario Curriculum</i>):	
<p>CHC2D - Strand B - Framing Question - "In what ways did the lives and struggles of different individuals, groups, and communities help shape Canada during this period? What lasting impact did they have on Canada?" (Canadian and World Studies: Grades 9 and 10, 2018, p. 108).</p>	
Expectation(s) (<i>Directly from the Ontario Curriculum</i>):	
Utilize expectations for the current course being instructed.	
Learning Skills: Collaboration, critical analysis, communication	
Content	
<i>What do I want the learners to know and/or be able to do?</i>	
Today learners will:	
<ul style="list-style-type: none"> - Relate your primary learning goal to the specific expectation for the course being currently instructed. - The suggested Learning Goals related to the discovery of insulin are the following: <ul style="list-style-type: none"> - Become aware of the story of insulin's discovery - Consider the essential attributes of a ground-breaking scientist as reflected in the discovery of insulin - Demonstrate awareness of and be able to explain the general scientific process - Begin to select useful artifacts to create a compelling future-focused story <ul style="list-style-type: none"> - Note: This process is known as Curatorial Thinking and will be addressed in Lesson 2. The SASS Model - Selecting, Archiving, Sense-making and Sharing can be accessed here: 	

<https://definingmomentscanada.ca/news/curatorial-thinking-about-health-histories-an-educational-framework/>

Assessment / Evaluation

(Recording Devices: anecdotal record, checklist, rating scale, rubric, success criteria)

Based on the application, how will I know that the learners have learned what I intended?

- Student generated conversation will allow for partial indication of understanding. This can be accomplished using your anecdotal records, exit tickets or another preferred method.
- Students will be generating a storyboard using the Seven Sentence Story Structure Method described in Appendix 1.2.
 - Note: This is an overarching task, and will continue over the sequence of Insulin100 lessons.

Learning Context

A. The Learners

(i) What prior experiences, knowledge, and skills do the learners bring with them to this learning experience?

- Learners may be impacted by diabetes and insulin in their own life, or through the experiences of relatives or friends.
- Learners may also be familiar with insulin as it is a common example to use of Canadian innovation and invention.
- Learners may be familiar with the Banting and Best story.
- Learners may have seen the stamp or the heritage minute (to be released).

(ii) How will I differentiate the instruction (content, process, and/or product) to ensure the inclusion of all learners? (must include, where applicable, accommodations and/or modification for learners identified as exceptional)

- Exceptional learners should be provided with their standard accommodations and modifications.
- ELL students should be provided with their standard accommodations.
- COVID19 Limitations
 - Note: This lesson is optimally delivered in a traditional classroom setting. However, due to COVID19 restrictions you may choose to do this in an alternative method than described below. Suggestions for alternatives are as follows:
 - Set up the discussion questions as blog threads.

- Create “Break-out” rooms in your video-chat software of choice for students to work with their groups.

B. Learning Environment

Instructors may include a map of their classroom in this section, including desk placement, and the location(s) of resources/materials.

C. Resources/Materials (*cite resources as may be necessary*)

- Appendices (see attached file)
- Chalkboard/Chalk
- Whiteboard/Markers
- Smartboard (Optional)
- Projector

Teaching/Learning Strategies

INTRODUCTION

How will I engage the learners? (e.g., motivational strategy, hook, activation of learners' prior knowledge, activities, procedures, compelling problem)

Begin the learning by selecting **one (1)** of the following questions that best suits the needs and levels of learners to start a discussion in your classroom:

1. What are the most essential attributes for ground-breaking scientists who impact the future in positive ways?
2. What primary characteristics must scientists have to make positive change in the world?
3. What characteristics must scientists have to change the world for the better?

Students may require prompting - What kinds of things do scientists do/create? In what ways are they intelligent?

Record student answers so that they can see them (on the board, smartboard, projector etc.). Have students take these answers down in their notes.

Expand on student answers with the following: Ground-breaking scientists can have the following attributes:

- contributes to the generation of new ideas
- expertly builds on existing knowledge
- works to make a positive difference
- meaningfully contributes to reaching a future-oriented goal;
- gathers evidence from a wide range of disciplines
- considers the moral/ethical implications of their work
- aware of both local and global contexts

Solidify the message that ground-breaking scientists create a positive impact for the common good.

- Note: "Common Good" may require explanation.

Have students rank the collective list of attributes from the most important to the least important. Students should provide justification for their rankings.

MIDDLE

Teaching: How does the lesson develop? How we teach new concepts and processes (e.g., gradual release of responsibility – modeled, shared, and guided instruction; content and strategies).

Introduce Frederick Banting with the "Frederick Banting Facts" slide provided (see attached document).

- Reading the slide to students, survey the room and see how many students have heard of insulin/diabetes and if they wish to share their knowledge.
- If learners are unaware of both topics, inform them that today they will discover the story of a life saving Canadian invention.

Hand out the 14 pairs of *Insulin Discovery* cards (students should be divided into pairs at least, groups of three if necessary). Each “fact card” has a paired artifact card denoted by matching numbers.

Allow students the time to do the following:

- Instruct students that they will be creating one slide (using the classroom standard creation tool, eg: Powerpoint, Google Slides etc.) with the relevant information from their Discovery card, and the most important artifact.
- Provide students with the Attributes Evidence Chart (Appendix 1.3). Instruct students to record two (2) facts from their part of the story that fall under two different attributes on the chart.
- Create and publish their slides in a shared place (Google Classroom, etc.)

Have students share their Attributes Evidence Chart and their slides. Students should be instructed to record notes on their peers' work.

- Have students note any commonalities or repeated attributes that are mentioned by their peers.

Consolidation and/or Recapitulation Process: How will I check for understanding?

The presentation of their Attributes Evidence Chart and their slides allows for a checking of understanding.

Bring the students back in for a group discussion regarding any repeating attributes.

- What attributes stand out?
- What attributes do they believe are the most importance so far in their learning of the story?

Application: What will learners do to demonstrate their learning? (moving from guided, scaffolded practice, and gradual release of responsibility)

Set the overarching task for students:

- Hand out Appendix 2: 7-Sentence Story Structure.
- Inform students that individually they will be creating a storyboard that will set out in broad strokes how they would tell the story of insulin in a manner that is:
 - Motivating

- Insightful and engaging
- Informative and accurate
- Stimulating (multi-sensory, visually appealing etc.)
- Review the Appendix 2: 7-Sentence Story Structure with students as a useful tool for developing their story.
- Have students review the slide they created, and select where it fits best into the story structure. Have students justify their choice.
- Encourage students to review their classmates slides for:
 - Direct use in their own telling of the story.
 - Inspiration in terms of design, presentation or theme.
 - Information to spin in their own retelling of the story.
- Encourage students to think critically about the information and images they include in their storyboards. They may use the following criteria:
 - Added important research
 - Added useful resources (people, equipment, money)
 - Removed a barrier to success
 - Broadened the scope of their research and work
 - Provided insights with ethical implications
- Inform students that storyboards are intended to help design and layout ideas. Stick people and revisions are fine!

CONCLUSION

How will I conclude the lesson?

- Inform students that their storyboards do not have to be finished today, and that they are welcome to revise and add to them as their knowledge of the story of the discovery of insulin deepens over the course of further lessons.
- Any remaining time for this lesson can be devoted to students beginning their work on their storyboards.

My Reflections on the Lesson

What do I need to do to become more effective as a teacher in supporting learning?

References:

Ministry of Education, (2018, revised).

<http://www.edu.gov.on.ca/eng/curriculum/secondary/canworld910curr2018.pdf>. Toronto, Ontario.

Defining Moments Canada. (2021, January 14, revised). <https://definingmomentscanada.ca/>.

Appendix:

*This lesson plan template has been adapted from the Nipissing University Schulich School of Education Bachelor of Education lesson planning template.