

CANADIAN GEOGRAPHIC IN THE CLASSROOM

Article 'Commemorate Canada - The Discovery of Insulin'
Issue July/August 2021



Time:

60 minutes

Developed by:

Canadian Geographic Education

Overview/focus question:

Who is credited with the discovery of insulin? Why is it important to recognize all participants in a discovery? What contributions are important to a discovery?

Subject/topic:

Geography, history, social studies

Grade level:

Grade 6-10

Learning Goals

Students will

- Explore the history of one of Canada's greatest discoveries: insulin.
- Learn about the different people who played a role in its discovery.
- Understand the difference between those who were originally credited and those who had to fight for recognition.
- Learn the timeline of important dates relating to the discovery of insulin.

Materials Needed

- Print or online copies of "[Diabetes breakthrough: the discovery of insulin](#)" by Susan Bélanger in the July/August 2021 edition of *Canadian Geographic* (pages 23-24)
- Discovery of Insulin Timeline worksheet
- A projector or a way to watch the GeoMinute "[Famous Coin Flip](#)"
- Optional: Electronic device with internet access

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Connection to the Canadian Geography Framework

Concepts of Geographic Thinking

- Patterns and trends
- Interrelationships
- Geographic perspective

Inquiry Process

- Ask geographic questions
- Interpret and analyze
- Communicate
- Reflect and respond

Geospatial Skills

- N/A

Lesson Description

Minds on

Students will begin by brainstorming some items they are grateful for and are glad were invented or discovered. As a class, students will discuss some of the interesting things that were invented in Canada.

Action

Next, students will read the article "[Diabetes breakthrough: the discovery of insulin](#)" by Susan Bélanger and watch the GeoMinute "[Famous Coin Flip](#)". Students will make a timeline highlighting the important dates in the discovery of insulin. Using different colours, students will colour code who took part in each step of the discovery of insulin.

Conclusion

Finally, students will present their timelines and discuss their opinion on who was initially credited for the discovery of insulin. Guided by the teacher, students will reflect on the importance of working in a group and crediting all members of a group. Students will discuss how crediting people for their work is important, and when in real life they need to credit other people's work.

Lesson Implementation

Minds on

Start the lesson by talking about things in your everyday life for which you are very glad you have access. This can be anything your students brainstorm. Encourage them to think about their daily routine and items they use every day. Pick a couple of the students' ideas as examples and explain that someone had to invent or discover these things and that people work very hard to make these discoveries and inventions. Begin discussing specific things that were discovered or invented by Canadians. Ideas include the following:

- The garbage bag
- Peanut butter
- The pacemaker

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- The game of basketball
- The electric wheelchair
- Wireless radio transmission
- IMAX projection
- The Walkie-Talkie

Once you discuss these things that were discovered or invented by Canadians, ask students the following questions:

- *Which invention surprised them the most?*
- *Which Canadian invention are they most thankful for?*
- *Which invention do they personally use most often?*

Action

As a class or in small groups, have your students read "[Diabetes breakthrough: the discovery of insulin](#)" by Susan Bélanger in the July/August 2021 edition of *Canadian Geographic* (pages 23-24). Instruct students to take notes while reading, specifically on the people involved as well as the dates that are significant to the discovery of insulin. Bring the conversation back to those Canadian inventions and discuss how insulin is a very important discovery and how it has saved many people's lives.

In groups or individually, students are going to use the Discovery of Insulin Timeline worksheet to create a timeline of events that relate to the discovery of insulin. Students must remember that there were four important members of the team that discovered insulin: Frederick Banting, Charles Best, John J.R. Macleod and J. Bertram Collip. Students can use the article itself or do further research to add to their timeline. Students are going to create a legend at the top that colour-codes each member of the team that discovered insulin. Students must add at least eight significant dates to their timeline. For each significant date that they add, they must highlight which members of the discovery team were significant for that date. They will use the corresponding colour to add that into their timeline. When it is done, it should be easy to visually tell which dates correspond to the group members.

Conclusion and Consolidation

After completing the timelines, have students present to small groups or the whole class which dates they chose and why they chose them. Ask students to reflect on their timelines and the group members who discovered insulin. Use the following questions to guide their reflection:

- *How much did each group member participate?*
- *Does it matter that some members were more present at the discovery than others? Why or why not?*
- *Do you think that all of the four members deserved credit? Explain your answer.*
- *How would you feel if you were a part of the group and either got the credit or were not given credit?*
- *How do you feel teams should be credited with an important discovery like this?*

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- *How do you feel when you're in a group project and some members do more work than others?*
- *When should you have to provide credit to other people and in what way?*

This conversation can lead to a discussion on plagiarism and why it's important to always provide credit to people for their work.

Extend your geographical thinking

- Students can create a biography on one or each member of the team.
- Students can be assigned specific questions from the Conclusion and Consolidation section to fill out as an exit slip.
- Students can create a journal entry or a writing piece in response to the questions in the Conclusion and Consolidation section.
- Students can do a research project on one of the Canadian inventions and find out who was credited for that invention.
- Have a follow-up lesson about plagiarism and how to properly credit and cite papers, pictures, websites or anything else students may use for school.
- Have a follow-up lesson that is about medical discoveries, and what ethical and unethical practices have been used throughout time.

Modifications

- Complete the timeline as a class or in small groups.
- Students can complete this activity virtually or create virtual timelines to share with the class.
- Students can complete the whole activity independently, rather than having class discussions, and have the discussion questions as a worksheet they have to complete.

Assessment Opportunities

- Assess students' learning based on their participation in discussion throughout the lesson.
- Assess students' learning through the completion of the timeline worksheet.
- Assess students' presentations and their ideas.
- The worksheet could be handed in for a formal assessment.

Sources and Additional resources

- [Diabetes breakthrough: the discovery of insulin](#)
- [Famous Coin Flip](#)
- [11 Inventions to Celebrate](#)

DISCOVERY OF INSULIN TIMELINE WORKSHEET

LEGEND	
Name:	Colour:
Frederick Banting	<input type="checkbox"/>
Charles Best	<input type="checkbox"/>
John J.R. Macleod	<input type="checkbox"/>
J. Bertram Collip	<input type="checkbox"/>

