



THE MEMORY PROJECT

Canadian Military Innovations

LEARNING TOOL



No. 4 Class RCAF Engineers Course, St. Thomas, Ontario, 1943-44. Bill Baluk is 4th from left in back row. Historica Canada.

Introduction

The Memory Project, an initiative of **Historica Canada**, gives veterans and current Canadian Forces members the opportunity to share their stories of military service through its online archive and volunteer speakers bureau. Drawing on the work of the **Historical Thinking Project** (historicalthinking.ca), this learning tool encourages students to make connections between important Canadian military innovations throughout history and the impact of these innovations on society. Students will research and discuss the links between Canadian military innovations and society today using the expertise and experiences of **Memory Project** speakers in the classroom, as well as *The Canadian Encyclopedia* (thecanadianencyclopedia.ca).

The Memory Project is made possible through funding from the Government of Canada. For more information, visit thememoryproject.com.

Historica Canada is the country's largest organization dedicated to enhancing awareness of Canada's history and citizenship. For more information, visit historicacanada.ca.



Grant McRae enlisted in the R.C.A.F. in 1942, and was trained on Lancaster Bombers as a bomb aimer. Historica Canada.

Grant McRae Commemorative Contest

Grant McRae was a veteran of the Second World War who served in the Royal Canadian Air Force flying Lancaster Bombers. In his honour, the Grant McRae Commemorative Contest encourages young Canadians to thank a veteran or an actively serving member of the Canadian Forces in a creative way. Letters, artwork, stories and videos that students create can be submitted to the contest at thememoryproject.com/educator-resources/commemorative-contest.



Look for this symbol for inspiration!

A project of:



With support from:



How to Book a Speaker

Host a **Memory Project** speaker in the classroom to talk about their experiences of military service. It's easy! Just fill out our online form at thememoryproject.com/book-a-speaker.



Look for this symbol throughout the learning tool for examples of how you can work a guest speaker into your lesson plan.

ACTIVITY 1

Debate the Innovations

- ✦ Divide into small groups and review the below timeline. As a group, pick one innovation from the timeline that you believe has the most **historical significance**.
- ✦ Using *The Canadian Encyclopedia*, research your chosen innovation. Have one member of the group write down three to six arguments defending your choice.
- ✦ Hold a debate or take turns presenting why your group thinks your chosen innovation has the most **historical significance**.

Teachers: Host a **Memory Project** speaker to discuss which innovations they have used during their time with the Canadian Forces.

Book a speaker to visit your classroom!

Extension Activities:

- ✦ Create a commemorative piece (e.g., stamp, coin, statue) about your chosen innovation. Write a short description explaining your choice.
- Submit your work to the Grant McRae Commemorative Contest!

SECOND-LANGUAGE LEARNERS //

Choose an innovation from the timeline. Write a short descriptive paragraph in your own words about the **historical significance** of the innovation.

Visit historicalthinking.ca to learn more about the criteria for establishing **historical significance**.

1867–1914

Post-Confederation Era

Learn more at *The Canadian Encyclopedia* (thecanadianencyclopedia.ca/en/article/history-since-confederation)

Miss Harriet Brooks, nuclear physicist, Montreal QC. Wm. Notman & Sons, 1898, II-123880, McCord Museum. ▼

1900 **McGill University, Montreal, QC**

Harriet Brooks, the first female Canadian physicist, discovers a radioactive gas called radon. Nuclear technology was later weaponized during the Second World War.



Women in Science

Women were not always welcome in the scientific community in Canada. Pioneers such as Harriet Brooks and Elsie MacGill broke down barriers so that women and girls today are able—and encouraged—to study science.

1915 **St. Johns, NL**

During the First World War, Dr. Cluny MacPherson invents the gas mask, one of the most important protective devices. This innovation saved countless soldiers from blindness or throat and lung injury. Modern gas masks are used by first responders today.

Memory Project speaker Aileen Hanger posing with friends while learning to use gas masks in Chilliwack, B.C. 1945. Historica Canada. ►

1885 **Fish Creek, SK**

Captain James Peters takes the world's first battlefield photographs at the Battle of Fish Creek in northern Saskatchewan.

1800

1901 **St. Johns, NL**

Guglielmo Marconi receives the first transatlantic radio transmission. Today, radio signals are used in Global Positioning Systems (GPS), car radios, and many telephone calls. Watch the *Heritage Minute*: historicanada.ca/content/heritage-minutes/marconi

1900

1909 **Baddeck, Cape Breton, NS**

Engineer J.A.D. McCurdy flies Canada's first flying machine—the Silver Dart—an early version of today's military and commercial planes.

J.A.D. McCurdy sitting in the Silver Dart before making the first powered and controlled flight in Canada, 1909. Image courtesy of Canada Aviation and Space Museum, CASM-15495. ▼



1914-1939 **First World War Era**

Learn more at *The Canadian Encyclopedia* (thecanadianencyclopedia.ca/en/article/first-world-war-wwi)



1922 Valcourt, QC

At the age of 15, Joseph-Armand Bombardier creates the first snowmobile by attaching a Model-T Ford engine to an old wooden sled. Today, Bombardier Inc. creates aircrafts for military use, as well as public planes and trains. Watch the *Heritage Minute*: historicanada.ca/content/heritage-minutes/joseph-armand-bombardier

1946-1991 Cold War Era

Learn more at *The Canadian Encyclopedia* (thecanadianencyclopedia.ca/en/article/cold-war)

1949 Malton, ON

The Avro Arrow, the fastest jet in the world, is developed in Canada to counter the threat of **Soviet Union** bombers. The project was controversially cancelled in 1959, and the planes were destroyed.

The Avro Arrow

Learn more about the Avro Arrow by watching **Historica Canada's Heritage Minute!** (historicanada.ca/content/heritage-minutes/avro-arrow)

Still from *Historica Canada's Heritage Minute* on the Avro Arrow. ▶



Crew works under an airborne helicopter to attach it to the Beartrap, then safely to the ship. Image courtesy of the Department of National Defence (2008). ▶



1963 Dartmouth, NS

The Royal Canadian Navy starts testing the world's first Helicopter Haul-down and Rapid Securing Device (HHRSD), or "Beartrap." The Beartrap allows helicopters to land on naval ships, even in very rough weather.

1939-1945

Second World War Era

Learn more at *The Canadian Encyclopedia* (thecanadianencyclopedia.ca/en/article/second-world-war-wwii)

1938 Toronto, ON

Toronto-born Alfred J. Gross produces an early handheld two-way radio transceiver, also known as a walkie-talkie, which paved the way for many of our wireless communications today. The walkie-talkie was used by many soldiers during the Second World War.

1940 Fort William, ON (Thunder Bay)

"Queen of the Hurricanes" Elsie MacGill designs the machines that will create 2,000 Hurricane airplanes during the Second World War. The first female **aeronautical engineer** in North America, she oversaw 4,500 workers and became a symbol of the war effort.

1992-Present

Modern/ Afghanistan Era

Learn more at *The Canadian Encyclopedia* (thecanadianencyclopedia.ca/en/article/international-campaign-against-terrorism-in-afghanistan)

Book A Speaker

Host a **Memory Project** speaker in your classroom to talk about the Canadian Disruptive Pattern and more!

1997 Ottawa, ON

The Canadian Forces first introduces the Canadian Disruptive Pattern (CADPAT™). This is a camouflage pattern which makes soldiers hard to see in certain environments. The pattern was trademarked in 2001, and was used in uniforms starting in 2002.



Memory Project speaker Warrant Officer Richard Corneau wearing CADPAT™ in Kabul, Afghanistan, at the Kabul Military Training Centre. Image courtesy of Richard Corneau (2011). ▶

1986 Northern Canada

Still in use today, the chain of 51 radar stations spanning Canada's and Alaska's northern coastlines detects low-flying aircraft and missiles, and pass information by satellite to **NORAD** headquarters. There are 48 radar stations in Canada and three in Alaska.

2009-2015 Ottawa, ON

A "smart gun" prototype is developed and tested for the Canadian Forces. This gun uses digital computer technology and can morph from a rifle into a shotgun and a grenade launcher. "**Smart**" technologies are found in many digital items, including cell phones, watches and computers.

2000

ACTIVITY 2

Write a Letter

- Work in groups to fill out the chart. **Choose one innovation from the timeline for each of the historical eras listed in the chart, and explain how each innovation changed society.**

You can download and print a copy of the chart at thememoryproject.com/educator-resources.

For more information about historical eras, visit thecanadianencyclopedia.ca/en/article/technology.

- Using the completed chart for reference, write a letter as one of the people below. Don't forget to think about which historical era they are writing from.

- A soldier who uses the innovation, writing home about their experiences.
- A loved one on the home front writing to a soldier, commenting on the impact one or more of the innovations has had on society.
- The innovation's creator telling a friend about the impact they hope the innovation will have on society.

Historical Era	Innovation from this Era (See Timeline)	How did the innovation change society?
Post-Confederation Era		
First World War and Interwar Era		
Second World War Era		
Cold War Era		
Modern/Afghanistan Era		

NOTE TO TEACHERS // Taking **historical perspectives** can be challenging for students. Often, students will project present-day values and beliefs onto people in the past. Challenge students to provide historical evidence to support their claims about the beliefs, feelings and ideas of people in the past.

SECOND-LANGUAGE LEARNERS //

Write a postcard or short letter as one of the people above from a historical era of your choosing. Try to include a question about the innovation(s) they may have used.

Teachers: Host a **Memory Project** speaker to discuss the importance of receiving letters from home, and to give students some historical perspective.

- Book a speaker to visit your classroom!
- Submit your work to the Grant McRae Commemorative Contest!

ACTIVITY 3

Interview a Memory Project Speaker

- Write questions for a **Memory Project** speaker. This person could be a veteran or an active member of the Canadian Forces. Think about:
 - The time period during which the speaker served with the Canadian Forces
 - What the world and society were like during that historical era
 - What innovations the speaker might have used or currently uses

- In pairs, role-play as a historian and a veteran or an active member of the Canadian Forces. Take turns asking and answering the questions you and your partner have written. Write down your answers to each question.

- Host a **Memory Project** speaker. Select questions from the students to ask him or her. Afterward, students can compare their answers with the answers given by the speaker. What was different? What was the same?

Aeronautical Engineering - A branch of engineering that focuses on designing, testing, and producing aircrafts and related objects.

NATO - An acronym for the "North Atlantic Treaty Organization," a promise between 28 states (countries) to protect each other. It was created in 1949, after the Second World War.

NORAD - An acronym for "North American Aerospace Defense Command." Canada and the United States make up NORAD, and they work together to make sure the airspace over North America is safe.

"Smart" Technology - Usually an electronic device that can connect to the Internet and interacts with its user.

Soviet Union - A politically communist state, located in the geographical area that is now Russia, formed after the First World War.

