

# 6E

## FOCUS ON

- What is the difference of how wars are started after the Cold War compared to before the Cold War?
- What role does Canada play in these wars?
- What are the differences between competitive and collaborative development?
- Compare the Space Race before and after the Cold War.
- Think about how social media has influenced the choices humans, countries, and groups make today.
- Why do certain countries and groups threaten the peace formed after the Cold War?

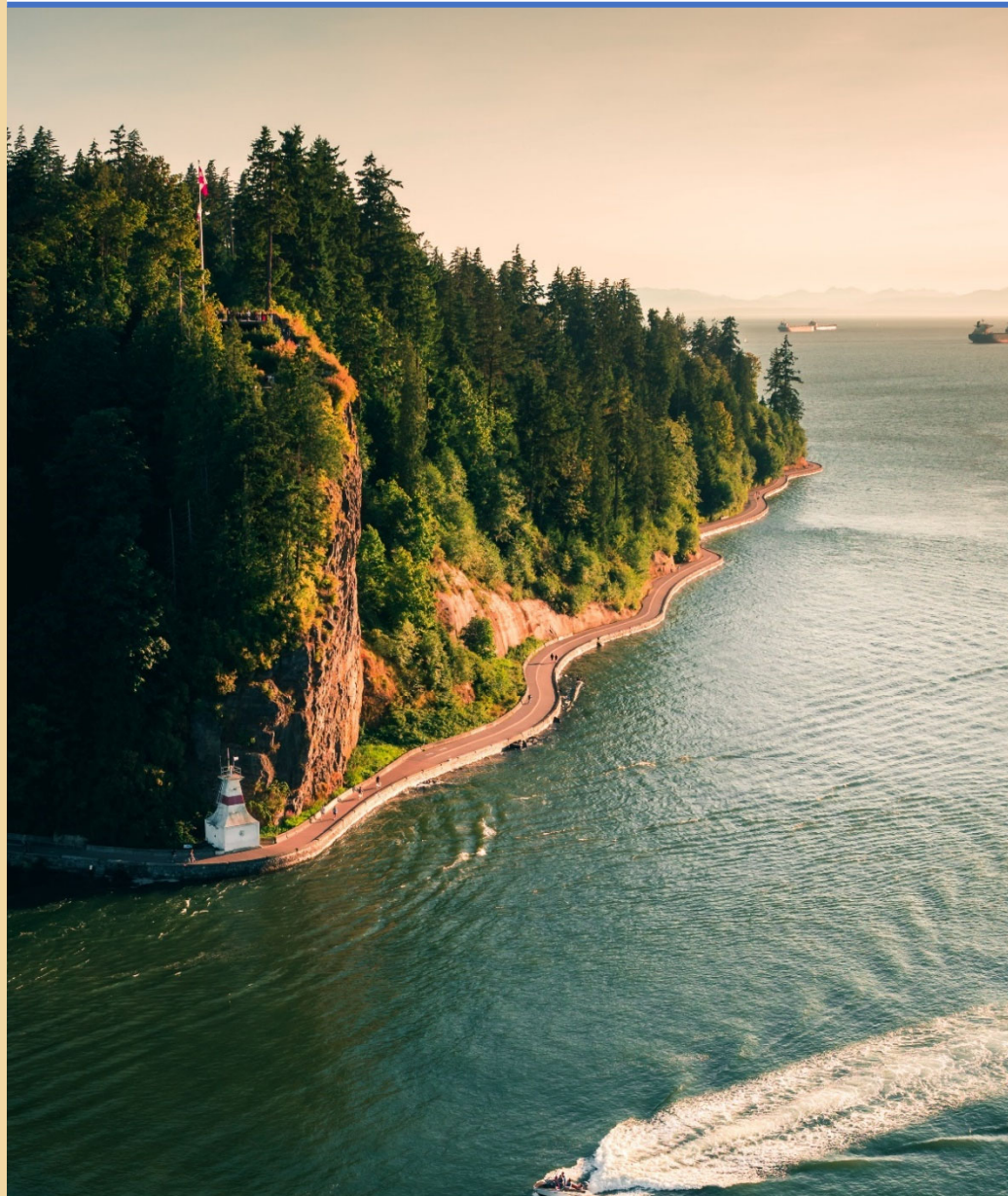
## TERMS TO KNOW

- **Jihadism** – an ideology with militant Islamic views perceived to be a threat to the world. Three groups located in the middle east still pertain with this ideology: ISIS, The Taliban, and Al Qaeda.
- **Sortie** – an attack by a single military aircraft.
- **Free-Fall Bomb** – a bomb that follows the general ballistic trajectory; does not use a guidance system.
- **Guided Bomb** – a bomb intended to hit a single target, minimizing collateral damage, and increasing lethality against intended targets.

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# Canada After the Cold War



## Introduction

After the Cold War, the United Nations was a prevalent force keeping the peace between countries. With the fall of the Soviet Union, freedom, equality, and innovation were becoming more widespread along with a diminished need for war. With less competition, countries worked together to create medical and technological advancements that benefited humankind. However, as we advance at a rapid pace, new groups and countries threaten this peace with social media and advanced warfare.

# The Human Genome Project

## Introduction

The Human Genome Project was an international research effort created to discover the structure, organization, and function of a human genome. The project was first launched in 1988 by a committee of the U.S. National Academy of Sciences. It evolved from a 5-year plan to a 13-year research effort lasting from 1990 to 2003. The National Institutes of Health and the Department of Energy funded the research to further expand on the concept.

## Canada's Involvement

The Human Genome Organization was created to promote international collaborative efforts between many countries, including Canada, the United States, Britain, France, Japan, Italy, Germany and more. The exchange of data and research techniques accelerated the project.

## Applications on Modern Medicine

Biotechnology companies are examining the function of genes and how changes in the sequence relate to health and disease to make therapeutic molecules used to treat common diseases and illnesses such as age-related macular degeneration, Alzheimer's disease, and multiple sclerosis. The human genome project helped identify specific mutations and improve our understanding of cancer.

In Britain, a company called BioBank collected DNA from 500,000 citizens to discover the environmental effects on genes. Individuals who have certain genes are more susceptible to certain illnesses because of influences including heredity, diet, lifestyle, and environmental exposures. Researchers are trying to identify these genes to discover preventative strategies.

## Effect on COVID-19

The Human Genome Project also helped with COVID-19 research and safety. Genome-reading machines were repurposed to test patient samples for COVID-19 as everyone feared for the worst. Genomics labs across the United States were reinvented into COVID testing centers. The sequence

of a virus is quite straightforward compared to the sequence of a human genome. The computing power of the genome-reading machines were used to follow tiny changes in the viral genome as it spreads. Chinese scientists were able to sequence the SARS-CoV-2 virus by January 12, 2020. The sequence was then shared amongst other researchers so that research and development of COVID vaccines could begin as soon as possible.

## Outcome

The sequencing of the human genome involved determining the order of all three billion bases that make up DNA. The sequence information was submitted to large databases so that researchers could add to the sequence. The first rough drafts of the human genome were published in 2000 and 2001. The complete sequence of the human genome was finalized and published in April 2003, which was two years ahead of schedule.

## ACTIVITIES

1. How does the Human Genome Project affect us today?
2. Do you think that Canada's involvement with the Human Genome Project was necessary with the continued evolution of biomedical technology?
3. What do you think could be achieved in the future using the data from the Human Genome Project?
4. **a)** How did the COVID-19 pandemic affect people and their daily lives? What infrastructures were impacted by the virus, and how did people adapt?  
**b)** Could the pandemic had been dealt with differently?
5. Do you think the media played a major influence in the pandemic, and how some minority groups were discriminated against?
6. How do you see the world in the next 10 years based on the current medical achievements that have been made and any in the future?



# Kosovo War

## Introduction

The Kosovo War was an armed conflict that began on February 28th, 1998 and ended on June 11th, 1999. Serbian nationalism caused many civilians to seek refuge elsewhere. The conflict was resolved with the intervention of The North Atlantic Treaty Organization. Law, order, and stability were restored at a heavy cost.

## Divided Country

Slobodan Milosevic, the former president of the Federal Republic of Yugoslavia, rejected Kosovar Albanians by implementing Serbian nationalist policies. Around 1.2 million to 1.45 million Kosovar Albanians were persecuted, which was around 90% of Kosovo's population. Ibrahim Rugova, the leader of the Democratic League of Kosovo established the Kosovo Liberation Army in the early 1990s to rebel against the Serbian persecution of Kosovar Albanians. The Democratic League of Kosovo provided Kosovar Albanians with basic government and social services. Following numerous raids on Serbian governmental assets and army posts, the KLA attacked Yugoslav authorities. This resulted in Serbian forces pursuing KLA supporters and

political opponents in a campaign of retribution. 1,500 to 2,000 civilians and KLA combatants died in the campaign. The war soon caught NATO's attention, resulting in the aerial bombing on Yugoslavia. Yugoslav troops were forced to withdraw from Kosovo. The United Nations Security Council criticized the bombing, as over 488 Yugoslav civilians and Kosovar refugees were killed in the bombing.

## Operation Echo

Operation Echo was the codename for the Canadian Armed Force's air activities in the Kosovo War. To support the Stabilization Force and Kosovo Force, Canada sent 6 CF-18 Hornet fighter aircrafts and 125 air personnel to an airbase in Aviano, Italy, in preparation for the 79-day air campaign over the Balkan region. The CAF flew 684 **sorties** and dropped nearly 250 tons of free-fall bombs and guided bombs within 224 missions. Although Operation Echo comprised of less than 2% of the total Allied forces involved within the air campaign, they participated in 10% of all the bombing missions. Despite being out of practice since the Korean War, Canada reigned victorious with only 5 air personnel casualties.

**Figure 1-1** Tanks like the Coyote Reconnaissance Vehicle were used during the Kosovo War. They are light armoured cars built by General Dynamics Land Systems Canada for the Canadian Forces.

### Gathering Information

What features can you see that may have been important to the operators of this vehicle? What terrains and climate conditions could this tank be used on?



## Operation Kinetic

Following the NATO air campaigns, NATO's Allied Rapid Reaction Corps requested the participation of Canadian troops for a peacekeeping mission in Macedonia. A month later, 800 Canadian troops landed in Macedonia—joining the 4th Armoured Brigade under the codename Operation Kinetic. As agreed in the Military Technical Treaty, the Serbian security forces withdrew from Kosovo as the KFOR entered the country. The success of the Serbian withdrawal established the KFOR in Kosovo. The deployed troops enforced the cease-fire, providing civilians with security, helping the lost get home safely, assisting international and non-governmental organizations, and carrying out humanitarian aid operations with the \$750,000 invested in the Canadian International Development Agency funding. Soldiers from the 1st Battalion, Princess Patricia's Canadian Light Infantry, and tanks from the Strathconas were formed into an infantry battle group. After the initial deployment, 500 additional troops were sent to the Canadian contingent, totaling 1,400 personnel. The rotation of troops took occurred twice. All military personnel withdrew from Kosovo by the end of June 2000.

## Outcome

The Military Technical Agreement, or the Kumanovo Treaty, was signed on June 9, 1999 in Kumanovo, Macedonia. The agreement concluded the Kosovo War and established relations between Yugoslavia and KFOR. Over 13,500 people were pronounced missing during the conflict. Two hundred thousand Serbs, Romani, and other non-Albanians fled Kosovo after the war. Those who remained were subjects of abuse. The KLA disbanded after the war.

### ACTIVITIES

1. Was the NATO aerial bombing on the Balkan region justified? Explain.
2. Was the Kosovo Liberation Army wrong for retaliating against Serbian persecution?
3. Why were Kosovar Albanians persecuted even though Kosovar Albanians were run under another government?
4. Do you think that the Kosovo War would have turned out better without NATO's intervention? Why?



**Figure 1-2**

The Operation KOBOLD Task Force in 2018.

CAF members deployed on OP KOBOLD provide logistics and headquarters support for movement and transport of physical assets, information security, and border/customs officer duties.

# Jihadist Groups

## ISIS and ISIL

The Islamic State of Iraq and Levant, more commonly known as The Islamic State of Iraq and Syria, was formed in 1999 and pledged allegiance to Al Qaeda. They gained traction in 2014 when they successfully overthrew the Iraqi government. Stationed troops from the United States were driven out, and the key city Mosul was under ISIS control. ISIS was able to gather a large following through online propaganda and using religion to justify their actions. Due to the violent actions of ISIS, young men with radical views towards the West are inspired to join ISIS. Many are from ISIS occupied countries, but citizens of the West are influenced by propaganda and defect to the East. Citizens of Iraq, Syria, and Khorasan either flee to the West as refugees, or pledge allegiance to ISIS for food, shelter, and safety.

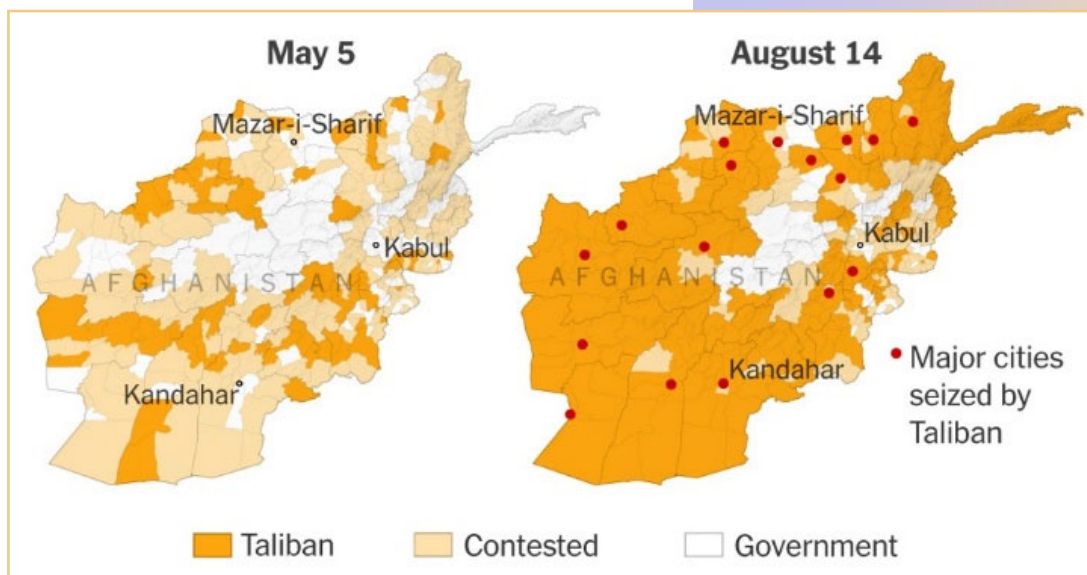
What solidified ISIS as a threat in the eyes of the West was the Paris attack of November 2015. Three suicide bombers attacked civilians outside of the Stade de France in Saint-Denis, Paris. ISIS Gunmen attacked crowded cafes and restaurants along with a venue which held 1,500 people at the Bataclan Theatre. None of the terrorists survived leaving 130 casualties and 416 injured. The attack was ISIS' retaliation against French airstrikes in Syria and Iraq. France then began the largest ever bombing campaign against Iraq– Opération Chammal.



**Figure 2-1** One of the many Jihadist flags commonly used by Jihadist groups like ISIS, ISIL, and IS-KP.

## Martin Rouleau Couture Incident

On October 24, 2014 in Montreal, Quebec, Martin Rouleau Couture hit 2 Canadian soldiers. One was killed, and the other was left heavily injured. Couture was then shot by the municipal police and died in the hospital the morning after. Prior to this, Martin Rouleau Couture was identified as an important potential terrorist threat. He was arrested in 2013 but not enough evidence was presented to keep him in custody. In 2013, he converted to Islam as well. Couture was not heavily monitored even with signs of him showing radical beliefs against the west.



**Figure 2-2**

A map of Afghanistan in 2021 after US withdrawal of troops from May 5<sup>th</sup> compared to itself on August 14<sup>th</sup>.



## IS-KP - Hamid Karzai International Airport Attack in Kabul Afghanistan

The attack on the Hamid Karzai International Airport is the most recent act of terrorism committed by ISIS. The airport was especially crowded at the time of the attack since it was the only way out of Afghanistan once the Taliban took control. US military personnel were stationed in Afghanistan before the attack. The Pentagon had sent a warning to the US congress to remove these troops as it would only provoke an attack. Then, on August 26, 2021, a suicide bomber theorized to be part of IS-KP detonated an explosive belt at the airport with gunmen firing into the crowd. The attack claimed the lives of 169 Afghan civilians, 13 US military personnel, and 28 Taliban fighters. With a response to the US losing 13 military personnel, the Taliban planned to retaliate with the capture of the IS-KP leader Shahab al Muhajir. The IS-KP stands in the way of a full militarized control of Afghanistan by the Taliban.

## Al Qaeda and the “Far” War

Al Qaeda was the terrorist group behind the 911 attacks on September 11, 2001. Formed in 1988 and defeated by the US in 2014, Al Qaeda was a short-lived threat. However, other groups still carry similar Jihadist ideologies such as ISIS and the Taliban. ISIS pledged allegiance to Al Qaeda in 1999 as they both

shared similar goals and enemies. These Jihadist groups have 2 main enemies – the “far” enemy and the “near” enemy. The far enemy is the west and its conflicting ideologies.

The attack on September 11, and global terrorist attacks are how the far enemy was fought. As for the near war, Jihadist groups try to restore the Islam religion through acts of violence in mainly Muslim countries. ISIS focuses more on the near war while Al Qaeda focused on the far war. The near war is more violent and uncontrollable than the far.

In August 2014, The Sinjar Massacre claimed the thousands of Yazidis men, women, and children’s lives. ISIS committed a religious genocide against the Yazidis populated city of Sinjar. This brought the attention of the United Nations. Bombing campaigns commenced on the northern part of Iraq which led to a full-scale invasion by the US. They were able to evacuate of 20,000 to 30,000 Yazidis people to Syria. However, 4,000 to 5,000 Yazidis people were left on the Sinjar Mountain as the UN believed they were no longer at risk.



**Figure 2-3** The second tower of the World Trade Center bursts into flames after being hit by a hijacked airplane, September 11, 2001.

## ACTIVITIES

1. What is the main demographic of ISIS members and why do they join ISIS?
2. What goal did the US and the Taliban share?
3. What are the differences in goals for ISIS and Al Qaeda?
4. List 2 events that made ISIS a serious threat.
5. Do any other people join ISIS?
6. What is one example of a “Westerner’s” ideals changing?
7. Do you think ISIS will become a larger threat? How will the spread of information through social media affect this?
8. Could the Yazidis massacre be compared to Hitler’s final solution? Defend your response with examples.
9. Why would the US’s prolonged stay in Iraq provoke an attack?

# Space Exploration

## International Space Station

The International Space Station resides in low-Earth orbit. It is operated by five space agencies: The National Aeronautics and Space Administration, the Canadian Space Agency, the European Space Agency, Roscosmos, and the Japan Aerospace Exploration Agency; belonging to the United States, Canada, Europe, Russia, and Japan respectively.

The project for the ISS began on January 25, 1986, and the first segment was sent on November 20, 1998. After two years, astronaut Bill Shepherd and cosmonauts Yuri Gidzenko and Sergei Krikalev, inhabited the station on November 2, 2000; being the first group of people to be on the ISS.

## Robotics on the ISS

Although Canada made significant contributions to space technology, for example the Canadarm. The United States was its main operator, and it was only solely for space shuttles until the ISS was built.

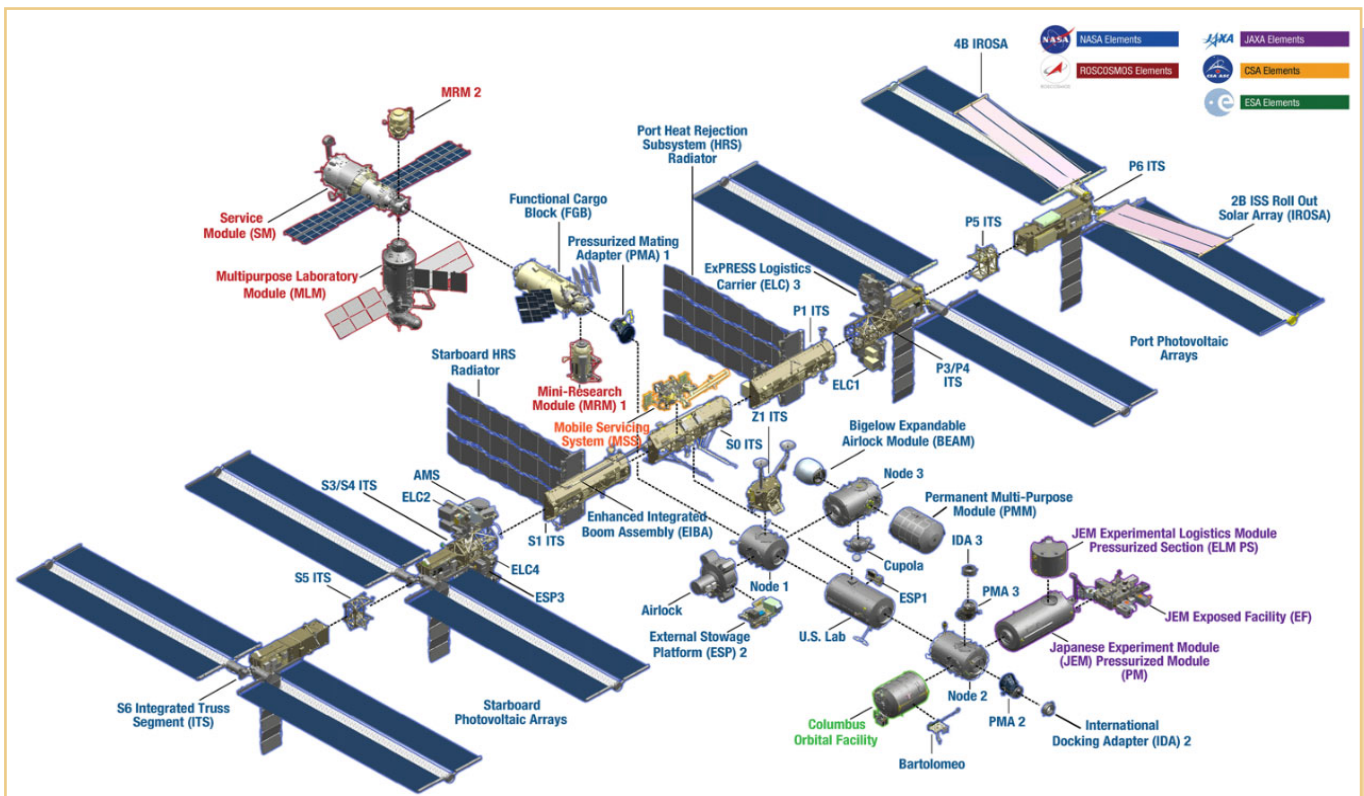
Compared to Canadarm2, it did not have haptic feedback or a collision system and was limited to a

160-degree elbow rotation. There were two cameras which provided vision for the cabin and the arm was 15 metres in length. It was retired as of July 2011, and its successor, Canadarm2 now resides in the ISS.

Canadarm2 was sent to the ISS on April 19, 2001 and was a big step in the evolution of space technology. Both astronauts on the ISS and people down at ground control had access to the arm and there was also a collision system with haptic feedback. Unlike the first arm, Canadarm2 was controlled by both Canada and the United States. Currently in development is Canadarm3—which will be a fully autonomous, artificial intelligence powered robot at the Lunar Gateway. However, the most sophisticated space robot ever built, is Dextre.

Dextre, short for the Special Purpose Dexterous Manipulator (SPDM), has been serving the ISS since 2008. It performs maintenance work such as charging batteries or replacing cameras. The robot was launched aboard the Space Shuttle Endeavor. Five days later, NASA astronauts Richard Linnehan and Mike Foreman installed it. The robot has the ability to repair itself, and reduces the risks associated to space walks for astronauts.

Since 2013, Dextre and Canadarm2 have been printed on the \$5 polymer banknotes, highlighting



**Figure 3-1** A map of the International Space Station and which countries control which portions of the station.



the achievements that Canada have made in space exploration. The materials for Canada's space projects are supplied by over 500 organizations across Canada, including MDA. They assembled, built, and delivered a large portion of the parts to the ISS.

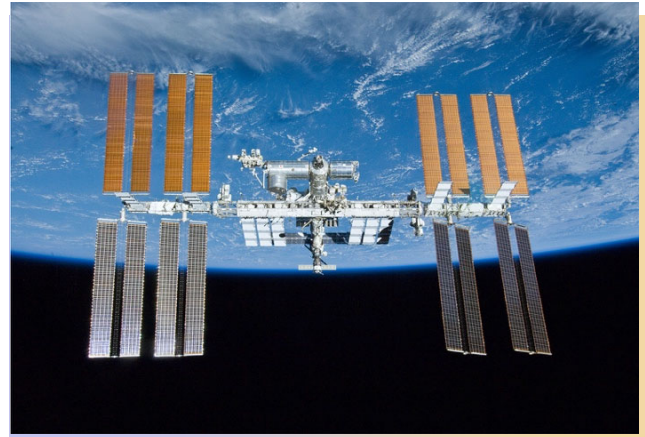
## Space Agriculture

In preparation for the trip to Mars, space agencies such as NASA and the Canadian Space Agency have begun developing advanced food production systems. These systems will allow astronauts to grow their own food on year-long space missions. The bioresource engineering department at McGill University helped the Advanced Plant Habitat on the ISS develop dwarf wheat. However, this brings up the risk of radiation as consuming radiated food is a major risk factor for cancer and premature aging. Radiation exposure can also cause mutations in the plants and damage the crops. Fortunately, foods high in antioxidants can mitigate these risks. Most plants we consume are diurnal, meaning they open their flowers during the day. One of the major concerns of agriculture in space is the lack of light. The use of artificial sunlight by LEDs was developed through NASA-funded research. Although LEDs aren't efficient, they perform well when placed in plant chambers. Plant chambers are only 0.15-square-metres, but these chambers can be upscaled to provide enough food for the round trip to Mars.

## The Challenger Accident

The Space Shuttle, *Challenger* was a partially reusable spacecraft operated by the United States equipped with 5 Canadarms. It would undergo 9 missions before exploding into pieces, killing all 7 crew members onboard. Challenger was planned to study Halley's Comet and to deploy a communications satellite. Unfortunately, it broke apart after 73 seconds of launch.

The cause of its crash was because of two O-ring seals in the space shuttle's solid rocket booster (SRC). Pressurized gas burnt through the walls of the external fuel tank, causing a structural failure which led to an explosion. This accident was fatal and caused a 32-month hiatus in the Space Shuttle program. The last words from Michael J. Smith were "Uhoh."



**Figure 3-2** The exterior view of the International Space Station taken in 2010.



**Figure 3-3** Artificial sunlight from LEDs being used on the ISS for plants.

## ACTIVITIES

1. How does Canada still maintain a supportive role in developmental projects?
2. What will be the differences between Canadarm 3 and Canadarm 1 and 2?
3. Why are LEDs being used to grow plants? Could there be any other alternatives?
4. What is the risk of using LEDs as artificial sunlight in space?
5. Why is Canadarm 2 and Dextre on the \$5 banknotes? Why were these technological advancements so important?
6. The Challenger accident was tragic but avoidable. What differences could you make to the shuttle, launch or preparation?



# Persian Gulf War

## Tension Between Countries

A pre-existing tension between Iraq and Kuwait was what caused the Persian Gulf War. Iraq rightfully believed that Kuwait was still a part of Iraq after they had declared independence on June 19, 1961. Iraq also believed that Kuwait was illegally stealing oil from reserves located in Iraq. Most of the world's oil comes from the middle east meaning Iraq could restrict the world oil supply at any moment. Growing tensions were also present between Iraq and the US. Iraq was already being suspected of human rights abuse and was a former soviet nation.

## Collapse and Recovery of Kuwait

On August 2, 1990, Iraq had annexed Kuwait. Kuwait did not stand a chance against the overwhelming military of Iraq. Many retreated to Saudi Arabia. The UN immediately responded with economic sanctions against Iraq. A coalition of 35 members of the United Nations was formed to liberate Kuwait. The leading country of the coalition was the United States with Saudi Arabia, the United Kingdom, and Kuwait being leading contributors. However, the plan to liberate Kuwait was delayed as Iraq was suspected to have chemical and biological weapons. Then on October 30, 1990, the war that the United States led against Iraq heavily benefitted the west. The United States had many reasons to declare war against Iraq. Much of its economy comes from oil and the fact that Iraq was a former ally of the Soviet Union allowed the US to increase its influence

as a powerful capitalist country. The occupation by Iraq only lasted 7 months with the group effort by the coalition liberating Kuwait. The UN enforced economic sanctions in exchange for a cease-fire and Iraq was forced to pay war reparations.

## Canada Back in the Air

The Persian Gulf war was the first time Canadians participated in battle since the Korean war in 1953. 4000 Canadians served as a part of a coalition of 45 countries. Many countries only participated by sending supplies and not actively fighting. Canada also manufactured CF-18 fighters along with sending soldiers. In the battle of the gulf the Canadian Naval Task Group controlled water with the HMCS Terra Nova and HMCS Athabaskan destroyers. Also, Canada fulfilled its role as a peacekeeper. In February 1991, a Canadian Field Hospital with 530 personnel operating was set up in Qaysumah, Saudi Arabia. They cared for the coalition and the Iraq soldiers.

## ACTIVITIES

1. Was the annexation of Kuwait necessary since Iraq could simply restrict the world oil supply? Explain.
2. How did US tensions with Iraq influence the Persian Gulf War?
3. Is the use of biological and chemical weapons moral to bring "peace" to one's nation?
4. Why does Canada play the peacekeeping role, and is there anything to gain from it? Explain your reasoning.

**Figure 4-1**

A U.S. Marines 2nd Division convoy moves past a tank equipped with a mine-clearing sled in Kuwait as the ground war gets under way Feb. 24, 1991.

*Gene Herrick/AP*



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