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| About this Lesson |
| Students will assess the value of Canada’s space program. They will compare and contrast this spending to other (federal) government expenses in a class debate. |

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| **Grade Level** | **Course(s)/subject(s)** | **Learning Goal(s)** | **Suggested**  **Timing** |
| 6 | Science  Mathematics  Language | I will be able to explain how much money Canada spends on a space program in relation to other spending, explain why the country chooses to do so, and explain the effectiveness of this spending. | 3–5 x  45-minute – 60-minute classes |

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| Curriculum Links |
| [Elementary Curriculum and Implementation Resources](http://www.edugains.ca/newsite/curriculum/elementaryresources/elementary.html)  Grade 6 Science  Understanding Earth and Space Systems – Space  1.2 Evaluate the social and environmental costs and benefits of space exploration, taking different points of view into account  2.4 Use appropriate science and technology vocabulary  2.5 Use a variety of forms *(e.g., oral, written, graphic, multimedia)* to communicate with different audiences and for a variety of purposes  3.3 Explain how humans meet their basic biological needs in space *(e.g., obtaining air, water and  food, and managing bodily functions)*  3.4 Identify the technological tools and devices needed for space exploration *(e.g., telescopes, spectroscopes, spacecraft, life-support systems)*  Grade 6 Mathematics  Number Sense & Numeration  Quantity Relationships   * Represent, compare and order whole numbers and decimal numbers from 0.001 to 1,000,000,  using a variety of tools * Read and print in words whole numbers to one hundred thousand, using meaningful contexts |

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| Curriculum Links (cont’d.) |
| * Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1,000,000 * Estimate quantities using benchmarks of 10%, 25%, 50%, 75% and 100% (e.g., the container is about 75% full; approximately 50% of our students walk to school)   Operational Sense   * Use a variety of mental strategies to solve addition, subtraction, multiplication and division problems involving whole numbers * Use estimation when solving problems involving the addition and subtraction of whole numbers and decimals, to help judge the reasonableness of a solution   **Proportional Relationships**   * Represent relationships using unit rates   Grade 6 Language  Oral Communication  2.3 Communicate orally in a clear, coherent manner, using appropriate organizing strategies and formats to link and sequence ideas and information  2.4 Use appropriate words and phrases from the full range of their vocabulary including inclusive and non-discriminatory language, and stylistic devices appropriate to the purpose and context, to communicate their meaning accurately and engage the interest of their intended audience  2.5 Identify a range of vocal effects, including tone, pace, pitch, volume and a variety of sound effects, and use them appropriately and with sensitivity towards cultural differences to help communicate their meaning  [Financial Literacy, Grades 4–8: Scope and Sequence of Expectations](http://www.edugains.ca/resourcesFL/Resources/Elementary/FinLitGr4to8.pdf) |

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| Inquiry Question |
| Should Canada participate in a space program and, if so, should the amount be increased or decreased? What are other spending priorities for Canada? |

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| Materials List |
| * Appendix A: Priority Cards for School Council – one set of cut-out cards per group * Appendix B: Federal Government Spending – to be screened * Appendix C: Research Organization – one copy per group * Access to Research Tools (computer lab, library, iPads, etc.) * Appendix D & E: Debate Setup and Script – one copy to be screened/used by teacher * Appendix F: Debate Rubric * Appendix G: Journal Rubric * Student Journals |

| **Timing**  (Mins.) | **Lesson Sequence** | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| MINDS ON | | |
| 10–15 minutes | In small groups, distribute Priority Cards for School Council (Appendix A – cut up) for school funding. Students will sort the cards using this scenario:  *Pretend you are on the school council and you have money to spend.*  *What percentage of funds would you allocate toward each endeavour?*  *Are there any of the cards (initiatives) you would exclude? Why?* | Assessment for Learning – are students able to ensure their priorities equal 100%? |
| ACTION | | |
| 2–3 x 50 minutes | Whole Class:  Ask: On what programs do you think the Canadian government spends most of the collected tax money?  Display Appendix B – Federal Government Spending graph. Explain to students that the section marked “Operating Expenses of Departments and Agencies” includes the Canadian Space Agency. They share this 16.7% of the national budget with all the other ministries, departments or agencies in Canada, including Natural Resources, Public Safety, Agriculture, and the Environment (excluding National Defence).  Students will now participate in a parliamentary debate.  Divide students into groups of four or six (depending on class size; classes of more than 24 students = groups of six, whereas classes with fewer students = groups of four; make sure you have an equal number of students in groups). In the case of an odd number, have one group with either one more or one less student).  First, groups will research the types of programs that receive funding in Canada for the space program (Earth Orbit Satellite Missions, The International Space Station, Astronaut training, etc.). Next, groups will research funding allocations for space programs and other programs of interest (international aid, health care, pensions, etc.).  Organize findings on the appendix sheets. Encourage students to have discussions in their groups about which programs they deem most valuable (use a highlighter). | Assessment as Learning – develop list of  government spending  Assessment as Learning – students will place value on governmental spending |

| **Timing**  (Mins.) | | **Lesson Sequence** | | | **Assessment for and as Learning Opportunities** (self/peer/teacher) |
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| ACTION (cont’d.) | | | | | |
|  | After research has been completed, random draws will be held within groups to divide into Team A or Team B (two or three per team). These will be the debate teams.  Using the Debate Instructions and Script (Appendix E and F), students will participate in a parliamentary debate. Explain to students that this is a formal debate, where one person speaks at a time.  Each group will debate a different resolution, chosen from:  BIRT Canada should spend more of its national funding on astronaut training.  BIRT Canada should expand the Canadian Space Agency (CSA) to launch independent space missions.  BIRT Canada should provide funding for at least one Canadian astronaut to always be on board the International Space Station (ISS).  BIRT Canada should focus more of its space missions on researching climate change.  BIRT Canada should create a defence system in space.  (**Note:** BIRT = abbreviation for Be It Resolved That).  Make the connection that this type of debate is similar to that practised in the House of Commons/Provincial Legislature, where debaters are seated on opposite sides of one another with a Speaker of the House in the middle. If there is time, watch CPAC or a news clip to see parliamentary debate in action.  **Teacher Note:** For a simplified debate, see Cryptocurrency Lesson (Grade 8). | | | Assessment of Learning – Debate Rubric  (Appendix F) | |
| CONSOLIDATION/DEBRIEF | | | | | | | |
| 30 minutes | | Before introducing the journal activity, note that the debates are all officially over and now students are to think about the topic *outside* of the debate setting (some students may take their side personally and feel like they must keep defending).  In your journals, use the following prompt:  *If I was the finance minister, I would recommend increased/decreased funding for Canada’s space program, because…* | | Assessment of Learning – Journal Rubric  (Appendix G) | | | |

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| Priority Cards for School Council |
| Cut out the cards below and distribute one set of each to the groups.   |  |  |  |  | | --- | --- | --- | --- | | Bike Rack | Skipping Ropes | Basketball Net | Library Books | | Guest Speaker for Assembly | Bench for  Playground | School Mural | Field Trip to  Local Park | | Local Theatre Production | Book Bags for  Home Book Program | Whole-School  Pizza Lunch | Portable Soccer  Goal Posts | |

**APPENDIX A**

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| Federal Government Spending |
| Other transfer payments  **13.4%**  Public debt charges  **7.7%**  Major transfers to persons  **29.2%**  Consolidated Crown corporations  **2.7%**  Major transfers to other levels of government  **22.1%**  Operating expenses of departments and agencies (excluding National Defence) **16.7%**  **8.2%**  National Defence  **8.2%**  **Source:** Public Accounts of Canada, 2017 |

**APPENDIX B**

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| Research Organization |
| |  |  | | --- | --- | | **Canada’s Space Program Funding goes toward…** | **Canada also spends its budget on….** |   Highlight those areas you think are most important in either column. |

**APPENDIX Dx**

**APPENDIX C**

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| Debate Setup  **APPENDIX D** |
| Speakers have the following times (4 debaters):   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Prime Minister | Member of Opposition | Member of Parliament | Leader of the Opposition | Prime Minister | | 2 minutes | 2 minutes | 2 minutes | 3 minutes | 1 minute |   Speakers have the following times (6 debaters):   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Prime Minister | First Member of Opposition | First Member of Parliament | Leader of the Opposition | Second Member of Parliament | Second Member of Opposition | Prime Minister | | 2 minutes | 2 minutes | 2 minutes | 3 minutes | 2 minutes | 2 minutes | 1 minute |   Room Setup (4 Debaters)    **MEMBER OF PARLIAMENT Opposition**  **LEADER OF THE OPPOSITION**  **SPEAKER**  **of the House**  **MEMBER OF PARLIAMENT Government**  **PRIME MINISTER**  **Government**  Room Setup (6 Debaters)    **LEADER OF THE OPPOSITION**  **MEMBER OF PARLIAMENT Opposition**  **MEMBER OF PARLIAMENT Opposition**  **MEMBER OF PARLIAMENT Government**  **MEMBER OF PARLIAMENT Government**  **PRIME MINISTER**  **Government**  **SPEAKER**  **of the House** |
| Debate Script  **APPENDIX E** |
| **Speaker** introduces resolution and all the debaters:  “The resolution before the house is Be It Resolved That *Canada should spend more of its funds on supporting space exploration*.  Speaking for the Government in favour of the resolution are \_\_\_\_\_\_\_\_\_\_\_\_, the Prime Minister and \_\_\_\_\_\_\_\_\_\_\_\_\_\_, the Government Member of Parliament.  Speaking for the Opposition against the resolution are \_\_\_\_\_\_\_\_\_\_\_\_, the Opposition Member of Parliament and \_\_\_\_\_\_\_\_\_\_\_\_\_\_, the leader of the Opposition.  I will remind the debaters that you may only speak during your turn.  I now invite the Prime Minister to open the debate with their opening remarks and arguments in favour of the resolution. They have two minutes to speak.”  **The Prime Minister** rises, thanks the Speaker and begins their arguments. At the end, the PM will thank the Speaker again.  **Speaker** rises and thanks the Prime Minister, then introduces the Member of the Opposition: “I now invite the (First) Member of the Opposition to speak against the resolution. They have two minutes to speak.”  **The (First) Member of the Opposition** rises, thanks the Speaker and begins their arguments. At the end, they will thank the Speaker again.  **Speaker** rises and thanks the (First) Member of the Opposition, then introduces the next Member of the Government: “I now invite the (First) Member of the Government to speak in favour of the resolution. They have two minutes to speak.”  **The (First) Member of the Government** rises, thanks the Speaker and begins their arguments. At the end, they will thank the Speaker again.  **Speaker** rises and thanks the (First) Member of the Government, then introduces the Leader of the Opposition: “I now invite the Leader of the Opposition to speak against the resolution. They have three minutes to speak.”**\*\*\***  **The Leader of the Opposition** rises, thanks the Speaker and begins their arguments. At the end, they will thank the Speaker again.  **Speaker** rises and thanks the Leader of the Opposition, then invites the Prime Minister to rise for a final opportunity to address the house: “I now invite the Prime Minister to open the debate with their closing remarks, rebuttal, and arguments in favour of the resolution. They have one minute to speak.”  **The Prime Minister** rises, thanks the Speaker and summarizes the government arguments. At the end, the PM will thank the speaker again.  **\*\*\*Note:** If there are six speakers (three per side), there will be another round of debate. |
| Debate Rubric |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Level 1 | Level 2 | Level 3 | Level 4 | | Understanding of content (how/why Canada spends on Space Program) | Demonstrates limited  understanding  of content | Demonstrates some  understanding  of content | Demonstrates considerable understanding  of content | Demonstrates thorough  understanding  of content | | Use of critical/creative thinking processes (oral debate and use of research to present ideas) | Uses critical/ creative thinking processes with limited effectiveness | Uses critical/ creative thinking processes with some effectiveness | Uses critical/ creative thinking processes with considerable effectiveness | Uses critical/ creative thinking processes with a high degree of effectiveness | | Expression and organization of ideas and information (oral debate flows and is responsive to other speakers) | Expresses and organizes ideas and information with limited effectiveness | Expresses and organizes ideas and information with some effectiveness | Expresses and organizes ideas and information with considerable effectiveness | Expresses and organizes ideas and information with a high degree of effectiveness | | Making connections within and between various contexts (between research and the world outside) | Makes connections within and between various contexts with limited effectiveness | Makes connections within and between various contexts with some effectiveness | Makes connections within and between various contexts with considerable effectiveness | Makes connections within and between various contexts with a high degree of effectiveness | |

**APPENDIX F**

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| Journal Rubric |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Level 1 | Level 2 | Level 3 | Level 4 | | Understanding of content (how the Canadian government priorities spending) | Demonstrates limited understanding  of content | Demonstrates some  understanding  of content | Demonstrates considerable understanding  of content | Demonstrates thorough  understanding  of content | | Use of critical/creative thinking processes (clear ideas about ways the student would prioritize spending) | Uses critical/ creative thinking processes with limited effectiveness | Uses critical/ creative thinking processes with some effectiveness | Uses critical/ creative thinking processes with considerable effectiveness | Uses critical/ creative thinking processes with a high degree of effectiveness | | Expression and organization of ideas and information (journal ideas flow) | Expresses and organizes ideas and information with limited effectiveness | Expresses and organizes ideas and information with some effectiveness | Expresses and organizes ideas and information with considerable effectiveness | Expresses and organizes ideas and information with a high degree of effectiveness | | Making connections within and between various contexts (between earlier activities and journal prompt) | Makes connections within and between various contexts with limited effectiveness | Makes connections within and between various contexts with some effectiveness | Makes connections within and between various contexts with considerable effectiveness | Makes connections within and between various contexts with a high degree of effectiveness | |

**APPENDIX G**