

## Canadian Space Resource Centre (CSRC) Presentations

Thank you for writing to the Canadian Space Resource Centre (CSRC).

Yes you can arrange for a CSRC representative to visit for your class or school and give a presentation on space.

Here is some information to help you decide and arrange your presentation.

### Cost:

There is **no** charge if you are a TDSB school.

If you belong to a board other than the TDSB a charge would apply.

Cheques for the presentation should be made out to:  
Canadian Space Resource Centre.

Please refer to the chart below for the approximate charge.

Distance from MGCI/CSRC	Additional charge (A)	Presentation Charge (B)	Mileage Charge per Km ** (C)	Total
Within the GTA	NC	\$ 75.00	.45 /km	B + C
up to 1 hr *	\$ 50	\$ 75.00	.45 /km	A+B+C
1- 2 hrs *	\$ 100	\$ 75.00	.45 /km	A+B+C
Entire Day	Flat rate	\$ 200.00	.45 /km	B + C

\* Travel times refer to one-way travel from MGCI/CSRC to your location

\*\* Distance will be calculated using vehicle odometer measured from MGCI to your location and then doubled. A separate cheque, for the mileage alone, should be made out to the presenter.

## Multiple Presentations (Entire Day)

Multiple presentations in one day are possible.

An example would be 4 grade 9-astronomy presentations given throughout the day.

For multiple presentations please select one location (classroom, library, auditorium) for the presentation and have the classes move to the presenter. Due to the equipment used, moving from classroom to classroom after each presentation requires too much set up time.

Please use the chart below to calculate the cost for multiple (entire day) presentations

\*1 If the distance is greater than 2 hrs travel time an additional cost may be added.

<b>Board / Location</b>	<b>Cost</b>
TDSB schools	NC
Non-TDSB schools within the GTA	\$ 200 + mileage
Non-TDSB schools outside the GTA	\$ 200 + mileage *1

### **Start Time:**

Start times can be anytime after 9:00 a.m.

The start time is dependent on where your school is located relative to the CSRC.

If your school is not close to the CSRC/ MGCI I prefer a slightly later start time of around 10 am. The later start time avoids problems associated with rush hour traffic, delays due to road construction or accidents.

### **Group Size:**

Group sizes can be from 10 - 100 or more. I can accommodate large numbers if you want to have several classes at one session. Talking to one large group is some times easier than talking several times during a day to different groups.

If the grade range or ability of the students varies considerably then separate talks are recommended.

If you require individual talks to different classes throughout the day, please arrange for the presenter to remain in one room for the entire day. Due to the equipment used, moving from classroom to classroom after each presentation is difficult.

## **Activities / Demonstrations**

For each presentation we try to include as many relevant demonstrations or activities as possible. Activities and demonstrations are dependent upon the class size, time allotted and subject matter. Larger class sizes are best suited to demonstrations. Activities for the entire class work best when the class sizes are small and the time allotted is longer than one hour.

Should you request a group activity, the school will be responsible for obtaining the necessary supplies. I will advise you of the quantities needed for your class size.

## **Equipment Requirements:**

The only equipment that we require from your school is:

**a projection screen**

**a table large enough to hold a laptop and data projector**

**access to a power outlet**

I will bring my computer, a data projector and any demonstration equipment required.

## **Space Days**

Space Days are full day hands on workshops / presentations. These require a great deal of pre-planning and organization between the CSRC and the school.

Space Days can be arranged for one class or an entire school. The requesting school supplies materials for a space day event.

## Presentation Topics

The presentations have been divided up into three categories

Grade 6 – topics relevant to the new grade 6 curriculum

Grade 9 – topics relevant to the new grade 9 curriculum

General interest – topics relevant to multiple grades or as good background information

### **GRADE 6**

Presentation Title	Curriculum Connections	Description
A Tour of Our Solar System	2.4 Appropriate vocabulary 3.1 Components of the solar system <ul style="list-style-type: none"> <li>- Sun</li> <li>- Earth</li> <li>- planets</li> <li>- what happened to Pluto</li> </ul> 3.2 Bodies that emit light Bodies that reflect light 3.4 Tools and devices needed for space exploration <ul style="list-style-type: none"> <li>- Hubble space telescope</li> </ul> 3.5 Relative positions and motions <ul style="list-style-type: none"> <li>- Earth</li> <li>- Moon</li> <li>- Sun</li> <li>- eclipses</li> <li>- phases of the Moon</li> </ul>	Astronomy – Advanced  This presentation is designed as a lead-in to the grade 6-space unit.  Take a virtual tour of our Solar System and examine our galactic backyard .  This presentation focuses on the characteristics of the Sun, and the planets. Explains what happened to Pluto, and how the motion of the Sun, Earth and Moon causes eclipses and phases of the Moon.
Voyage to the Planets	2.4 Appropriate vocabulary 3.1 Components of the solar system <ul style="list-style-type: none"> <li>- Sun</li> <li>- Earth</li> <li>- planets</li> <li>- what happened to Pluto</li> </ul> 3.5 Relative positions and motions <ul style="list-style-type: none"> <li>- Earth</li> <li>- Moon</li> <li>- Sun</li> </ul>	Astronomy – Beginner  This presentation is designed for students who have no real understanding of the basic concepts of Earth and Space systems.  This presentation will focus on the number of planets, how they move (axis and orbits), and the differences between the 8 planets; explain the importance and relationship between the Sun, Earth and Moon.

<p>The Right Stuff Eh</p>	<p>1.1 Contribution of Canadians</p> <ul style="list-style-type: none"> <li>- Canadian astronauts</li> <li>- John H Chapman</li> <li>- Helen Hogg</li> </ul> <p>1.2 Social &amp; environmental costs</p> <ul style="list-style-type: none"> <li>- Canadarm</li> <li>- partner on ISS</li> <li>- satellites</li> </ul> <p>2.3 Appropriate vocabulary</p> <p>3.4 Tools and devices needed for space exploration</p>	<p>Canadian Contributions</p> <p>Canada was the third country to have a satellite in orbit.</p> <p>This presentation will focus on Canada's rich space history from satellites to the International Space Station, from John Chapman to Julie Payette.</p>
<p>To Boldly Go</p>	<p>1.1 Contributions of Canadian astronauts</p> <p>2.3 Challenges of space exploration to humans and how we overcome them</p> <p>3.3 How humans meet their basic needs in space</p> <ul style="list-style-type: none"> <li>- air</li> <li>- water</li> <li>- food</li> <li>- fluid Shift</li> <li>- disorientation</li> <li>- muscle &amp; bone loss</li> </ul> <p>3.4 Tools and devices needed for space exploration</p> <ul style="list-style-type: none"> <li>- Canadarm</li> <li>- spacecraft</li> <li>- space suits</li> </ul>	<p>Human Space Exploration – Advanced</p> <p>Space is not a place where humans were meant to live and work.</p> <p>This presentation will focus on how humans have met their basic needs in space from the Mercury Program until the present. The challenges of human space exploration and the tools and devices developed for space will also be discussed.</p>
<p>The Eagle has Landed</p>	<p>1.1 Contributions of Canadian astronauts</p> <p>2.3 Challenges of space exploration to humans and how we overcome them</p> <p>3.4 Tools and devices needed for space exploration</p> <ul style="list-style-type: none"> <li>- Canadarm</li> <li>- spacecraft</li> <li>- space suits</li> </ul>	<p>Human Space Exploration – Beginner</p> <p>This presentation will focus on the basics of how humans have over come the challenges of getting to, living and working in the vacuum of space.</p> <p>The reality that the Moon is the farthest humans have traveled, the contributions of Canada to space exploration and the Canadian astronauts will also be presented.</p>

## GRADE 9

Presentation Topic	Grade & Curriculum Connections	Description
To Infinity and Beyond	<p>2.1 Appropriate Terminology</p> <ul style="list-style-type: none"> <li>- astronomical Unit</li> <li>- light Year</li> </ul> <p>2.2 Simulation &amp; Star charts to determine celestial objects visible in the night sky</p> <p>2.5 Compare properties of celestial objects visible in the night sky</p> <ul style="list-style-type: none"> <li>- size &amp; classification of stars</li> <li>- solar wind</li> <li>- size planets</li> <li>- planet composition</li> </ul> <p>3.1 Theoretical evidence relating to the origin &amp; evolution of the Universe</p> <ul style="list-style-type: none"> <li>- big bang</li> </ul> <p>3.2 Theoretical evidence relating to the formation of the solar system</p> <p>3.3 Major components of the solar system</p> <ul style="list-style-type: none"> <li>- planets</li> <li>- Sun</li> <li>- Pluto / dwarf planets</li> <li>- galaxies</li> </ul> <p>3.4 The Sun's composition and energy source</p> <ul style="list-style-type: none"> <li>- fusion</li> <li>- magnetosphere</li> </ul> <p>3.5 Astronomical phenomena</p> <ul style="list-style-type: none"> <li>- aurora Borealis</li> <li>- comets</li> </ul>	<p>Astronomy – Academic</p> <p>This presentation is a good lead in to the Earth and Space Science-The Study of the Universe strand of the curriculum.</p> <p>Topics such as what a dwarf planet is, how the sun works and its interaction with Earth, what black holes are, what a light year is and how big the Universe is, will be presented.</p>
From the Earth to the Moon	<p>1.1 Contribution of Canadians on space research, technology and exploration</p> <p>1.2 The costs, hazards and benefits of space exploration</p>	<p>Human Space Exploration – Academic</p> <p>Space is not a place where humans were mean to live. The issues of living and working in space will be presented.</p>

		<p>Concepts such as gravity, free fall, microgravity, fluid shift and balance will be explored.</p> <p>The costs and benefits as well as the hazards of human space exploration will be discussed.</p>
<p>Magnificent Desolation</p>	<p>2.1 Appropriate Terminology</p> <ul style="list-style-type: none"> <li>- Astronomical Unit</li> <li>- galaxies</li> <li>- The universe</li> </ul> <p>2.2 Patterns in the night sky</p> <ul style="list-style-type: none"> <li>- constellations</li> <li>- phases of the moon</li> </ul> <p>2.3 Characteristics of objects in the Universe</p> <ul style="list-style-type: none"> <li>- size stars</li> <li>- size planets</li> <li>- planet composition</li> <li>- galaxies</li> </ul> <p>3.1 Major components of the Universe, their motion and distances</p> <ul style="list-style-type: none"> <li>- size of the solar system</li> <li>- the nearest star</li> <li>- galaxies</li> </ul> <p>3.2 Characteristics and properties of celestial objects in our solar system</p> <ul style="list-style-type: none"> <li>- planets</li> <li>- Sun</li> <li>- Pluto / dwarf planets</li> </ul> <p>3.3 Factors that make Earth well suited for the existence of life.</p> <ul style="list-style-type: none"> <li>- distance from Sun</li> <li>- atmosphere</li> <li>- magnetosphere</li> </ul> <p>3.4 Characteristics of the Sun and the effects on Earth's atmosphere</p> <p>3.5 Causes of major astronomical phenomena</p> <ul style="list-style-type: none"> <li>- aurora borealis</li> <li>- eclipses</li> </ul>	<p>Astronomy – Applied</p> <p>This presentation is a good lead in to the Earth and Space Science-Space exploration strand of the curriculum.</p> <p>Topics such as what a dwarf planet is, how big our Sun is compared to other stars, how long it would take us to get to the next nearest star, the characteristics of the planets and what makes Earth so suitable for life will be presented.</p>

	- meteor showers	
One Small Step	<p>1.1 The challenges associated with space exploration Materials and technologies developed for space</p> <p>1.2 The contributions of Canadians to space exploration</p> <ul style="list-style-type: none"> <li>- Canadarm</li> <li>- Canadian astronauts</li> <li>- satellites</li> </ul>	<p>Human Space Exploration – Applied</p> <p>This presentation will focus on the basics of how humans have over come the challenges of living and working in the vacuum of space.</p> <p>The contributions of Canada to space exploration and the Canadian astronauts will also be presented.</p>

## General Interest

Mission to Mars	Suitable for any grade that is investigating the planets of our Solar System.	<p>Why are we so fascinated with Mars? Will humans ever set foot on the red planet?</p> <p>This presentation will focus on our fascination with the red planet, from early science fiction to the future of Martian exploration.</p>
A Brief Explanation of Everything Related to Space...Almost.	Good background information for any grade.	<p>Remember all those space questions that the students ALWAYS ask? Like why does the flag on the moon flap if there is no air? What is a Black hole and is it a gateway to another Universe? Is there life on Mars?</p> <p>Has a student ever asked a space question that you couldn't answer?</p> <p>This presentation will provide the answers to the most frequently asked space questions.</p>



<p>Tranquility Base here. The Eagle has Landed</p>	<p>Good background information for any grade.</p>	<p>There are a lot of misconceptions about space science, astronomy and space exploration.</p> <p>This presentation will address the most common misconceptions about space exploration and astronomy.</p> <p>Topics such as the:  Gravity / microgravity  Big Bang  Space is empty  Black Holes  Exposure to space  Dark side of the Moon</p> <p>will be presented</p>
<p>Houston, we have an answer</p>	<p>Suitable for any grade</p>	<p>Are your students flooding you with space questions that you can't find the answers to?</p> <p>This presentation involves you (the teacher) collecting space questions from the students ahead of time and forwarding them on to me. I will then develop a specific presentation for your class answering their specific questions. When possible I will incorporate images, video, activities, demonstration or models.</p> <p>Two weeks lead-time is recommended.</p> <p>Questions should be forwarded to me via e-mail in one batch.</p>