

Science Enrichment Opportunities – Updated to January 30, 2017

Prepared by T. McCarthy, Head, Science Department, St. Ignatius of Loyola Catholic Secondary School, Oakville, ON

Contests are listed first, followed by programs offered by local universities, followed by programs offered by other institutions.

Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 9 – 12 Biology Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – University of Toronto, http://www.biocomp.utoronto.ca/ 2. University of Toronto National Biology Exam 3. Gr. 9 – 12 Biology Students (usually Gr. 12 students) – Please see your Biology Teacher if you are interested in writing this contest. 4. The aim of the competition is to provide all high school students with an opportunity to test their knowledge and understanding of biology. 	\$7/student cost borne by St. Ignatius of Loyola CSS	Thursday, April 27, 2017	Applications close March 3, 2017
Grade 11 Chemistry Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – University of Waterloo, Department of Chemistry https://uwaterloo.ca/chemistry/about-chemistry/community-outreach/avogadro-exam 2. Avagadro Exam 3. Gr. 11 Chemistry Students – Please see your Chemistry Teacher if you are interested in writing this contest. 4. The exam will cover material that a well-read junior high school chemistry student is likely to have come across in the course of studies. Students may expect to find a few probing and demanding questions on some of the main topics of high school chemistry. Certain mathematical skills closely related to the study of chemistry may be tested, and there will be a few questions on chemical topics not normally covered in high school. A scientific calculator is required. The Avogadro Exam consists of 40 multiple-choice questions, some easy, some tough, under the general headings: structure of matter, bonding, reactions, solutions, and gases, and a general knowledge of current affairs. 	\$3/student cost borne by St. Ignatius of Loyola CSS	Thursday, May 18, 2017	Applications close March 31, 2017

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 12 Chemistry Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – University of Waterloo, Department of Chemistry https://uwaterloo.ca/chemistry/about-chemistry/community-outreach/chem-13-news-exam 2. Chem 13 News Exam 3. Gr. 12 Chemistry Students – Please see your Chemistry Teacher if you are interested in writing this contest. 4. The exam will cover material that a well-read senior high school chemistry student is likely to have come across in the course of studies. Students may expect to find a few probing and demanding questions on some of the main topics of high school chemistry. Certain mathematical skills closely related to the study of chemistry may be tested, and there will be a few questions on chemical topics not normally covered in high school. A scientific calculator is required. The Chem 13 News Exam consists of 40 multiple-choice questions, some easy, some tough, under the general headings: organic, equilibria, kinetics, oxidation-reduction, bonding, structure, reactions, solutions, gases, and a general knowledge of current affairs. The exam, which is multiple-choice, is not to be considered as anything but a selection mechanism for awards. Specifically, it is not used as a criterion for admission to university studies. We do not show or give results to any admissions committee. 	\$3/student cost borne by St. Ignatius of Loyola CSS	Thursday, May 11, 2017	Applications close March 31, 2017

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 11 Physics Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – Ontario Association of Physics Teachers, University of Toronto – Electrical and Computer Engineering Faculty, http://www.oapt.ca/grade_11_contest/ 2. OAPT Physics Contest 3. Gr. 11 Physics Students – Please see your Physics Teacher if you are interested in writing this contest. 4. The OAPT physics contest is run for students currently attending school in Ontario, taking SPH3U. Schools outside of Ontario are not eligible to offer the current year's contest to its students, however students are welcome to register as a "Visitor". Visitors are able to look at past contests and run them on their computers. 	No charge.	Wednesday, May 24, 2017	Wednesday, May 24, 2017

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Grade 12 Physics Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – University of Waterloo, Department of Physics and Astronomy https://uwaterloo.ca/sir-isaac-newton-exam/ 2. Sir Isaac Newton Exam 3. Gr. 12 Physics Students – Please see your Physics Teacher if you are interested in writing this contest. 4. The SIN exam is a test of high school physics and is offered by the Department of Physics at the University of Waterloo to encourage the teaching of physics. The exam, although aimed at competent students, is meant to be refreshing and fun. Political and other topical humour have marked SIN exams for years. The first SIN exam was run in 1969, and about 1,500 students from about 300 high schools took part. In recent years the number of students has quadrupled and the number of participating high schools has more than doubled. Students also now participate from across Canada, and a few from the USA and abroad. It should be stressed that the SIN test is meant to challenge the best students to apply basic physics in problem situations. Few perfect papers are written and the "raw average score" now ranges from 20-40%. We hope students enjoy the test! The results are never seen by any admission people and cannot count against a student in any way. Students should approach their physics teacher or guidance counsellor who will have access to all the details (or they can get the details by visiting this web site). 	\$5/student cost borne by St. Ignatius of Loyola CSS	Thursday, May 4, 2017	Applications close March 31, 2017

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Grade 11 – 12 Physics Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – McMaster University, Faculty of Physics and Astronomy, http://www.science.mcmaster.ca/outreach/outreach/physics-astronomy/physicsmac-online-physics-competition.html 2. Physics@Mac Online Physics Competition 3. Gr. 11 – 12 Physics Students 4. Designed to be inclusive, fun and fundamentally different from typical physics contests, this competition can be used as a classroom activity for students who have completed or are taking Grade 11 Physics or Grade 12 Physics. The competition consists of ten multiple choice questions. The questions stress conceptual understanding with less emphasis on quantitative calculation and mimic the approach taken in our first-year physics courses where “concept-quizzes” are used to promote a deeper understanding of central ideas presented in lectures. Please refer to the link above for a clear demonstration of how our competition questions will differ from typical physics contest questions. We are encouraging students to work in teams of two to emphasize the importance of cooperative learning and “peer instruction”. Scientific calculators (non-programmable and non-graphing) will be allowed. 	No charge.	Thursday, December 1, 2016	Friday, November 25, 2016

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Grade 11 – 12 Physics Students	<ol style="list-style-type: none"> 1. Contest – Sponsor – Canadian Association of Physicists, https://www.cap.ca/en/students-educators/prizes-students/CAP-high-school-cegep-prize-exam 2. CAP High School/Cegep Prize Exam 3. Gr. 11 – 12 Physics Students 4. The CAP High School Exam is based upon an internationally recognized syllabus, the I.B. Physics Higher Core Curriculum. Only sections of the syllabus covering mechanics, Optics and Electricity and Magnetism are examined by the CAP Exam. Since all provinces in Canada have different curricula and the level of physics taught varies widely, the exam uses a broad based core curriculum which is widely recognized and used throughout the world. 		Tuesday, April 11, 2017	
Grade 9 or 10	<ol style="list-style-type: none"> 1. Contest – Sponsor – University of British Columbia and NSERC http://outreach.phas.ubc.ca/exams-and-competitions/michael-smith-challenge/mssc-english/ 2. Michael Smith Challenge 3. Open to any student registered in Grade 10 science or lower 4. National prize contest to help identify the rising stars in science. Examination may only be taken in schools proctored by a teacher. The charge per script marked is to cover the cost of hiring students to organize, translate, and mark the examination. Previous exams and solutions are available on the website. 	\$6 /student marked	Wednesday, February 15, 2017	Wednesday, February 15, 2017

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Grade 10 – 11	<ol style="list-style-type: none"> 1. Brock University, Faculty of Math and Science, www.brocku.ca/scientificallyyours 2. Scientifically Yours 3. None 4. Scientifically Yours is a two day residential workshop designed to encourage young people in Grades 10 and 11 to continue their studies in the sciences and to pursue careers in science-related fields. Scientifically Yours provides an opportunity for students to learn more about science in a university setting. 	(\$250.00 + GST) Limited enrollment, so register early.	Thursday, May 11 – Friday, May 12, 2017	Registration opens early March, and closes on April 23, 2017.
Grade 10 – 11	<ol style="list-style-type: none"> 1. University of Guelph, https://www.uoguelph.ca/engineering/interaction 2. Interaction 3. None 4. Designed for university-bound grade 10 and 11 high school students, this conference will introduce university living and learning through informative and interactive sessions led by our faculty and staff. This year, the University of Guelph will offer approximately 35 sessions that provide students with an opportunity to learn more about our academic disciplines and student services. Explore the University of Guelph community and learn more about our academic disciplines and student services. From "Introduction to DNA Barcoding", to "Creative Digital Music", "The World of Medical Physics", or "Revisiting the Lemonade Stand", your choices are varied. 	\$30/student	April 26 – April 27, 2017	Available February 2017

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Grade 9 – 12	<ol style="list-style-type: none"> 1. McMaster University, Faculty of Engineering http://leap.mcmaster.ca/index.html 2. Learning Enrichment Advancement Placement (L.E.A.P.) 3. None 4. L.E.A.P. introduces high school students to areas of engineering, science and technology through hands on experiments and projects. We are dedicated to the development of creativity, innovation, and excellence while encouraging critical thinking, personal growth, and a passion for learning. 	Tuition \$750 Residence \$1,350 Meal Plan \$250	Session 1 July 4-14, 2017 Session 2 July 17-28, 2017 Session 3 July 31 - August 11, 2017	
Grade 11 Girls	<ol style="list-style-type: none"> 1. McMaster University, Faculty of Engineering http://www.eng.mcmaster.ca/engalumni/women_in_eng/EngOvernightGirls.html 2. Eng Overnight: For Grade 11 Girls 3. Grade 11 Girls 4. The Faculty of Engineering at McMaster University is undertaking a series of new initiatives to encourage young women to explore opportunities within the world of engineering. Are you a Grade 11 girl who is interested in attending Engineering at McMaster University? Come visit our campus and get an opportunity to interact with female undergraduate engineering students and see what McMaster Engineering is all about through this overnight experience! During your time at McMaster University, you will be able to experience hands on workshops, campus/residence life and expand your soft skills! 	?	Friday, May 12 – Saturday, May 13, 2017	?

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Grade 9 – 12 Girls	<ol style="list-style-type: none"> 1. McMaster University, Faculty of Engineering http://www.eng.mcmaster.ca/engalumni/women_in_eng/OutreachForGirls.html 2. Outreach for Girls Conference 3. Grade 9 – 12 Girls 4. The Faculty of Engineering at McMaster University is undertaking a series of new initiatives to encourage young women to explore opportunities within the world of engineering. The focus of this conference is to enable young women in grades 9 to 12 to participate in fun, engaging and informative programming to inspire them to consider the wide-ranging and impactful opportunities within the engineering profession. Students will participate in hands-on projects, be mentored by high-achieving female engineering students, talk to our female faculty, and meet new friends. 	\$30/student	Thursday, June 1, 2017	Thursday, April 26, 2017, 12:00 p.m.
Grade 9 – 12	<ol style="list-style-type: none"> 1. McMaster University, Faculty of Physics and Astronomy, http://www.science.mcmaster.ca/outreach/outreach/physics-astronomy/physics-video-contest.html 2. Physics@Mac Video Contest 3. None 4. Students may work in teams of 2, 3 or 4 to produce a short video (no more than four minutes) that demonstrates and communicates a given physics concept in a creative way. We are not looking for a polished product and teams will not be judged on the basis of the quality of their cameras (cell phone cameras are perfectly acceptable). 		Not to be held 2017	

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Entering Grade 10-12	<ol style="list-style-type: none"> 1. Queen's University, Faculty of Engineering and Applied Science http://engineering.queensu.ca/about-us/educational-outreach/queens-summer-engineering-academy/ 2. Summer Engineering Academy 3. Entering Grade 10 – 12 4. Queen's offers an introductory engineering experience for students entering grades 10 to 12. With both residential and day options available, EngAGE is an engineering-focused educational summer camp that exposes your child to the fields of Chemical, Civil, Electrical & Computing, and Mechanical engineering. Using lab facilities and thought-provoking team projects, your child will collaborate with peers and learn leadership skills while experiencing a broad engineering overview. 	1 week Tuition only \$475; Tuition and Residence \$1300 2 weeks Tuition only \$950; Tuition and Residence \$2600	Week 1: July 17-21, 2017 Week 2: July 24-28, 2017 Week 3: July 31-August 4, 2017 Week 4: August 14-18, 2017	?
Entering Grade 8-9	<ol style="list-style-type: none"> 1. Queen's University, Faculty of Engineering and Applied Science http://engineering.queensu.ca/about-us/educational-outreach/queens-summer-engineering-academy/ 2. Summer Engineering Academy Junior 3. Entering Grade 8 – 9 4. Queen's offers an introductory engineering experience for students entering grades 10 to 12. With both residential and day options available, EngAGE is an engineering-focused educational summer camp that exposes your child to the fields of Chemical, Civil, Electrical & Computing, and Mechanical engineering. Using lab facilities and thought-provoking team projects, your child will collaborate with peers and learn leadership skills while experiencing a broad engineering overview. 	1 week Tuition only \$435; Tuition and Residence \$1260 2 weeks Tuition only \$870; Tuition and Residence \$2520	Week 1: July 17-21, 2017 Week 2: July 24-28, 2017 Week 3: July 31-August 4, 2017 Week 4: August 14-18, 2017	?

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Age 13-18	<ol style="list-style-type: none"> 1. Trent University, http://forensiccamp.nrdpfc.ca/ 2. Forensic Science Camp 3. None 4. Stimulate an interest in the science by combining the excitement of crime scene investigation and DNA Forensics with the educational opportunity to learn from practicing experts. Campers will hear first-hand from practitioners in fields such as Bloodstain Pattern Analysis, Forensic Entomology, Anthropology, Wildlife DNA Studies. 	2015 Rates Residential Camp \$775; Day Camp \$275. They offer full and partial bursaries to students that express financial need, as well as academic excellence.	?? for 2017	?? for 2017
Grade 9 – 10	<ol style="list-style-type: none"> 1. Trent University, www.trentcamps.ca 2. Summer Camp 3. None 	?	?	?
Grade 10 – 11	<ol style="list-style-type: none"> 1. University of Toronto, Faculty of Applied Science and Engineering, http://outreach.engineering.utoronto.ca/pre-university-programs/march-break-programs/ 2. DEEP Leadership at March Break 3. None 4. DEEP Leadership at March Break offers high school students the opportunity to explore personal leadership development through an integrated curriculum that includes practical applications drawn from STEM (science, technology, engineering and math) fields. Participants will explore topics in science and engineering through interdisciplinary activities. Participants will make connections between their own leadership development and exploring their interests in STEM fields. 	\$285??	March 13 – 17, 2017??	

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Grade 9 – 12	<ol style="list-style-type: none"> 1. University of Toronto, Faculty of Applied Science and Engineering, http://outreach.engineering.utoronto.ca/pre-university-programs/deep-summer-academy/ 2. DEEP Summer Academy 3. None 4. Inspiring Bright Young Minds. The Da Vinci Engineering Enrichment Program (DEEP) is designed for highly motivated high school students with an aptitude for science and math. DEEP provides students from around the world with the opportunity for advanced study in a variety of engineering, technology, business and science disciplines. Since its inception in 2003, DEEP has brought together over 10,000 like-minded students to explore some of the most innovative topics in engineering and science today—taught by some of our faculty’s top alumni, PhD candidates, and Master’s and undergraduate students. The program is designed to expose bright young minds to concepts usually presented in the upper years of an undergraduate degree or in graduate school. Get a head start on exploring your options for a university degree and career. Complement your current academic studies with this unique engineering experience. 	Cost ?? \$50 registration fee??	July ?, 2017	

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Grade 9 – 11	<ol style="list-style-type: none"> 1. University of Toronto, Faculty of Applied Science and Engineering, http://outreach.engineering.utoronto.ca/pre-university-programs/engineering-high-school-saturday-program/ 2. Engineering High School Saturday Program 3. None 4. Designed with student success in mind, the High School Saturday Program encourages students to begin to explore science, engineering, math and technology in a community-oriented, confidence-building environment. Each Saturday session includes discovery-based science and engineering activities, as well as a spotlight on a key element of university life. A selection of STEM disciplines will be represented, with a new topic and discipline each week. The program includes of three sessions held on consecutive Saturdays. 	\$175	?	
	<ol style="list-style-type: none"> 1. University of Toronto, Department of Physics, https://www.physics.utoronto.ca/physics-at-uoft/outreach/physics-olympiad-training-in-toronto-poptor-february-2016 2. Physics Olympiad Training in TORonto (POPTOR) 3. None 4. POPTOR is aimed at high school students interested in preparing for the Canadian Physics Olympiad. Both theoretical and experimental training will be provided, in a style similar to what competitors may encounter in the International Physics Olympiad. Any high school student is free to apply. Complete the screening problem set to the best of your ability. The submission details are listed within the problem set. 		Spring 2017	January 8, 2017

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Grade 9 – 12	<ol style="list-style-type: none"> 1. University of Toronto, Collaborative Program in Neuroscience, http://www.neuroscience.utoronto.ca/events/brainbee.htm 2. Toronto Brain Bee (GTA qualifier for CIHR National Brain Bee at McMaster Saturday, May 28, 2016) 3. None 4. The Brain Bee is a knowledge-based competition for high school students in the GTA region. It tests the knowledge of the students in neuroscience. The original contest format was derived from the traditional Spelling Bee. 	?	Friday, March 31, 2017	?
Grade 9 – 10 and Grade 11 – 12	<ol style="list-style-type: none"> 1. University of Toronto, Faculty of Applied Science & Engineering http://outreach.engineering.utoronto.ca/uthsdc/ 2. University of Toronto High School Design Competition 3. None 4. Brought to you by the Hi-Skule Committee. The University of Toronto High School Design Competition (UTHSDC) is a one-day design competition for high school students; the goal of this competition is to engage and inspire students interested in learning more about engineering, while gaining some practical design experience. 	\$15/student	Sunday, November 27, 2016	?

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Grade 9 – 12	<ol style="list-style-type: none"> 1. University of Toronto, http://tryengineering.org/become-an-engineer/get-involved/university-toronto-space-design-contest-utsdc 2. University of Toronto Space Design Contest 3. None 4. The University of Toronto Space Design Contest (UTSDC) is an annual, international aerospace competition for high school students. Each year, we propose an exciting aerospace-related challenge to teams around the world. Students work on their design solutions through the academic year and compete with fellow teams on the St. George Campus (Toronto, ON) in the spring. Students have the opportunity to interact with university professors and members of the space industry at a series of workshops and seminars held by UTSDC. The competition is an excellent enrichment opportunity targeted to young minds with a passion for science, engineering, problem solving and innovation. 	?	?	?
Grade 11 females	<ol style="list-style-type: none"> 1. University of Waterloo, Engineering; https://uwaterloo.ca/catalyst/applications/grade-11-girls-conference 2. Grade 11 Girls Conference by Engineering Catalyst 3. Female students in grade 11. 4. An overnight engineering conference for women in grade 11. Only 50 female students are selected through an application process to participate in hands-on workshops, stay overnight in a university residence, compete in a design competition, and experience Waterloo student life. 	registration fee: \$200	Conference on April 28 – 30, 2017	Applications open: December 2016; Acceptance Rounds: 1 – January, 2017; 2 – February 2017; 3 – March 2017

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Entering Grade 10 or higher	<ol style="list-style-type: none"> 1. University of Waterloo, Engineering; https://uwaterloo.ca/catalyst/catalyst-summer-program 2. Summer Program by Engineering Catalyst 3. The Catalyst Summer Program is only open to current high school students (entering grade 10 or higher) and each applicant must submit an application in order to complete registration. Each sessions will be restricted to approximately eighteen students. 4. The Catalyst Summer Program is a 3 week program (2 session weeks, 1 week volunteer placement) that offers a unique, interdisciplinary approach to the “traditional leadership program”. Drawing from the University of Waterloo’s strengths in engineering, science and innovation, high school students develop leadership skills within a community and problem-based context - with real opportunities to put new skills to practice! 	registration fee: \$575+HST	Summer 2017	Applications open: December 2016; Acceptance Rounds: 1 – January, 2017; 2 – February 2017; 3 – March 2017

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Grade 10	<ol style="list-style-type: none"> 1. University of Waterloo, Waterloo Unlimited; https://uwaterloo.ca/unlimited/ 2. Waterloo Unlimited Grade 10 program 3. The Waterloo Unlimited Grade 10 program is only open to current high school students in Grade 10. Each applicant must submit an application in order to complete registration. 4. Waterloo Unlimited: A Canada-wide enrichment program for students of exceptional potential. High school students will experience lectures, seminars, workshops, labs and social time with faculty and students on campus at the University of Waterloo. We live in the midst of change: technological change, social change, political change, environmental change. In modern times humankind has experienced an unprecedented rapidity of change. How do we adapt, or not adapt... and what are the consequences? Students will consider the perspectives of scientists, engineers, writers, and philosophers, as they examine the dynamics of "Change". 	Program fee, includes meals: \$550 Supervised overnight shared residence accommodation: \$180 Limited bursary support is available to students in financial need.	May 14 - 18, 2017	Applications close March 23, 2017

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Grade 11	<ol style="list-style-type: none"> 1. University of Waterloo, Waterloo Unlimited; https://uwaterloo.ca/unlimited/ 2. Waterloo Unlimited Grade 11 program 3. The Waterloo Unlimited Grade 11 program is only open to current high school students in Grade 11. Each applicant must submit an application in order to complete registration. 4. Waterloo Unlimited: A Canada-wide enrichment program for students of exceptional potential. High school students will experience lectures, seminars, workshops, labs and social time with faculty and students on campus at the University of Waterloo. From engineering and the environment to science fiction and virtual reality, students will spend a week exploring the theme of design with a community of like-minded peers. "Design" 	Program fee, includes meals: \$550 Supervised overnight shared hotel accommodation: \$330 Limited bursary support is available to students in financial need.	March 13-17, 2017	Applications close December 14, 2016
Grade 12	<ol style="list-style-type: none"> 1. University of Waterloo, Waterloo Unlimited; https://uwaterloo.ca/unlimited/ 2. Waterloo Unlimited Grade 12 program 3. The Waterloo Unlimited Grade 12 program is only open to current high school students in Grade 12. Each applicant must submit an application in order to complete registration. 4. Waterloo Unlimited: A Canada-wide enrichment program for students of exceptional potential. High school students will experience lectures, seminars, workshops, labs and social time with faculty and students on campus at the University of Waterloo. Expect an immersive, pre-university experience including an introduction to the art and science of reading academic papers, an opportunity to explore cutting-edge discoveries with professors, and the chance to engage with current student researchers. "Road Map to Research". 	Program fee, includes meals: \$350 Supervised overnight shared hotel accommodation: \$200. Limited bursary support is available to students in financial need.	November 16-18, 2016	Applications close October 7, 2016

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Grade 9 – 12	<ol style="list-style-type: none"> 1. York University, http://helix.science.yorku.ca/ 2. Helix Summer Science institute 3. None 4. Considered one of Canada’s premier high school summer science enrichment program for high-performing students, we have experienced very high demand for spaces. Please consider applying early for summer 2016 in order to avoid disappointment. In this intense and academically rigorous series of week-long, non-credit courses, students learn cutting-edge research through interactive lectures and hands-on labs, while experiencing life as an undergraduate student. Helix Summer Science Institute runs during the month of July each summer. We offer streams in Physics, Astronomy, and Astrophysics, Biomedical Science, Applied Mathematics, and Environmental Biology and Chemistry. Each course draws upon actual research conducted within the Faculty of Science at York University and is developed and delivered by professors, post-doctoral fellows, visiting scholars, and graduate students. 	2016 rates \$389/week for tuition; \$1200/week for residence	July 2017	2017 ?; 2016 applications will be accepted in March 2016. First round application deadline: May 1, 2016 Second round application deadline: May 30, 2016 Final Deadline: June 30, 2016

Science Enrichment Opportunities – Updated to January 30, 2017

Prepared by T. McCarthy, Head, Science Department, St. Ignatius of Loyola Catholic Secondary School, Oakville, ON

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 11 or 12	<ol style="list-style-type: none"> 1. York University, http://spark.science.yorku.ca/ 2. Spark - Science and Engineering Summer Research Award 3. Applicants must be in grade 11 or 12, working toward completion of an Ontario Secondary School Diploma (OSSD) with a minimum of six 4U or 4M courses, and at least one 12U science AND 12U math course. A minimum average of 85% is required. 4. Spark is an award of up to \$4000 allowing aspiring young scientists and engineers to participate in ground-breaking research at York University. Winners of the award will join a research group in either the Faculty of Science or the Lassonde School of Engineering at York University for up to two months (in July and August). Under the guidance of the lead researcher you will assist in experiments, gather and analyse data, conduct literature searches, consider the design of future experiments, and write reports on experiments and other activities. It's even possible that your name will appear as co-author on scientific publications arising from the work. In addition, if you are selected as a finalist and accept admission to York you'll be first in line for a First Year Research Placement. This is a program that sees top undergraduates associated with a research group, able to participate in research meetings, receive mentoring from graduate students and senior undergrads in the group – all while you're doing your courses in first year. 	2017? 2016 Award up to \$4000	July, August	2017? April 1, 2016

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 9 – 12	<ol style="list-style-type: none"> 1. Canada, Government of http://www.science.gc.ca/default.asp?lang=En&n=F90AC2D1-1 2. Youth Science Canada National Science and Technology Week 3. None 4. Join us in celebrating science and technology with Canadians. Any educational event -- large or small -- with a focus on science or technology is a valuable part of National Science and Technology Week (NSTW). 		?	
Grade 11 – 12	<ol style="list-style-type: none"> 1. Canadian Stockholm Junior Water Prize, www.youthscience.ca , www.sjwp.ca 2. Stockholm Junior Water Prize 3. Submit your project to your Regional Science Fair (apps.yfsf.ca/fairlocator/), Canada Wide Science Fair 4. Are you a student in grade 11 or 12? Are you passionate about water and the environment? Participate in the most prestigious international award for a high school water science project!!! The winner will represent Canada in Stockholm. 		?	
Grade 10 – 12	<ol style="list-style-type: none"> 1. Deep River Science Academy, www.drsc.ca 2. Deep River Science Academy Summer Science Immersion Program 3. None 4. The Summer Science Immersion program is a six-week summer program for high school students from grades 10 to 12. The program is not for the faint of heart – it’s an intensive six weeks of chemistry, physics, biology, environmental science, and engineering. Students choose their subject area and are placed in either the laboratory or in the field depending on the research project they have been assigned. 	2016 \$5,500 tuition	Cancelled 2017 July 3 – August 13, 2016	March 15, 2016

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 7 – 10 Girls	<ol style="list-style-type: none"> 1. Ontario Network of Women In Engineering – Go Eng Girl http://www.onwie.ca/programs/go-eng-girl Held at various engineering universities https://www.uoguelph.ca/engineering/go-eng-girl http://www.eng.mcmaster.ca/engalumni/women_in_eng/go_eng_girl.html http://engineering.queensu.ca/Outreach/KidsYouth/GoENGGirl.html http://www.ryerson.ca/feas/programs/wie/goenggirl.html http://www.engineering.utoronto.ca/events/go-eng-girl-2015/ https://uwaterloo.ca/women-in-engineering/events/go-eng-girl http://www.eng.uwo.ca/outreach/just_for_girls/goenggirl/index.html 2. Go Eng Girl 3. Gr. 7 – 10 Girls 4. Go ENG Girl provides an exciting opportunity for girls in grades 7-10 across Ontario and one parent/guardian to visit their local university campus and learn from women professionals, academics and students about the wonderful world of engineering. This event is free of cost, and is an opportunity for both Parents and Girls, to learn what engineering is all about and the possibilities that open for the girls, when they choose engineering. While the girls enjoy fun hands-on activities and student exhibits, their parents are treated to an informative session about the path to a career in engineering. 	Free	October 2017 (dates vary)	Applications open August 31, 2017

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 11 registration for next year's Grade 12 courses	<ol style="list-style-type: none"> 1. Ontario Science Centre, http://www.ontariosciencecentre.ca/OSCSchool/ 2. Science School 3. Students must complete a minimum of 15 practicum hours in addition to their coursework. These hours can be counted towards the 40 Community Service Hours required by the Ministry of Education. 4. Earn University preparation science and mathematics credits during an enriched semester at the Ontario Science Centre. Students gain experience on the communication of science through practicum hours spent participating in engaging activities within the Science Centre and the local community. Only 30 students from across Ontario are selected based on the student's written application and essay, academic record and recommendations from two teachers, one of whom must be a science or mathematics teacher. Final selection may be completed through an interview process. Students can choose from SBI 4U, SCH 4U, SPH 4U, MHF 4U, MCV 4U. 	No tuition fees but the student must be registered in either the TDSB or TCDSB for the semester they attend Science School.	2017-2018 school year	April 3, 2017

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 10 – 12 (16 – 18 years of age)	<ol style="list-style-type: none"> 1. Operation Wallacea, http://opwall.com/sixth-form-high-school/options-for-school-expeditions/ 2. Operation Wallacea Environmental and Conservation School Expeditions 3. None 4. The various biodiversity surveys being run as part of the Operation Wallacea programme are mostly carried out by university academics and university undergraduates acting as Research Assistants or completing independent research projects. However, there are some tasks that need a much greater amount of manpower than available just from university students. These tasks are being carried out by groups of high school/sixth form groups from the UK, other parts of Europe, North America, Asia and Australia who are generally accompanied by their biology, geography or environmental science teachers (although occasionally teachers from other disciplines go with the group). These groups, known as General Surveyors, join the mixed teams of scientists and undergraduates but undertake their own programmes as school expeditions. There are two week expeditions available at each of the sites for 16 – 18 year old students and are ideal for those studying biology, geography, environmental courses or interested in conservation. The two week expeditions have slightly different structures in each country and manuals outlining the programme of skills training, academic lectures, practicals to demonstrate the differing types of surveys being undertaken and the field research to be carried out are provided to the students in advance of the expeditions and are available on each countries page on the website. Training is also given in how to prepare for the expedition and how to fundraise. 	\$2,075	various	various

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Grade; Age	<ol style="list-style-type: none"> 1. Organization 2. Program 3. Criteria 4. Description 	Cost	Program Date	Application Due Date
Grade 11 – 12	<ol style="list-style-type: none"> 1. Perimeter Institute for Theoretical Physics, https://www.perimeterinstitute.ca/outreach/students/programs/international-summer-school-young-physicists 2. International Summer School For Young Physicists 3. None 4. The ISSYP is an exciting and challenging two-week program for Canadian and international high school students who have a keen interest in theoretical physics and intend to pursue physics studies at the university level. 	\$500	July 16 – July 29, 2017	March 31, 2017
Grade 10 – 12	<ol style="list-style-type: none"> 1. Shad Valley, Waterloo, www.shad.ca 2. Shad Valley 3. High overall academic achievement, with a passion for math and the sciences. Creative and entrepreneurial minds. Initiative and drive. Excellent communications and interpersonal skills. Leadership skills, as well as the ability to work as a team member. Participation in extracurricular activities. 4. Demanding 4-week program that offers ambitious program of academics, collaborative projects, and physics/recreational activities. 	The fee to attend the program is \$4,500, which covers accommodation, meals, academic activities and field trips. Bursaries and scholarships are available	Summer (July)	The online application for the summer 2017 program will be available starting in mid-September 2016.