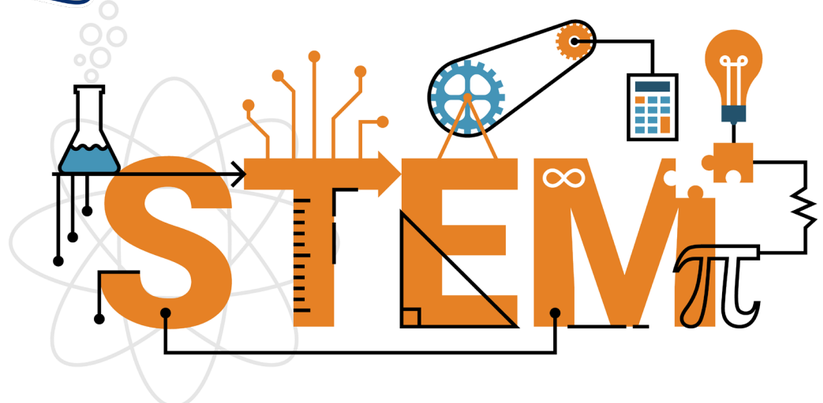
Henderson STEM Focus Program

September 2020 – Grade 9 Introduction to STEM



What are STEM Subjects?

Here's a list of some of the post-secondary STEM courses you could study:

Aerospace Engineering
Architecture
Astronomy
Biochemistry
Biomedical Engineering
Chemical Engineering
Civil Engineering
Computer Science
Cybersecurity
Electrical Engineering
Environmental Science
Mathematical Optimization
Mechanical Engineering
Nanotechnology
Pharmaceutical Sciences
Psychology
Robotics
Statistics

8 Benefits of STEM Education

1. Fosters ingenuity and creativity
2. Builds resilience
3. Encourages experimentation
4. Encourages teamwork
5. Encourages knowledge application
6. Encourages proper tech use
7. Teaches problem-solving
8. Encourages adaptation

www.theedadvocate.org Jan 2019

"…in a complex and uncertain global economy, science, technology, engineering, and mathematics (STEM) skills are in the spotlight, as countries aim to maximize their economic competitiveness and productivity. As a result, governments, policy-makers, educators, and business leaders are particularly concerned about how well equipped Canada is with the STEM skills needed to fulfil labour market demands and promote innovation"

Council of Canadian Academics - Expert Panel on STEM

Features

1. Program started September 2020.
2. Will be open to grade 9 students who are highly motivated, love learning and have an aptitude for mathematics and science.
3. Includes community partnerships and experiential learning inside and outside of the classroom.
4. Students will receive a junior and senior STEM certificate.
5. Application is required for consideration.

Student Benefits

1. Students receive an enriched learning experience in Science, Technology, Engineering and Mathematics.
2. Recognizes students that are pursuing a STEM pathway, in multiple post-secondary destinations.
3. Provides a clear and focused STEM pathway to their post-secondary destination.

STEM Program Academic Plan

Grade 9

- Students would enroll in STEM focus courses in Science, Technology, Geography, and Math.
- Enrollment in these focus courses allow them to participate within an inquiry project designed to inspire/challenge their thoughts around how Math/Science/Tech can be used to solve real-world problems.
- University of Waterloo Pascal Math contest and Beaver Computing Challenge.
- McMaster Venture Academy workshops.

Grade 10

- Students continue with STEM focus courses in Science, Technology and Math culminating in an integrated STEM project.
- Enriched Academic Math recommended.
- Participate in standardized PSAT testing.
- STEM careers focus course.
- McMaster Venture Academy workshops.
- University of Waterloo Cayley Math contest.

Grade 11

- Enroll in critical mass of Science/Math/Tech courses
- Biology/Chemistry/Physics/Tech Design/Manufacturing/Computer Engineering/Comp.Sci
- Students study an IDC4U course (focus on STEM) which combines math, science and technology curriculums
- University of Waterloo Fermat Math contest

Grade 12

- Enroll in critical mass of Science/Math/Tech courses
- Biology/Chemistry/Physics/Tech Design/Manufacturing/Computer Engineering/Comp.Sci
- University of Waterloo Euclid Math contest
- McMaster University Sir Isaac Newton Physics Contest
- Post-secondary seminars in STEM applications to post-secondary

Potential NFH STEM Program Timetable Year by Year

Grade 9

Period	Semester 1	Semester 2
1	STEM Math	English ENG1D1
2	Phys Ed or Fitness	STEM Geography
3	Stem Tech TIJ1O1-S	French FSF1D
4	Elective or STEM Science SNC1D1-S	Elective or STEM Science SNC1D1-S

Grade 10

Period	Semester 1	Semester 2
1	STEM Math MPM2D1-E	English ENG2D1
2	Civics/Stem Careers	Elective
3	Computer Engineering TEJ2O ***	History CHC2D
4	STEM Science SNC2D1-S	Elective

Grade 11

Period	Semester 1	Semester 2
1	University Math MCR3U**	University English ENG3U
2	University Physics SPH3U	University Biology SBI3U
3	Computer Engineering TEJ3M*	University Chemistry SCH3U
4	Elective	STEM Project IDC4U

Grade 12

Period	Semester 1	Semester 2
1	Advanced Functions MHF4U	University English ENG4U
2	University Physics SPH4U	University Biology SBI4U
3	Computer Engineering TEJ4M*	University Chemistry SCH4U
4	Non Math/Science Elective	Calculus MCV4U

*** May be replaced with Tech Design TDJ3M/4M, advanced Manufacturing TMJ3M/4M, computer programming ICS3U/4U**

**** MCR3U may be taken in grade 10 for fast-tracking purposes**

***** May be replaced with TDJ20, TMJ20 or ICS20**