Programs Pipeline

2022 - 2023

www.mathstronauts.ca

Register Here

Starting **August 29, 2022**

Spark Program

Grades 4-5

- Exploring numeracy through fun interactive workshops
- 8 drop-in workshops (page 2)

STEAM Engine

Grades 5-8

- Introduction to fundamental digital literacy skills such as coding and 3D modeling
- Meet real-life engineers
- 4 courses (page 3)

IGNITE Program

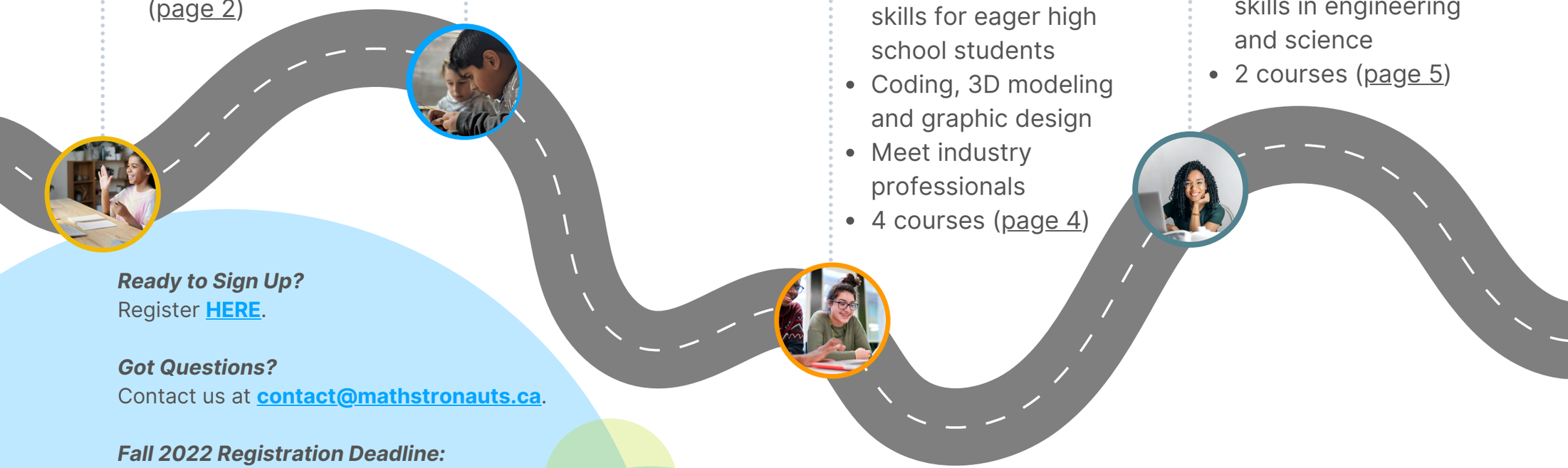
Grades 9-12

- General and specialized STEM skills for eager high school students
- Coding, 3D modeling and graphic design
- Meet industry professionals
- 4 courses (page 4)

NEXUS Program

Grades 11-12

- Specialized program for post-secondary bound high school students
- Preparation for technical and soft skills in engineering and science
- 2 courses (page 5)



Ready to Sign Up?
Register **HERE**.

Got Questions?
Contact us at **contact@mathstronauts.ca**.

Fall 2022 Registration Deadline:
October 2, 2022

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Proudly funded by:

HAMILTON COMMUNITY FOUNDATION

Spark Program

Grades 4-5

The Spark Program is a new program designed to improve numeracy skills in Grade 4 and 5 students through fun and interactive activities. The program uses a “drop-in” structure consisting of 8 two-hour standalone workshops facilitated by instructors and volunteers. Topics covered in the program will range from number sense and numeration to geometry and spatial reasoning. Students will create coding projects, art projects, cookbooks and more! This program will be offered through collaborative partnerships with the 4 host organizations listed above.

Entry Point*

Spark Program

Level 1

Program Highlights:

- *An exploration of numeracy concepts.*
- *Using digital tools such as **Scratch**, **Canva**, **Desmos**, and **Tinkercad**.*
- *8 workshops; drop-in style.*
- *Offered through community partners: Boys and Girls Club of Hamilton-Halton, YMCA Hamilton-Halton, Hamilton Public Library and Munar Learning Centre.*

bgc Canada

YMCA Hamilton Burlington Brantford

Hamilton Public Library

Munar Learning Centre

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GENERAL MOTORS CANADA

STEAM Engine

Grades 5-8

The STEAM Engine Program is a weekly program in which students go on an exciting journey into STEAM concepts with a focus on digital literacy skills such as computer programming (coding), 3D modeling, and graphic design. Students will build skills in technology, science, and art, and will also learn valuable soft skills along the way.

Entry Point*

In-Class

Level 2

- *5-week in-class program (during school hours); Tablet compatible.*
- *If you'd like this program to be offered to your child at school, please connect us with your child's teacher via contact@mathstronauts.ca.*

Ignition

(Previously called "Beginner")

Level 2

- *Introduction to fundamental coding concepts using block coding.*
- *Using **Scratch** to create animations & **Tinkercad** to make 3D models.*
- *Tablet compatible; no previous experience required.*

NEW!

Liftoff

Level 3

- *Transition from block coding with **Scratch** to script coding with **Python.***
- *Requires a computer or laptop; completion of In-Class or Ignition (Level 2) required.*

Flight

(Previously called "Intermediate")

Level 4

- *Introduction to script coding in **Python** to create a weather app & **Tinkercad** to make 3D models.*
- *Requires a computer or laptop; completion of Liftoff (Level 3) required.*

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IGNITE Program

Grades 9-12

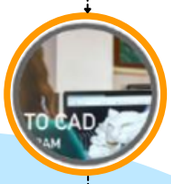
The IGNITE Program is for enthusiastic high school students who are interested in exploring STEM while developing essential skills. The IGNITE Program contains generalized and specialized courses that either help students explore STEM topics to discover their interests, or focus on a specific subject matter to master a certain skill. Courses within the IGNITE Program are developed in consideration of the Ontario curriculum. Get ready to take your learning to a whole new level!

Entry Point*

Tech Explore

Level 4.5

- *Introduction to script coding and simple modeling*
- *Use **Python** to create a Weather App & **FreeCAD** to make 3D models*
- *Requires a computer or laptop; no previous experience required*



Intro to Cad

Level 5

- *Specialized program exploring process of CAD Modeling*
- *Use **FreeCAD** to develop complex models, perform FEM stress tests, etc*
- *Requires a computer or laptop; Tech Explore (Level 4.5) preferred but not required*

Game Dev

Level 5

- *Specialized program exploring process of Game Development*
- *Use **Python** to design a game, and various tools to develop graphics*
- *Requires a computer or laptop; Tech Explore (Level 4.5) preferred but not required*

Web Dev

Level 5

- *Specialized program exploring process of Website Development*
- *Create a website by learning **HTML**, **CSS**, and **JavaScript** programming*
- *Requires a computer or laptop; Tech Explore (Level 4.5) preferred but not required*

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NEXUS Program

Grades 11-12

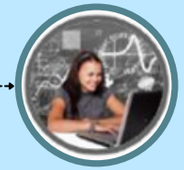
The NEXUS Program is designed for passionate post-secondary bound high school students. Whether you are planning on going into college, university, apprenticeship programs, or other post-secondary pathways, there's a place for you at NEXUS. This program is an opportunity for students to acquire the technical and soft skills necessary to succeed after high school focused on engineering or science. NEXUS students will also develop soft skills that have been shown to be crucial for post-secondary success, including time management, effective studying, and note-taking.

Entry Point*

Engineering

Level 6

- *An exploration of coding principles in the context of machine learning in the **Python** programming language*
- *You will use machine learning to program a game to play by itself (and get better with time!)*
- *Requires a computer or laptop; no previous experience required*



Science

Level 6

- *Exploring Biology, Chemistry and Physics from the unique lens of the Science of Superheroes!*
- *Interactive highly engaging course for a fun, informative and comprehensive introduction to science topics*
- *Using inquiry-based learning, you will design your own superhero by using principles of science!*
- *Requires a computer or laptop; no previous experience required*

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