SCIENCE, TECHNOLOGY, ENGINEERING AND MATH

STEM programs give eager young minds early exposure to stimulating activities that will kick start their futures!

Participants will have the opportunity to gain critical thinking and inquiry skills, develop problem solving abilities, and innovate and explore new ideas. Our teaching methods are inquiry-based, process-focused, and student-centered.

Browse the programs offered and enroll your budding scientist to give them a head start in a growing field that will help them prepare for future career opportunities.

View program dates and locations online at brampton.ca/recreation and enrol today!

ENGINEERING PROGRAMS

ENGINEERING LEGO® BUILDERS LEVEL 1
Participants will develop their social skills and deepen their understanding of the world around them using Duplo LEGO® bricks as they discuss, build, role-play and share ideas. Each week a new theme will help them to explore the world beyond their immediate surroundings, while learning new vocabulary about people, places, and things in real life. Themes may include: community helpers, shopping, food vendors, public transportation, and healthcare.

Age: 3 – 5
Class Length: 1 Hour
Number of Classes: 6 | Cost: $60

ENGINEERING LEGO® BUILDERS LEVEL 2
Participants will develop their social skills and deepen their understanding of the world around them using Duplo LEGO® bricks as they discuss, build, role-play and share ideas. Each week a new theme will help them to explore the world beyond their immediate surroundings, while learning new vocabulary about people, places, and things in real life. Themes may include: public transportation, preschool, physical activities, touring town, extended families, and helping each other.

Prerequisite: Engineering LEGO® Builders 1
(3-5 Years)
Age: 3 – 5
Class Length: 1 Hour
Number of Classes: 6 | Cost: $60

ENGINEERING LEGO® STEAM PARK LEVEL 1
Participants explore the world around them as they use functional elements to build interactive models using Duplo LEGO® bricks. Each week they will develop science, technology, engineering, art, and math (STEAM) skills, including understanding cause and effect relationships, making predictions and observations, problem-solving and creating representations. Some of the themes may include: ramps, moving on water, probability, performing arts, gears, and chain reactions.

Age: 3 – 5
Class Length: 1 Hour
Number of Classes: 6 | Cost: $60

ENGINEERING LEGO® STEAM PARK LEVEL 2
Participants will continue to explore the world around them as they use functional elements to build interactive models using Duplo LEGO® bricks. Each week they will continue to develop science, technology, engineering, art, and math (STEAM) skills, while increasing their understanding of cause and effect relationships, making predictions and observations, problem-solving and creating representations that were introduced previously.

Prerequisite: Engineering LEGO® STEAM Park 1
Age: 3 – 5
Class Length: 1 Hour
Number of Classes: 6 | Cost: $60

ENGINEERING LEGO® EARLY SIMPLE MACHINES LEVEL 1
Participants will be able to work as young scientists, engineers and designers working with Duplo LEGO® simple machines bricks and guided activities that promote design technology, science and mathematics. Participants will work through real world investigations and problem solving to make assumptions and predictions as they make models. Activities may include: pinwheels, spinning tops, seesaws, rafts, car launchers, and measuring cars.

SPRING 2020

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## JOURNEY THROUGH STEM

Have you previously taken a Robotics Mindstorms program? Please note new names for the Mindstorms series in the conversion chart below. Continue the series from the course you’ve already completed or back track to try a previous level that has cool builds and coding opportunities of its own!

### PROGRAM CONVERSION CHART

<table>
<thead>
<tr>
<th>NEW PROGRAM NAMES</th>
<th>OLD PROGRAM NAMES</th>
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</thead>
<tbody>
<tr>
<td>Robotics LEGO® Mindstorms Level 1 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Maker Builder Level 1 (10 to 14 Years)</td>
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<tr>
<td>Robotics LEGO® Mindstorms Level 2 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Maker Builder Level 2 (10 to 14 Years)</td>
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<tr>
<td>Robotics LEGO® Mindstorms Level 3 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Coding Level 1 (10 to 14 Years)</td>
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<tr>
<td>Robotics LEGO® Mindstorms Level 4 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Coding Level 2 (10 to 14 Years)</td>
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<td>Robotics LEGO® Mindstorms Level 5 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Engineering Projects 1 (10 to 14 Years)</td>
</tr>
<tr>
<td>Robotics LEGO® Mindstorms Level 6 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Engineering Projects 2 (10 to 14 Years)</td>
</tr>
<tr>
<td>Robotics LEGO® Mindstorms Level 7 (10 to 14 Years)</td>
<td>Robotics LEGO® Mindstorms Engineering Projects 3 (10 to 14 Years)</td>
</tr>
</tbody>
</table>

### ENG www.nal LEGO® EARLY SIMPLE MACHINES LEVEL 2

Participants will continue to work as young scientists, engineers and designers working with LEGO® simple and powered machines bricks and problem-solving tasks that promote design technology, science and mathematics. Participants will work through real world investigations and use problem solving skills to make assumptions and predictions as they design and make models.

**Prerequisite:** Engineering LEGO® Early Simple Machines 1 (5-7 Years)

**Age:** 5 – 7

**Class Length:** 1 Hour

**Number of Classes:** 6 | **Cost:** $60

## ENGINEERING LEGO® SIMPLE MACHINES LEVEL 1

Participants will be able to work as young scientists, engineers and designers working with LEGO® simple machines bricks and guided activities that promote design technology, science and mathematics. Participants will work through real world activities surrounding the topics of gears, wheels, axles, levers, cams, inclined planes.

**Age:** 7 – 10

**Class Length:** 1.5 Hours

**Number of Classes:** 6 | **Cost:** $90

## ENGINEERING LEGO® SIMPLE AND POWERED MACHINES LEVEL 1

Participants will be able to work as young scientists, engineers and designers working with LEGO® simple and powered machines bricks and guided activities that promote design technology, science and mathematics. Participants will work through real world activities surrounding the themes of gears, pulleys, wheels, axles, levers, ratchets, and power.

**Prerequisite:** Engineering LEGO® Simple & Powered Machines 1 (8-13 Years)

**Age:** 8 – 12

**Class Length:** 1.5 Hours

**Number of Classes:** 6 | **Cost:** $90

## ROBOTICS WEDO PROGRAMS

### ROBOTICS LEGO® WEDO LEVEL 1

Using LEGO® WeDo robotics sets, participants will be guided through steps to build and program robots to explore science and engineering concepts. The robot models will help participants investigate and design solutions to real life problems while learning simple coding. Activity topics may include: pulling, speed, robust structures, a frog’s metamorphosis, plants and pollinators, and preventing flooding.

**Age:** 7 – 10

**Class Length:** 1.5 Hours

**Number of Classes:** 6 | **Cost:** $135

### ROBOTICS LEGO® WEDO LEVEL 2

Using LEGO® WeDo robotics sets, participants will build and program robots to solve science and engineering problems. They will further their computing and coding skills while gaining an understanding of how machines and computers process information. Activity topics may include: drop and rescue, sorting to recycle, predator and prey relationships, animal expressions, extreme habitats, and space exploration.

**Prerequisite:** Robotics LEGO® WeDo Level 1 (7-10 Years)

**Age:** 7 – 10

**Class Length:** 1.5 Hours

**Number of Classes:** 6 | **Cost:** $135

### ROBOTICS WEDO LEVEL 3

Using LEGO® WeDo robotics sets, participants will build and program robots to develop computational thinking through coding activities that work to solve real-life problems in natural and artificial systems. Activity topics may include: hazard alarms, cleaning the oceans, wildlife crossings, moving materials, moon base, and grabbing objects.

**Prerequisite:** Robotics LEGO® WeDo Level 2 (7-10 Years)

**Age:** 7 – 10

**Class Length:** 1.5 Hours

**Number of Classes:** 6 | **Cost:** $135
Journey through STEM
ROBOTICS STREAM

START HERE!

Robotics LEGO®
WeDo
(7 to 10 Years)
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

Robotics LEGO®
Mindstorms
(10 to 13 Years)
- Level 1
- Level 2
- Level 3
- Level 4
- Level 5
- Level 6
- Level 7

TRY-IT, SPECIAL EVENTS & FAMILY WORKSHOPS
(7+ Years)
- Robotics LEGO®
  WeDo Builder Animals
- Robotics LEGO®
  WeDo Builder Toys & Tools
- Robotics LEGO®
  WeDo Builder Cars & Vehicles

Please note that the previous level of each age group is a prerequisite for the next level.
ROBOTICS LEGO® WEDO LEVEL 4
Using LEGO® WeDo robotics sets, participants will build and program robots to further develop computational thinking and creativity to understand and change the world through coding. Activity topics may include: sending messages, volcano alerts, inspections, emotional design, city safety, and animal senses.
Prerequisite: Robotics LEGO® WeDo Level 3 (7-10 Years)
Age: 7 – 10
Class Length: 1.5 Hours
Number of Classes: 1 | Cost: $22.50

ROBOTICS MINDSTORMS PROGRAMS

ROBOTICS MINDSTORMS LEVEL 1
Using LEGO® Mindstorms robotics sets, participants will grow their creative problem solving skills enabling them to become critical thinkers and makers for the future. Participants will build robots as they work through the maker design process to design, engineer, build and code using motorized models and simple programming. Some of the models may include gyro boy, a colour sorter, puppy robot, robotic arm, and a sound machine.
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 2
Using LEGO® Mindstorms robotics sets, participants will work as design engineers to build and code robots that can ‘Make It Smarter’. Participants will learn to design, build and code robots that can react to their environment through programming to use colour, gyro, touch and ultrasonic sensors to sense a range of data.
Prerequisite: Robotics LEGO® Mindstorms Level 1 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 3
Using LEGO® Mindstorms robotics sets, participants will work to build and code robots. They will learn fundamental computer programming and engineering skills using real world concepts that integrates with science, math, and design technology. Participants will solve computational problems by programming the robots to move in a variety of ways as well as coding the ultrasonic, touch and colour sensors in their robots to complete challenges.
Prerequisite: Robotics LEGO® Mindstorms Level 2 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 4
Using LEGO® Mindstorms robotics sets, participants will focus on coding their robots as they learn fundamental computer programming and engineering skills using real world concepts that integrates with science, math, and design technology. Participants will work to design, build and code a driverless automated wheeled robot.
Prerequisite: Robotics LEGO® Mindstorms Level 3 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 5
Using LEGO® Mindstorms robotics sets, participants will work as design engineers to build and program robots that can ‘Make It Move’. Participants will learn to design, build and code robots that can think and move on their own. Some of the themes of the course include making it move with wheels, displaying speed, moving without wheels, moving up an incline, and moving in a pattern.
Prerequisite: Robotics LEGO® Mindstorms Level 4 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 6
Using LEGO® Mindstorms robotics sets, participants will work as design engineers to build and program robots that can ‘Make It Smarter’. Participants will learn to design, build and code robots that can be considered to be smart autonomous robots that can react to their environment through programming to use colour, gyro, touch and ultrasonic sensors to sense a range of data.
Prerequisite: Robotics LEGO® Mindstorms Level 5 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135

ROBOTICS MINDSTORMS LEVEL 7
Using LEGO® Mindstorms robotics sets, participants will work as design engineers to build and program robots that can ‘Make It System’. Participants will learn to design, build and code robots that can perform complex tasks. Some of the themes of the course include working on robots that can move a ball that picks and places objects, that manufactures by drawing patterns, that can sort colours, and that communicates.
Prerequisite: Robotics LEGO® Mindstorms Level 6 (10-14 Years)
Age: 10 – 14
Class Length: 1.5 Hours
Number of Classes: 6 | Cost: $135
REGISTERED PROGRAMS

COMPUTER VIDEO GAME DESIGNER
Participants will use their imagination to create, design, test, and play their own unique and interactive video games that will help participants better understand how programming works. Participants will primarily use Scratch, with the opportunity also gain an introduction to other programming platforms.
Age: 7 – 10
Class Length: 1.5 Hours

Central Public School
Thu 5:15 pm Apr 30 8 $120 1015317
Sat 9:00 am May 2 8 $120 1015266
Sat 12:30 pm May 2 8 $120 1015267
Sun 10:45 am May 3 8 $120 1015316

COMPUTER VIDEO GAME DESIGNER
Age: 10 – 13
Class Length: 1.5 Hours

Central Public School
Thu 7:00 pm Apr 30 8 $120 1015318
Sat 10:45 am May 2 8 $120 1015319
Sun 9:00 am May 3 8 $120 1015320
Sun 12:30 pm May 3 8 $120 1015321

MATH
Through this program, participants will have fun exploring the world of math. Participants will gain confidence by participating in counting drills and number recognition games to help introduce and reinforce math skills for completing everyday tasks.
Age: 6 – 8
Class Length: 2 Hours

Greenbriar Recreation Centre
Mon 5:00 pm Mar 30 10 $76.70 1006617

SCIENCE AND TECHNOLOGY
Participants will enjoy this hands-on curriculum-based program that includes math, science and technology. Participants will learn scientific basics through hands-on activities and scientific experiments that focus on observation, discovery and analysis.
Age: 3 – 6
Class Length: 1 Hour

Cassie Campbell Community Centre
Sun 10:30 am Apr 5 11 $84.37 1013391
Century Gardens Recreation Centre
Fri 7:00 pm Apr 3 11 $84.37 1007446
Howden Recreation Centre
Thu 5:00 pm Apr 2 12 $92.04 1014018
Sat 7:00 pm Apr 4 12 $92.04 1014021

LISTINGS LEGEND
Day, Time, and Date identify when the course begins
No. indicates how many classes are part of the course
Cost is the price
Code is needed for registering
Journey through STEM
ENGINEERING STREAM

START HERE!

Engineering LEGO®
Builders
Level 1 (3-5 Years)
Level 2 (3-5 Years)

Engineering LEGO®
STEAM Park
Level 1 (3-5 Years)
Level 2 (3-5 Years)

Early Simple Machines
(5-7 Years)
Level 1 Level 2

Simple Machines
(7-9 Years)
Level 1 Level 2

Simple & Powered Machines
(9-13 Years)
Level 1 Level 2 Level 3

Please note that the previous level of each age group is a prerequisite for the next level.