

# CODE 4 STEM ACADEMY SUMMER TERM SCHEDULE 2018

## Summer Term Overview

- Two Sessions
  - Session 1: June 18 – July 20
  - Session 2: July 23 – August 17
- Two Courses per Session / Two weeks per Course
- Fees: \$300 per session
- Held at Pitt-Johnstown’s Campus
- Camp Policy, FAQ Information and Online Registration will be available on May 1, 2018

Location: Pitt-Johnstown	<b>CODE 4 STEM Academy Summer Term</b>		
Date	Morning Hours (9 AM – 12 PM)	Lunch Break	Afternoon Hours (1 PM – 4 PM)
<b>Summer Session 1</b>			
Week of June 18-22	(E) Expedition Theme / LEGO creative play, build challenges, coding & robotics.		
Week of June 25-29	(ST) Introduction to Robotics		(ST) Music Production
Week of July 2 - 6	4 <sup>th</sup> of July week – NO CLASSES		
Week of July 9 - 13	(E) Engineering Theme / LEGO creative play, build challenges, coding & robotics.		
Week of July 16-20	(ST) Programming & App Development using App Inventor		(ST) Engineering with Raspberry PI
<b>Summer Session 2</b>			
Week of July 23 - 27	(ST) Video Game Design with Game Maker		(ST) Aerospace and Space Science & Innovation
Week of July 30 – Aug 3	(E) Inventions Theme / LEGO creative play, build challenges, coding & robotics.		
Week of Aug 6 - 10	(E) Space Theme / LEGO creative play, build challenges, coding & robotics.		
Week of Aug 13 - 17	(ST) Innovating with Raspberry PI		(ST) Robotics and Engineering

## Course Legend

- **(E) Explorer Course: CODE Foundations (Grades 2-5)**
- **(ST) Science & Technology Course: CODE Foundations (Grades 6-12)**

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## *Register for Summer Term by Session and Course*

### 1. Session 1

#### a. (E) Explorer Course: CODE Foundations / Grades 2-5

##### i. Week of June 18-22 – Extreme Expedition

##### 1. Class - Expedition Theme / LEGO creative play, build challenges, coding & robotics.

- a. Desc: Students will work in teams to complete an expedition around the world. On a daily basis they will face survival challenges and forces of nature that will test their creativity and problem solving abilities as they design and build transportation and other equipment needed for their great escapes.

##### ii. Week of July 9-13 – A World without Engineers

##### 1. Class - Engineering Theme / LEGO creative play, build challenges, coding & robotics.

- a. Desc: So you want to be an engineer or architect? Then join us as we put our engineering skills to the test to build bridges, buildings, vehicles and more. Each day will feature a different type of an engineer and will include activities for the student to practice thinking, designing and building like an engineer.

#### b. (ST) Science & Technology Course: CODE Foundations / Grades 6-12

##### i. Week of June 25-29

##### 1. Class 1 (AM) - Introduction to Robotics

- a. Desc: Experience the cutting edge of technology with the introduction of LEGO® MINDSTORMS EV3 Robotics. Students will be captivated as they incorporate the newest generation of motors, sensors and software by programming commands directly into the robot's "brain". Students will work in pairs to solve challenges by building and programming robots using LEGO® MINDSTORMS EV3 Robotics. In addition to having fun, students learn about programming, problem solving and teamwork skills.

##### 2. Class 2 (PM) - Music Production

- a. Desc: Music has become computer and science based. In this creative class, we will integrate the two! Using Garage Band, students will learn basic music programming and computer skills. This software is extremely user friendly and creates a blank canvas to explore the wonderful world of music programming and production. By the end of this class, each student will have a basic understanding of software computing and music programming within Garage Band as well as a short recording/project to take home.

##### ii. Week of July 16-20

##### 1. Class 3 (AM) - Programming & App Development using App Inventor

- a. Desc: Learn the basics of app development and how to develop your own app using the most popular application development environments. Students will learn the basics of designing and developing mobile apps and will develop basic apps during this class. Whether you're interested in learning to make apps or want to learn more about coding, this class will give you the background and practice to pursue app development on your own.

##### 2. Class 4 (PM) - Engineering with Raspberry Pi

- a. Desc: The Raspberry Pi is a fully-functional, credit-card sized computer, used around the world to teach the fundamentals of Computer Programming. Students will learn the various hardware and software components of the Raspberry Pi and how to turn it into a functioning computer with programming! Learn Scratch programming, Linux Operating System, Python language, Raspberry Pi I/O interface and control, and more in this class. Students will receive their own Raspberry Pi device to take home at the end of this class.

# CODE 4 STEM ACADEMY

## SUMMER TERM SCHEDULE 2018

### 2. Session 2

#### a. (E) Explorer Course: CODE Foundations / Grades 2-5

##### i. Week of July 30-Aug 3 – Brainy Inventions

###### 1. Class - Inventions Theme / LEGO creative play, build challenges, coding & robotics.

- a. Desc – Students will learn about the world of ideas, creativity, inventions and patents. They will begin to see the inventions used in our everyday lives and learn why and how they were invented. Students will think of what they could invent or improvements they could make to an existing object to solve a problem. This class will be sure to inspire the inventor in all students.

##### ii. Week of Aug 6-10 – Space Adventures

###### 1. Class - Space Theme / LEGO creative play, build challenges, coding & robotics.

- a. Desc – In this Space Adventure class, students will explore the world of flight and space science as they build and test flying machines and learn about NASA's space flight program. Teams will work together to design and prepare for a mission to space that will result in making the world a better place!

#### b. (ST) Science & Technology Course: CODE Foundations / Grades 6-9+

##### i. Week of July 23-27

###### 1. Class 1 (AM) - Video Game Design with GameMaker

- a. Desc: Do you have an idea for a great game? In this class students will learn basic game design skills using software that adapts and expands based on their abilities. Utilizing basic coding commands and techniques, the Game Maker software helps students of all ages to successfully develop their own game ideas while at the same time giving them then understanding of the process of game development in general.

###### 2. Class 2 (PM) - Aerospace and Space Science & Innovation

- a. Desc: This class will teach air and space history and science through hands-on activities. Students will explore the wonders of flight, the mystery of solar system and planets, build and launch rockets, robots and rovers, and test their engineering skills with challenges created by NASA and the Air Force. Students will have a blast in this high flying class.

##### ii. Week of Aug 13-17

###### 1. Class 1 (AM) - Innovating with Raspberry Pi

- a. Desc: Take your Raspberry Pi computer to the next level. Design and build your own automated internet-connected gadgets. In this class you will build a variety of different projects like a burglar alarm or handheld computer game. Students will learn to control, automate and program devices to do what they want from anywhere, bridging the gap between the physical world and the internet for endless possible projects.

###### 2. Class 2 (PM) - Robotics and Engineering

- a. Desc: Building on our Introduction to Robotics course, this Robotics and Engineering course takes robot design to another level. Students will explore electrical and engineering concepts, build various robots using different sensors, and program the robots to interact with their environment autonomously while performing desired tasks that include advanced problem solving. Student teams will face off in fun competitions throughout the week.