

## 2019 Course Catalog

Computer Adventures is dedicated to providing children access to leading-edge technology education in a safe, fun and confidence building environment. Children have so much fun with our project-based curriculum that they do not realize that they are learning. In addition to teaching technical skills, we also teach analytical thinking, encourage collaboration and creativity.

Since 2009, Computer Adventures have been partnering with schools, parents, recreation centers, organizations and businesses to provide technology enrichment classes, camps and events for PreK through Grade 8. We will provide instructors as well as provision the equipment needed for our courses at your venue. We will accommodate your schedule and can also customize the course material.

Below is a list of links to the specific course description. Course descriptions are available after the list.

### LEADNG-EDGE TECHNOLOGY TOPICS

<a href="#">Augmented Reality (CDAR)</a>	Grade 4 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">Drone Programming (RBDP)</a>	Grade 4 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">3D Modeling &amp; 3D Printing (DG3D)</a>	Grade 4 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">Electronic Gadgets &amp; Gizmos (ELGG)</a>	Grade 4 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">All About Computers (CSAC)</a>	Grade 5 and up	Recommended Course Duration: 12 to 20 hours

### ROBOTICS

<a href="#">Robotics Exploration (RBEX)</a>	Grade K to 2	Recommended Course Duration: 8 to 12 hours
<a href="#">WeDo Robotics (RBWD)</a>	Grade 1 to 3	Recommended Course Duration: 8 to 15 hours
<a href="#">Junior Robotics (RBJR)</a>	Grade 2 to 4	Recommended Course Duration: 8 to 15 hours
<a href="#">Robotics Engineering (RBRE)</a>	Grade 4 and up	Recommended Course Duration: 8 to 15 hours

### GAME PROGRAMMING

<a href="#">Game Creation - Arcade (GPAR)</a>	Grade 3 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">Microsoft Kodu Game Lab (GPKD)</a>	Grade: 3 to 8	Recommended Course Duration: 8 to 15 hours

### MINECRAFT

<a href="#">Minecraft® Survival Quest (MCSQ)</a>	Grade 3 to 8	Recommended Course Duration: 8 to 15 hours
<a href="#">Minecraft® Building Wonders (MCBW)</a>	Grade 3 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">Minecraft® Machine Marvels (MCMM)</a>	Grade 3 and up	Recommended Course Duration: 8 to 15 hours

### ANIMATION

<a href="#">Brickfilms Animation (ANBF)</a>	Grade 2 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">Stopmotion Studio (ANSS)</a>	Grade 4 and up	Recommended Course Duration: 10 to 15 hours
<a href="#">Cartoon Animation (ANCT)</a>	Grade 4 and up	Recommended Course Duration: 10 to 15 hours

### COMPUTER PROGRAMMING LANGUAGES

<a href="#">Coding with ScratchJr (CPSJ)</a>	Grade 1 to 3	Recommended Course Duration: 8 to 15 hours
<a href="#">Programming with Scratch (CPSR)</a>	Grade 3 and up	Recommended Course Duration: 8 to 15 hours
<a href="#">App Inventor (CPAI)**</a>	Grade 4 and up	Recommended Course Duration: 8 to 20 hours
<a href="#">Python 101 (CPPT) **</a>	Grade 5 and up	Recommended Course Duration: 12 to 20 hours
<a href="#">JavaScript 101 (CPJS)**</a>	Grade 6 and up	Recommended Course Duration: 12 to 20 hours

### COMPUTER CODING CLUB

<a href="#">Computer Coding A (C00A) &amp; B (C00B)</a>	Grade PreK to 1	Recommended Course Duration: 8 to 15 hours
<a href="#">Computer Coding 1A (C01A) &amp; 1B (C01B)</a>	Grade 1 to 3	Recommended Course Duration: 8 to 15 hours
<a href="#">Computer Coding 101 (C101) &amp; 102(C102)</a>	Grade 3 to 5	Recommended Course Duration: 8 to 15 hours
<a href="#">Computer Coding 201 (C201) &amp; 202(C202)</a>	Grade 5 to 7	Recommended Course Duration: 8 to 15 hours
<a href="#">Computer Coding 301 (C301) &amp; 302(C302)</a>	Grade 7 to 8	Recommended Course Duration: 8 to 15 hours

### PARTIES & EVENTS

<a href="#">Robot Battle</a>	Ages 6 to 14	Recommended Duration: 90 mins to 3 hours
<a href="#">Lego Brickfilms</a>	Ages 7 to 14	Recommended Duration: 2 to 3 hours
<a href="#">Minecraft Adventures</a>	Ages 8 to 14	Recommended Duration: 90 mins to 3 hours

## 2019 Course Catalog

### LEADING-EDGE TECHNOLOGY TOPICS

#### Augmented Reality (CDAR)

Grade 4 and up

*Recommended Course Duration: 8 to 15 hours*

Augmented Reality (AR) overlays virtual information on top of a real environment. Students will learn about AR technology and how to use the webcam to build interactive experiences that blend the real and virtual world. They will build interactive AR games using motion recognition, physics, and special effects.



#### Drone Programming (RBDP)

Grade 4 and up

*Recommended Course Duration: 8 to 15 hours*

Be inspired by drones! See your code take flight as you program the drones to perform stunts in the air. Conduct simulations on the software, and then try the program on the real thing. Students will be performing "skywriting", taking "selfies/dronies", going through obstacle course, and designing a screen to control the drone. This course will also discuss what defines a drone, their everyday uses, and the science of how the mini-drones work.



#### 3D Modeling & 3D Printing (DG3D)

Grade 4 and up

*Recommended Course Duration: 8 to 15 hours*

Want to learn about 3D modeling and 3D printing? Using a 3D modeling software, students learn to design 3D models by selecting, dragging, placing, combining and manipulating the basic shapes such as name plates, keychains, vases, model cars, castles etc. Students will also learn to create more intricate designs by downloading and modifying ready-made 3D models. 3D printing topics will also be discussed.



#### Electronic Gadgets & Gizmos (ELGG)

Grade 4 and up

*Recommended Course Duration: 8 to 15 hours*

Students learn the art of innovation through hands-on activities which foster creativity and problem solving. Build and play with electronic components such as motors, lights, switches, servos and buzzers. Connect them together to invent a remote control racecar, build an automatic bubble blowing device, make a bumper ball game and more. Unleash your inner inventor!

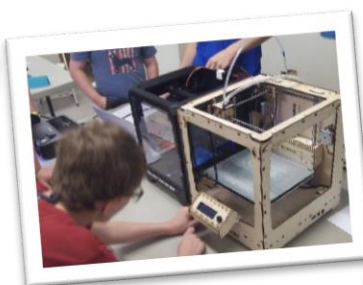


#### All About Computers (CSAC)

Grade 5 and up

*Recommended Course Duration: 12 to 20 hours*

Build a computer. Students learn how a computer works by assembling a computer and creating their own apps. Learn to code art, games and music. In addition to learning about computer hardware and software, students will practice the popular design thinking framework and create their own fictional software business.



## 2019 Course Catalog

### ROBOTICS

#### Robotics Exploration (RBEX)

Grade K to 2

*Recommended Course Duration: 8 to 15 hours*

Introduce young children to the building and programming of robots. Students build models and then use an easy programming environment to bring them to life. This course emphasizes active, hands-on, and collaborative learning, while enhancing the students' skills in science, technology, engineering and math (STEM).



#### WeDo Robotics (RBWD)

Grade 1 to 3

*Recommended Course Duration: 8 to 15 hours*

Exciting introduction to robotics through building models and using a computer to program the models' behavior. Students will build LEGO models incorporating hubs, motors and sensors. Our models include dancing birds, smart spinner, drumming monkey, roaring lion, hungry alligator, goal keeper, airplane, sailboat etc. Students will learn about simple engineering concepts such as pulleys, belts, gears and levers, while having a blast.



#### Junior Robotics (RBJR)

Grade 2 to 4

*Recommended Course Duration: 8 to 15 hours*

Students in this course work with programmable smart hubs, motors, sensors and various Lego bricks to build and program models such as helicopters, trucks, gorillas, frogs, dolphins, caterpillars and more. This course offers hands-on activities that ignite students' curiosity while enhancing their skills in science, technology, engineering and coding.



#### Robotics Engineering (RBRE)

Grade 4 and up

*Recommended Course Duration: 8 to 15 hours*

Learning about robotics engages students' natural curiosity and helps develop confidence. Their codes come to life in ways they can see, hear, touch and even chase across the room! As students build and program their robots to navigate obstacle courses or wrestle in a Sumo battle, they are learning about programming concepts such as flow charts, repeat loops, conditional loops, sensors, and data feed.



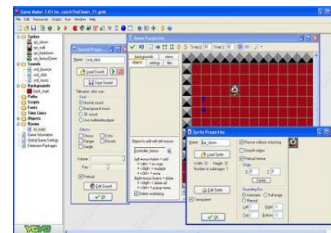
### GAME PROGRAMMING

#### Game Creation - Arcade (GPAR)

Grade 3 and up

*Recommended Course Duration: 8 to 15 hours*

Create a customized arcade-style game with elements such as players, enemies, bonuses, levels, and lives. Students decide on the theme, player and enemy characters, design of game levels, health points, number of lives etc. In addition to having fun and gaining a sense of accomplishment, students will learn about computer programming elements such as input, output, variables, relative values, and conditionals while having fun and gaining a sense of accomplishment.



#### Microsoft® Kodu Game Lab (GPKD)

Grade: 3 to 8

*Recommended Course Duration: 8 to 15 hours*

Microsoft's Kodu gives users control of a powerful programming tools using simple graphical commands. Students will create 3-D worlds, add characters, and then make them interact or complete tasks. Students will program scoring, spawning characters, enemy objects, timers, health and various game levels. Based on "when something happens", "do something" logic, students analyze problems and structure their solutions.



## 2019 Course Catalog

### MINECRAFT

#### Minecraft® Survival Quest (MCSQ) Grade 3 to 8

*Recommended Course Duration: 8 to 15 hours*

Students will navigate the Minecraft world to explore, complete quests, strategize and build creations in a logical way to survive in the virtual 3D world. They will practice creative thinking, problem solving, teamwork and collaboration. To ensure a fun and safe “cyber” environment, students’ laptops are connected to a local network without access to the internet. Concepts on network and server will be discussed.



#### Minecraft® Building Wonders (MCBW) Grade 3 and up

*Recommended Course Duration: 8 to 15 hours*

Want to build some of those fancy, realistic-looking awesome monuments in Minecraft? With the 7 Wonders of the World as references, the first challenge is to replicate a famous monument utilizing various blocks, ores, crafted items and tools. Teachers will provide tips and tricks from applying math to scale, and creativity to aesthetic considerations. Students will apply what they learned by designing their own famous monuments in Minecraft and share their creations with the class.



#### Minecraft® Machine Marvels (MCM) Grade 3 and up

*Recommended Course Duration: 8 to 15 hours*

Create Minecraft contraptions with items such as pistons, pressure-plates, levers, buttons, trip wire, lava, water, doors, dispenser, TNT and redstone. Learn how to build logic gates and simple machines. These simple machines will be connected to create an entertaining “Rube Goldberg” machine. In addition to learning about action and reaction, this course will showcase the students’ logical ability as well as creativity.



### ANIMATION

#### Brickfilms Animation (ANBF) Grade 3 and up

*Recommended Course Duration: 8 to 15 hours*

Lights...Camera...Action! Students’ dreams of having their favorite LEGO® characters come to life become a reality in this movie making class. Using stop-action animation and digital post-production editing, students produce Brickfilms much like the ones viewed on YouTube. Students learn about developing creative storytelling techniques, incorporating visual and audio effects and working together.



#### Stopmotion Studio (ANSS) Grade 4 and up

*Recommended Course Duration: 10 to 15 hours*

Stopmotion animation can bring many exciting topics to life: art, story-telling, music videos, science, and more. In addition to learning software skills such as overlay, grid, frame positioning, green screen and other movie effects, students will work with DIY animation material such as clay, toys, felt, paper and everyday objects. Thi course provides a fun way of providing insight into the animation process.



#### Cartoon Animation (ANCT) Grade 4 and up

*Recommended Course Duration: 10 to 15 hours*

Bring your imagination to life through cartoons in the style of Nickelodeon or Cartoon Network. Using an intuitive 2D animation software, you will work with drawing tools, bone-rigging system, animation timeline, sound and special effects. This course is a fun and exciting way to introduce students to professional animated cartoon-making.



## 2019 Course Catalog

### COMPUTER PROGRAMMING LANGUAGES

#### Coding with ScratchJr (CPSJ)

Grade 1 to 3

*Recommended Course Duration: 8 to 15 hours*

ScratchJr was designed for younger children as a precursor to other programming languages. Students use programming blocks to bring their characters to life by controlling how their characters look and move and adding sounds and images. They will think sequentially, explore cause and effect, and learn problem-solving skills... and have fun!



#### Programming with Scratch (CPSR) Grade 3 and up

*Recommended Course Duration: 8 to 15 hours*

Students will learn about Scratch®, a visual programming language that provides an interactive, media-rich projects, including animated stories, science projects, games and simulation. This course consists of fun projects that teaches students fundamentals of programming, as well as important strategies such reasoning systematically, thinking creatively, solving problems, designing projects, and communicating ideas.



#### App Inventor\*\* (CPAI)

Grade 4 and up

*Recommended Course Duration: 8 to 20 hours*    **\*\*Internet access required**

Want to make mobile apps? Learn how to build apps for Android devices. The software transforms the complex language of text-based coding into visual, drag-and-drop building blocks. This course will progress through building increasingly complex apps. Students will learn how to build apps, as well as programming concepts and terminology.



#### Python 101\*\* (CPPT)

Grade 5 and up

*Recommended Course Duration: 12 to 20 hours*    **\*\*Internet access required**

Python has a gentle learning curve, but is a serious language that is used by professional programmers. Complete engaging lessons, solve challenging puzzles, and create interesting programs. This class will cover Python syntax, sequencing, repetition, conditional logic, nested loops, automation, pattern recognition, operators, expressions, variables, Turtle graphics and using arrays and objects to store structured data.



#### JavaScript 101\*\*(CPJS)

Grade 6 and up

*Recommended Course Duration: 12 to 20 hours*    **\*\*Internet access required**

Web browsers like Chrome, Firefox, and websites like Facebook, Twitter use JavaScript. Starting with a drag and drop interface, students will learn the basics of programming logic and computational thinking. They will create games such as snake, breakout, pong etc. This course will cover topics such as sequencing, repetition, conditional logic, loops, automation, pattern recognition, operators, expressions, variables, etc.



## 2019 Course Catalog

### COMPUTER CODING CLUB

These courses introduce programming fundamentals through grade-specific curriculums which allow students to move at their own pace. Students learn programming concepts through visual programming in a game-like interface. They will be having so much fun, that they will not realize that they are learning programming.

#### Computer Coding A (C00A)

Grade PreK to 1

#### Computer Coding B (C00B)

Grade PreK to 1

*Recommended Course Duration: 8 to 15 hours*

**\*\*Internet access required**

Topics include:

Sequencing, repetition, loops, algorithm, events, debugging and more.



#### Computer Coding 1A (C01A)

Grade 1 to 3

#### Computer Coding 1B (C01B)

Grade 1 to 3

*Recommended Course Duration: 8 to 15 hours*

Topics Include:

Sequencing, repetition, conditional logic, events, simple motion, animation and more.



#### Computer Coding 101 (C101)

Grade 3 to 5

#### Computer Coding 102 (C102)

Grade 3 to 5

*Recommended Course Duration: 8 to 15 hours*

Topics Include:

Sequencing, repetition, events, conditional logic, sending and receiving messages, handling user input, color detection, functions and more.



#### Computer Coding 201 (C201)

Grade 5 to 7

#### Computer Coding 202 (C202)

Grade 5 to 7

*Recommended Course Duration: 8 to 15 hours*

Topics Include:

Sequencing, pattern recognition, loops, conditional logic, scene, sounds and music creation, keyboard controls, motion, broadcasting messages, special effects and more.



#### Computer Coding 301 (C301)

Grade 7 to 8

#### Computer Coding 302 (C302)

Grade 7 to 8

*Recommended Course Duration: 8 to 15 hours*

**\*\*Internet access required**

Topics Include:

Events, keyboard and mouse interaction, conditional loops, nested loops, sending and receiving messages, local and global variables, functions, object cloning and more.



## 2019 Course Catalog

### PARTIES & EVENTS

#### Robot Battle Party (PERB)

Ages 6 to 14

*Recommended Partie/Event Duration: 90 minutes to 3 hours*

Invite Computer Adventures and we will show up with all of our LEGO® Mindstorms NXT robot pals! During the party, you and your friends will program and customize your robots to battle head to head on our Sumo Battle board. CAUTION: Robot battles can be exciting and inspiring. Be prepared for an extraordinary amount of screaming and laughter!

*For children 6 & 7 years old, 90-minute party is recommended.*

*For children younger than 5 years old, an adult/teenage assistant is needed for each child*



#### LEGO Brickfilms Party (PEBF)

Ages 7 to 14

*Recommended Partie/Event Duration: 2 to 3 hours*

Lights...Camera...Action! This party/event will have the kids' LEGO® characters come to life. Using stop-motion animation and digital editing, students produce LEGO® brickfilms much like the ones viewed on YouTube. At the end of the party, we will have a "Movie Premiere" showing off all the movies that the children made. The host will get an Internet link to download kids' movies. CAUTION: The next young "Steven Spielberg" or "George Lucas" may be in our midst!

*For children younger than 7 years old, an adult/teenage assistance is recommended for each child.*



#### Minecraft Adventures Party (PVMC)

Ages 8 to 14

*Recommended Partie/Event Duration: 90 minutes to 3 hours*

You and your friends will work together to create a Minecraft Adventure Map! Our instructor will guide you with a story theme, and the map creation process. When the map is done, you will play with your Minecraft creation. We will provide a server, router, projector, and every child with a laptop, which is connected through our local network without access to the Internet. It's safe, fun, and exciting!

