



# Zaniac™ Programs

K-8 STEAM After School Programs & Camps



# Ignite your child's love of learning at Zaniac!

## What is Zaniac?

At Zaniac, K-8<sup>th</sup> grade kids discover how much fun Science, Technology, Engineering, Arts and Math (STEAM) learning can be. Forget drills and repetition. Zaniac's fun enrichment programs engage kids in creative, conceptual problem solving that builds confidence and helps them succeed in school.

Zaniac's programs teach 21<sup>st</sup> century skills in a way that feels like play!

Kids can learn how to code—going from true beginners to writing custom games in Python or Java.

Game-Based Learning using Minecraft™ capitalizes on the love kids already have for the game to teach concepts ranging from natural science to physics to electrical engineering.

We use modular LEGO® systems designed for education in our robotics courses to bridge the gap between theory and practice in engineering.

And that's just the beginning.

# Our Mission

$(-1)^2$  Ignites imagination and natural curiosity to unleash a child's potential

$\frac{206}{-204}$  Engages kids in peer-based learning with friends in an environment that feels like play

$\sqrt{9}$  Instills a love of learning and empowers kids with 21st century technology skills to change the world

$^3\sqrt{64}$  Provides kids with a real academic edge to succeed

$\frac{5\pi}{3.141592654}$  Gives kids the confidence to be curious, explore new concepts and innovate to solve problems

$3!$  Leverages education and tutoring to provide parents with their child's daily progress

$\sqrt{9} + \sqrt{16}$  Impacts the community through role model instructors—high school and college students—passionate about inspiring kids with STEAM


$2^3$  Creates a positive and safe place for students to take risks and experiment without the fear of making mistakes

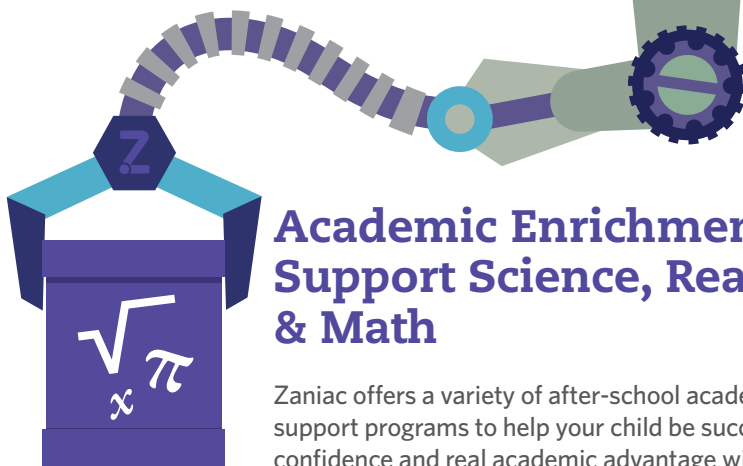
$2^3 - 4^2$  Promotes a cool high-tech environment for hands-on STEAM learning

$\sqrt{100}$  Partners with schools to provide STEAM curriculum and resources to better prepare kids for the future



## Sign up for after-school enrichment classes, weekly or single day camps or Edison Club after-school care program: ●

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- Game-based learning keeps your child engaged
  - Focus on mastery of skills and mastery progression for academic advancement
  - Hands-on experience with real-world applications
  - Low student-to-instructor ratio of 6:1 – 3:1 for Zane Math
  - Peer-based learning from role model instructors in our fun, high-tech environment
  - Parents receive personal progress emails after every class from their child's instructor
  - Develop critical thinking & problem-solving skills
  - Learn with friends!



## Academic Enrichment & Support Science, Reading & Math

Zaniac offers a variety of after-school academic enrichment and support programs to help your child be successful at school. Build confidence and real academic advantage with Zaniac.

### Zane Math (K-8)

At Zaniac, we believe that all children can learn and become excited about math. Forget drills and repetition. Zane Math engages your child in creative, conceptual problem solving in a fun environment. Zane Math is our proprietary world-class curriculum that's composed of 15 levels to cover the fundamentals of kindergarten through 8<sup>th</sup> grade math and is aligned with Singapore Math. Zane Math takes a measured approach from start to finish, allowing parents to log in and view their student's results throughout the course.

- Students begin with an assessment
- Students receive a customized, 100-page curriculum from our 12,000-problem database
- Each concept ends with a Milestone demonstrating concept mastery and improvement
- Students end each level with an achievement test demonstrating progress

### Edison Club (K-8)

Zaniac's Edison Club is our after-school care solution. It is the perfect choice for parents who are looking for a cost-effective, enriching and flexible after-school care program. Edison Club is designed to make a real difference in your child's performance at school and confidence level by focusing on your child's homework needs and academic interests. Edison Club Packages include:

- Zaniac's STEAM Programs
- Zane Math or Reading
- Homework Help and an engaging mix of science activities and experiments.
- The ability for your child to stay at Zaniac after school.
- Parents' Night Out, Buddy Passes, and more.

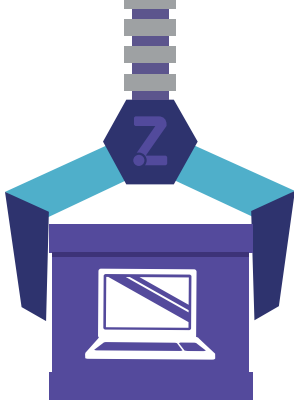
### Zane Reading (K-8)

Zane Reading begins with an assessment of your child's reading skills to identify areas for improvement. We customize a reading curriculum focused at addressing fluency, spelling and grammar, reading comprehension and vocabulary. Students in 3<sup>rd</sup> grade and up work with Readorium, the award winning reading software used in Massachusetts school district.

### Homework Center (K-8)

At Zaniac, we understand what a difference a little bit of extra attention can make in a child's confidence in school. That's why our trained instructors are available each day after school and on Saturdays to help your child with homework. In turn, your child gains confidence in his or her ability to succeed in the classroom. Help available in all standard subjects.





# Computer Programming

Students work with Zaniac instructors to learn coding and real-world skills that software developers use every day. Go from true beginner to writing custom programs and games in Java, all while having a blast along the way. Coding has never been so cool.

## Mastery Progression

### Coding Junior:

#### Intro to Coding I (K-8)

Students learn programming skills while creating their own games and music videos. Zaniac's instructors introduce basic programming concepts like sequences, loops, iterative development, and debugging using the coding application of Minecraft and Scratch, a block-based program developed at MIT.

### Coding Apprentice:

#### Coding II (K-8)

Students will learn more advance programming skills with Scratch. They will dive deeper into the concepts of interactive software design. Learn variables, 'if, else' statements, conditionals, operators, and more to create simple games, at the end of the semester they will be able to create their own animation, interactive game or video. In the second part of this course, students start working with Swift, a programming language created by Apple to assist beginners with stepping into syntax code and make more incredible projects.

*Pre-requisite: Intro to Coding I*

#### App Creation (K-8)

Students learn how to create new customized apps using App Inventor 2, a block-based, visual programming approach designed by MIT. They will explore event handlers, timers and database management.

*Pre-requisite: Intro to Coding I and Coding II*

### Coding Master:

#### Python (4-8)

Students are introduced to syntax-based programming. Students will learn lists, strings, conditions, how to draw animations and make the foundation of a platform game.

*Pre-requisite: Intro to Coding I, Coding II and App Creation*

#### Web Design (4-8)

Students explore layout strategies, color theory, responsive web design, usability and visual weight and use visual style guidelines, JavaScript, HTML5, CSS3 and Weebly to create their own custom website.

*Pre-requisite: Intro to Coding I, Coding II and App Creation.*

## Coding Pro:

### Java (5-8)

Students hone their programming skills by exploring Java programming. They will learn principles like variables, classes, methods, code efficiency and automation with a powerful 'write once, run everywhere' language. They create text-based adventure games.

*Pre-requisite: Intro to Coding I, Coding II, App Creation and Python.*

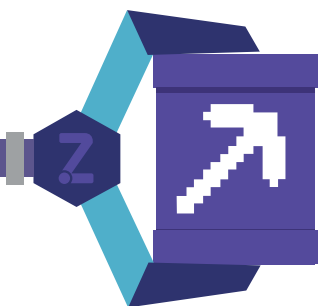
### JavaScript in Minecraft or Web Design with JavaScript (5-8)

Students are introduced to JavaScript through Minecraft or Web Design, they amplify their coding skills reading & writing JavaScript by making alterations to Minecraft or creating original websites from beginning to end. (Coding Minecraft with JavaScript available January 2019)

*Pre-requisite: Intro to Coding I, Coding II, App Creation and Python.*







# Game Based Learning: Science, Math and Engineering

At Zaniac, we use Minecraft as a tool to teach real world math, science and technology skills. Through Minecraft we reinforce and introduce math, science and engineering concepts and teach students to explore and understand how these concepts apply in the real world. Kids learn with their peers in a fun team format while developing critical reasoning skills such as; problem solving, communication, team work, creativity and productivity.

## Minecraft Junior:

### Biosphere & Geography Explorers (K-4)

Students learn about biodiversity by exploring different biomes, gravity, speed, area and volume, renewable and non-renewable resources, Cartesian coordinates and how to use them to navigate. On the second part of this course they learn Geography, including continents, countries and cities and how biomes differ depending on the geographic area; how they affect living conditions and how we adapt to them. All this while working together with friends to accomplish group missions and playing the game they love.

## Minecraft Apprentice:

### All About Building (1-6)

Students learn the basics of urban planning, architectural and building design. They can explore real-world architectural landmarks through Google Maps & Street View, then take that knowledge and apply it to designing a cityscape using Minecraft. They learn about map making and are challenged to design an entire city equipped with all services, connecting road systems, water supply, while utilizing crafting and building skills.

*Pre-requisite: Biosphere & Geography Explorers*

### Planet Rescue (1-6)

Students learn to become an environmentally conscious generation of city planners through the basics of urban planning, architecture and building design. They understand the importance of sustainability, resource management, learn about rapid urban growth, electric sustainability, scarcity of water, and the need to bridge supplies to cities. They learn to design and build while bringing their miniature ecofriendly community together. In the second part of this course they learn about natural disasters the planet often faces: fires, earthquakes, hurricanes, tornados, flooding and rising water levels due to Global Warming. They explore and research ways to build dwellings and cities that can withstand these challenges and keep cities and populations safe.

*Pre-requisite: Biosphere & Geography Explorers*

## Minecraft Master:

### Universe Explorers (2-6)

Students learn about earth's oceans and undersea life with the Oceanscraft mod and explore space with the Galacticraft mod. They design and build rockets that travel to the moon,

International Space Station, and even Mars where they attempt to terraform the planet, all while learning the science behind the universe and space exploration. They learn about the role of oxygen, water and bacteria to sustain life and they face different challenges and rescue missions to solve.

*Pre-requisite: Biosphere & Geography Explorers*

## Industry & Production (2-6)

Students explore the inner workings of manufacturing and heavy industry, ranging from baseline resource gathering to advanced metal production. With the simplified tools provided by Minecraft, students set up working and powered facilities dedicated to creating products from raw materials, and a logistics network that can quickly and efficiently move items to where they are needed. (Available October 2018)

*Pre-requisite: Biosphere & Geography Explorers and All About Building*

### Minecraft Pro:

## Newton's World with Redstone (4-8)

Students learn the science behind Liquid Physics, Electromagnetism, Newton's laws and Electricity. Students encounter challenges that requires them to apply physics to identify the solution. After, students dive deeper into electrical engineering with Minecraft™ Redstone. Redstone is the circuit equivalent in Minecraft™ that allows students to use electrical engineering concepts to create machines such as a clock or a calculator. Using their creativity and critical-thinking skills, students help scientists solve electrical challenges throughout the virtual laboratory to problem solve: plan, construct, test, and refine with a whole lot of fun added to it.

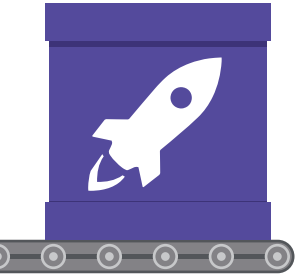
*Pre-requisite: Biosphere & Geography Explorers and Universe Explorers*

## Atomic Theory - Chemistry (4-8)

Students are introduced to chemistry concepts such as compounds, molecules, atoms and elements. They explore and understand how they apply in the real world of Minecraft and problem-solve challenges created when chemical reactions with other compounds are detonated resulting in drastic consequences to their world. (Available January 2019)

*Pre-requisite: Biosphere & Geography Explorers, Universe Explorers and Newton's World with Redstone*





# Engineering

Zaniac's engineering program provides a powerful way to inspire students' interest, engagement, and understanding in engineering through hands-on exploration and innovation. These courses focus on the design elements of high-quality, engineering-rich tinkering activities, and use a unique approach that helps students learn.

## Engineering Junior

### Engineering and Robotics I (K-5)

Students get an introduction to simple machines such as; levers, inclined planes, pulleys, screws, and complete challenges through building motorized mechanisms in teams. Students learn the basics of robotics, the scientific method, forces, and design through exploring engineering concepts. They will learn basic builds and programming techniques for robotic solutions to defined specifications and get introduced to a variety of sensors and motors.

### Circuits I (K-5)

Intro to Circuits uses littleBits®, the easiest way to prototype electronics, to teach basic inputs, outputs, analogs, electricity, and more. Students build projects ranging from synthesizers to flashlights, exploring the world through the lens of easy-to-build magnetic circuits.

## Engineering Apprentice

### Engineering and Robotics II (K-5)

Students work on learning various applications of robotics such as: robots for construction, production, battle and sport; to expand on building and engineering techniques. They learn more in depth use of sensors, such as touch, color, infrared and gyro and deepen their understanding and mastery of programming by coding their robot to overcome an obstacle course.

*Pre-requisite: Engineering and Robotics I*

### Circuits with Coding II (2-6)

Students continue to work with littleBits® and learn to incorporate coding concepts to create programmable electronic prototypes. (Available January 2019)

*Pre-requisite: Circuits I*

## Engineering Master

### Engineering and Robotics III (3-6)

Students dive into the study of environmental science concepts such as renewable and non-renewable resources, carbon footprints, recycling, energy efficiency, and water conservation while they gain a deeper understanding of engineering and programming. In the second part of this course they design and build robots that will submerge in a pool to solve water robotics challenges.

*Pre-requisite: Engineering and Robotics I and II*

## Engineering and Robotics IV (3-6)

Students work with advanced programming skills, where they program their robot to perform multiple functions and solve challenges using all sensors and motors. In the second part of this course students dive deeper into programming by combining different technologies to work with bio robotics. They build and program robotics systems that will be activated by their own muscles and body by integrating EMG boards, Arduino and transmitting electrodes with LEGO EV3.

*Pre-requisite: Engineering and Robotics I, II and III*

## Drones! In Engineering Takes Flight (4-8)

The intersection of engineering and computer science takes flight with Drones! In Engineering Takes Flight, students learn about drones and will use creativity and critical-thinking skills to successfully engineer the design and code behind two drone models. Students will discuss nature's influence on the technology and the design of drones. Students explore physics and geometry to understand how the anatomy of a drone supports its course of flight. In the second part of this course, students focus on programming flight paths, they will begin with block-based programming with Scratch and move onto coding with Swift which allows students to begin exploring with syntax code. With this level of fine-tuning drones can be controlled more precisely and projects can be more daring. By combining these concepts, students will complete a variety of hands-on challenges and understand the real-world applications of drone technology.

### Engineering Pro

## Aerospace Engineering - Kerbal Space Program (5-8)

Students get to explore a whole new universe by creating and managing their own space program. They explore aerospace engineering and orbital mechanics by designing, testing, and launching airplanes and rockets to complete a series of missions. Through this course students develop critical-thinking and problem-solving skills, learn through experimentation, and unleash their creativity with an iterative design approach.

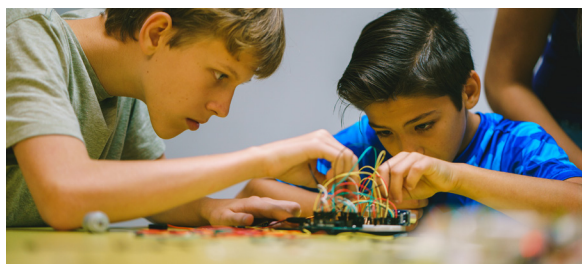
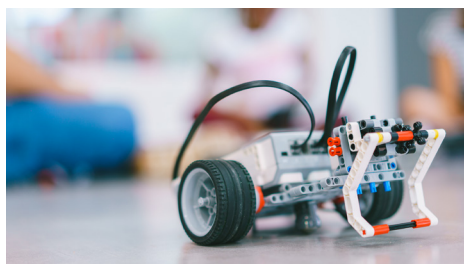
## Arduino Microcontrollers (5-8)

Students learn programming logic through hands-on hardware projects and work with sensors to explore the science of light and sound, and build creatively with motors, wires, and real circuit boards to create projects like color-mixing lamps. (Offered only as private class)

*Pre-requisite: Circuits I and II.*

## VEX Robotics (3-8)

Students learn robotics through VEX, an open-ended robotics and research project challenges that enhance students science, technology, engineering, and mathematics skills through hands-on robotics activities. (Available January 2019)





## Design

Our Design classes place an emphasis on the art in STEAM. Students will be immersed in the engineering and design process through hands-on, engaging projects like 3D Printing, music engineering, and game design. Zaniac instructors guide students as they create their own well-designed items en route to assembling an innovative portfolio while using our cutting-edge technology that better helps them prepare for their future.

### 3D Maker (3-8)

Students engage with online digital creations of 3D models and learn how to design pieces for 3D Printing using Autodesk TinkerCad™. Students are immersed in the engineering and design process, printing their own unique and exciting ideas and turning them into a reality. In the second part of this course, students learn advanced, professional-level 3D modeling and CAD techniques with an emphasis on functional design and robust modeling.

### Engineering Design Challenge (5-8)

Students learn the Iterative Design Process as a critical component of Engineering, they are tasked with identifying a real-world problem to solve through 3D Design and Printing. They will have to research, construct, design and print solutions that will creatively solve those challenges.  
*Pre-requisite: 3D Maker*

### GarageBand (4-8)

Starting with the basics of musical notation and form, students work through looping, editing, sound manipulation, and capturing vocals and MIDI instrumentation to create their own music.

### 3D Game Design (5-8)

Students learn the process of Character Design, Environment Creation and get hands-on experience with C# programming. In this three-part but continuous course, students use Unity, Gimp, Blender3D to create a 3D game. *Pre-requisite: Intro to Coding I and Coding II*

#### 3D Character Design

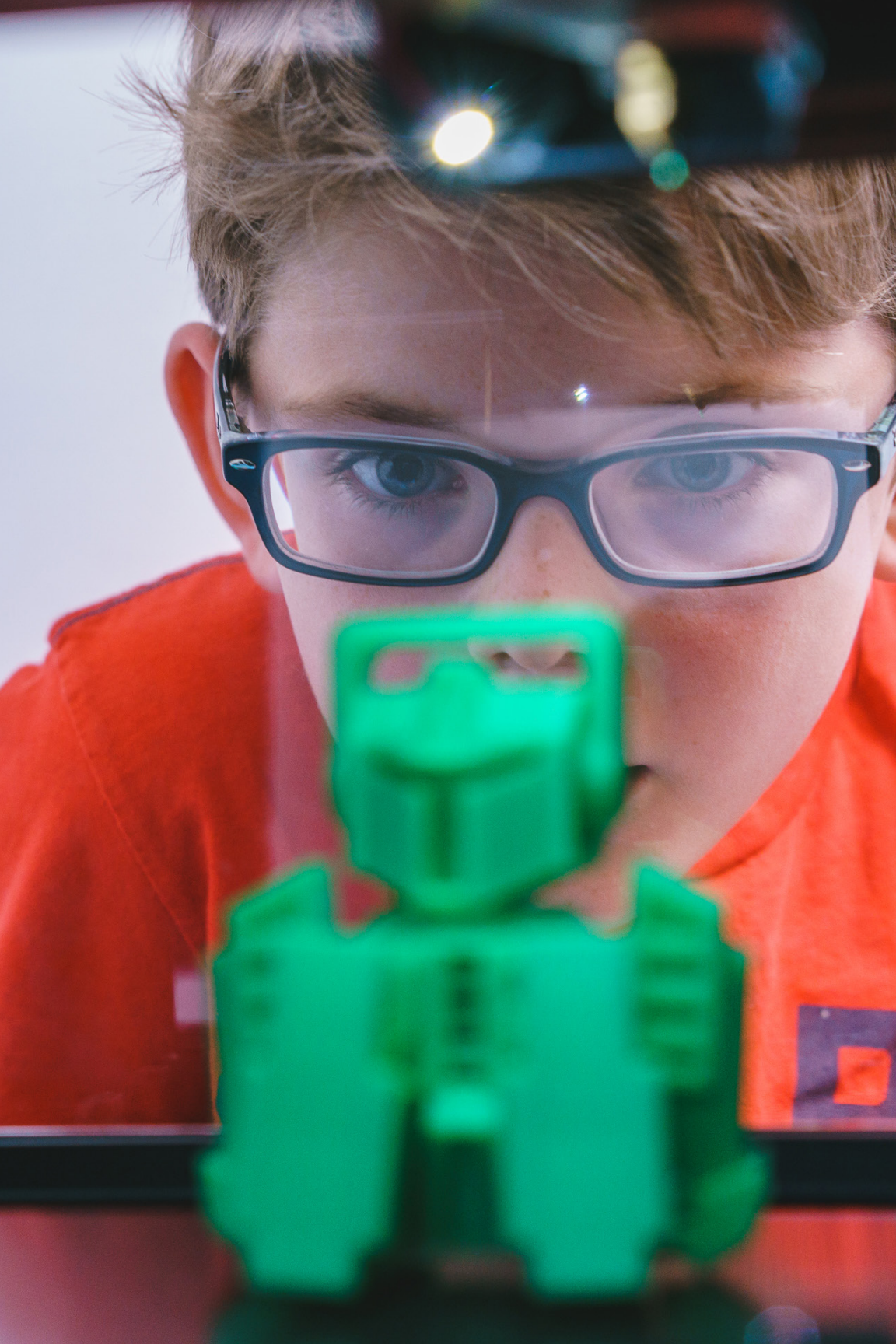
Students create 3D character models using the modeling software Blender and learn game design concepts like rule implementation, game flow and paper prototyping.

#### 3D Environment and Design

Students use the Unity game engine to map 3D environments and apply attributes, then design textures in Gimp to overlay on their world. They will learn design concepts like genre, random generation, character/world interaction and sound design.

#### C# Fundamentals

Students bring characters and environments to life using C#, a real-world oriented programming language, and learn concepts like classes methods, and strings to create C# scripts.



## Camps (K-8)

School break camps are the perfect combination of learning and fun, featuring our many engaging programs that nurture your child's love of math and technology. Zaniac is open most days your child's school is on break, including single day camps during no school days.

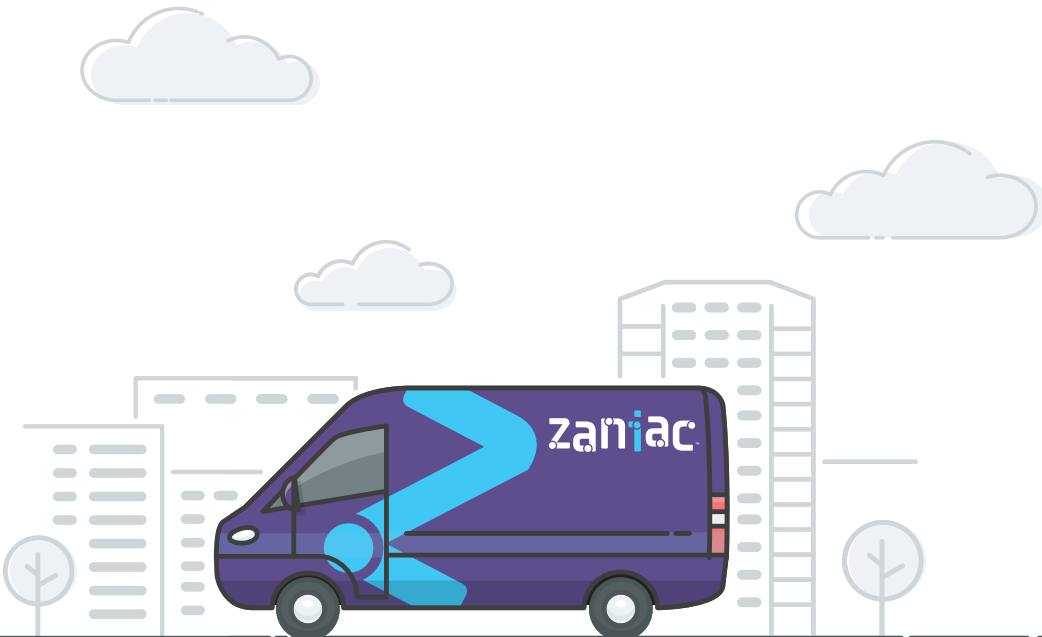
- Camps available over winter, spring and summer recess/break, early release days, all no school days and most holidays.
- Single-Day and Week-Long camps available
- Choose between half-day (morning or afternoon) and full-day camps.
- Half-Day 9:00am - 12:00pm or 1:00pm - 4:00pm
- Full-Day 9:00am - 4:00pm

## STEAM Quest (K-8)

Circuit building, egg drops, balloon car races, and hands-on science are all just a day's work during STEAM Quest camps. Every STEAM Quest week brings a new adventure where students can dive into our deep library of hands-on STEAM activities and projects or explore Science, Technology, Engineering, Art, and Math while getting a taste of different programs Zaniac offers!

## Transportation (K-8)

The new Zaniac van is available to pick up your child at school and bring him/her to Zaniac for an afternoon of enriching STEAM education. Your child will be able to enjoy our after-school STEAM programs every week or be part of our Edison Club several days of the week. You can choose from a single day ride or multiple rides per month. The Zaniac Van is great solution for those transportation challenges we often face! Contact our campus for route availability. First come, first served.



## Events (K-8)

Book your next event at Zaniac! We can help you plan a unique, fun and memorable event.

### Birthday Parties

Birthday Celebrations at Zaniac entertain kids and are STEAM focused. Create a biome, explore the universe, battle robots or play robot soccer, race your friends in a Drones obstacle course, 3D print or learn Costume Design. Contact us for more details about our Birthday Packages.

### Parents Night Out

Enjoy a night off and drop your kids at Zaniac to build, create and play while learning science, math and engineering concepts!

### Minecraft Game Night

Bring the kiddos and their friends in for an evening of exploration, problem solving, team work and FUN during Zaniac's Minecraft Game Night! They'll join other Minecraft enthusiasts like themselves as they unleash their creativity through Instructor-led challenges that will expand their game and academic skills.

### Saturday KidZ Club

What better way to start off your weekend than 2 whole hours of FUN learning in Minecraft, Tinkering, Robotics, Coding and STEAM Quest activities! Drop your kids and their friends off at Zaniac on Saturday mornings from 10 am to 12 pm for the NEW Saturday KidZ Club.

### Private Events

Boost your child's interest in STEAM by letting Zaniac host a private event such as "Bring Your Child to Work Day," or exclusive STEAM Nights for your school or school fairs.







**South Miami Campus**

8322 S. Dixie Hwy  
(Dadeland Station)  
Miami, FL 33143  
**305.668.0605**

[ZaniacLearning.com/SouthMiami](https://ZaniacLearning.com/SouthMiami)  
[SouthMiami@ZaniacLearning.com](mailto:SouthMiami@ZaniacLearning.com)



**I'M WITH  
THE BAND  
{OF SCIENTISTS}**

**zaniac**<sup>™</sup>

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