



Kaohsiung American School **Skyrock STEAM Camp**

| For Mega Kids GRD 3-4 |

Skyrock courses and camps are where kids learn in radically new ways. We help parents prepare their kids for the future while providing them with experiences that generate serious joy and lasting pride.

As Taiwan's #1 provider of Science, Technology, Engineering, Arts and Math—STEAM—courses and camps, we cover the entire spectrum. We offer a holistic education to prepare and grow kids into well-rounded thinkers and creators for the 21st century!

 Invention Prototypes & Fabrication	 Robotics Robots & Devices	 Coding Software & Games
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Invention

Improves hands-on skills by building projects with hardware tools and physical materials.

This curriculum introduces kids to making things with their hands and tinkering with materials to build amazing creations. Together with skilled instructors, your child will learn how to use electrical components, craft materials, and their creativity to complete fun science and engineering projects and challenges.

With a range of mechanisms and electrical components that move, light up, and make noise, kids gain STEAM skills by learning how past technologies are built. Kids also learn to combine these concepts with DIY tools and materials to invent new things of their own!

Some of the things we will make:

- A buzzing robot operation game
- Spinning mazes
- Catapults and trebuchet projectile weapons
- Racing cars powered by rubber bands and a motor

Some of the things we will learn:

- How to power machines with electric motors.
- How to wire more complex circuits.
- Engineering and physics concepts around pneumatics, cams, motors, and manufacturing.
- How to design in 3D on the computer and bring ideas to life with 3D printing.
- And more!



Introduces mechatronics—combining hardware and software to build robots and smart devices

This program is similar to the Micro kids program, but this time we level up our mechanical engineering skillsets by including power packs and motors, which allow students to build self-propelled machines – adding a totally new dimension of learning and making opportunities. We also dive into pneumatic models with pumps, tubes, valves, air tanks, and manometers as we can learn about applications of gas-powered systems, as they relate to kinetic and potential energy.

Some of the things we will build:

- Powered machines.
- A robot dog that mimics the actions of a real dog.
- A robotic hand powered by pneumatics
- And more!

Some of the things we will learn:

- How to conduct technical investigations to improve engineering concepts.
- An understanding of the physical science and engineering concepts behind pneumatics and motors.
- And more!



Establishes computer science thinking with software projects and exciting games.

This curriculum builds on the computer science basics students learn in the Coding Wizards Micro program. We will move onto more advanced coding platforms such as MakeCode, developed by Microsoft, which uses block-code and typed code, easily converting back and forth between them to help students transition more smoothly to coding exclusively by typing.

In this program, teachers will emphasize and reinforce the fundamental computer science skills, challenging students to use their creativity to remix their code to make their games and projects more interesting and complex. As students graduate from block-code, they will learn Python, a popular and versatile programming language used even by expert programmers at Google!

Some of the things we will code:

- Interactive games that simulate physics.
- Remakes of classic video games like PacMan and Mario.
- And more!

Some of the things we will learn:

- How to create algorithms to solve problems.
- How math and physics apply to code in the form of position, velocity, acceleration and gravity.
- What the underlying code looks like in a block-code.