# 2021-2022
# After School
# Program Descriptions

| | **Fall 1 starting September 20** | **Fall 2 Starting Nov 1** | **Winter Jan 24** | **Spring March 28** |
|---|---|---|---|---|
| K-5 | Earth Space and Sea | STEAM Studio | Anatomy Academy | Engineering Workshop |
| K-5 | STEAM Studio | Anatomy Academy | Engineering Workshop | Potion Makers Club |
| K-1 | Lego Eng Jr. | Lego Jr. Imagineers | Lego Jr. Builders | Lego Jr. Builders STEM |
| 1-5 | Lego Engineering Concepts | Lego Engineering Concepts or Machine Power | Lego Robotics 1 : In the Wild | Lego Robotics 1 or 2 Adventures |
| 2-5 | Game Design online | | Creative Coding Studio online | |

## Science

**Earth, Space and Sea**
Take a look at our big blue planet and beyond! Delve deep into space, train like an astronaut, and build air powered space shuttles to exit the atmosphere. Next, return to Earth to analyze the makeup of the planet's surface and Earth's extremes like earthquakes and erupting volcanoes. Then, we'll dive down deep into the ocean to explore like ocean engineers to stop an oil spill, and investigate ocean invertebrates.

**STEAM Studio**
Join the STEM to STEAM movement - where science and art meet! Engineer and design awesome projects while learning science and math concepts. Get messy with colors, chemicals and creations to create cool rainbow slime, density tubes and shimmering salt crystals. Make repeating geometric patterns and cool nature boxes to take home.

**Anatomy Academy**
Attention future doctors! The Anatomy Academy is now in session. We'll explore the human body's fascinating system of cells, tissues and organs. Create a model of blood, skin and tour the digestive system. Build a working representation of the lungs and make a creepy cool model of the eye. You'll learn you are smarter than you think when we learn all about the brain and how it works.

**Engineering Workshop**
Wicked Cool engineers will be put to the task to build things that go. Explore the engineering and design process to build balloon powered cars, hovercrafts, and magnet powered JunkBots. We'll add in some tall towers, catapults, and bridges and a house for a superhero.

**Potion Makers Club**
Engaging hands-on chemistry projects will encourage kids to be junior scientists. Unlock the secrets of the laboratory to create customized soaps, lotions and potions. Explore how chemists create formulas and make your own cool products to take home. Learn about chemical properties and reactions while making fizzing potions and secret solutions!

## LEGO

**LEGO Engineering Junior** LEGO Engineering Junior is a 6-week program designed specially for kids in grades K-1.The activities promote teamwork and critical thinking skills as kids investigate basic engineering concepts using DUPLOs. Perfect for the young builder with tiny hands to build a seesaw, vehicle, and spinning top and other fun working mechanisms.

**LEGO Engineering Junior Imagineers**
A Wicked Cool For Kids exclusive! Using LEGO Duplos, kids in K-1 will listen to

stories based on popular fairy tales. Using the engineering design process, kids will then create solutions to help solve their hero's problems using simple machines. Help Lego Sam and Sara create Rapunzel's tower and a pulley system to lift her lunch! Prince Charming's buggy is busted - can Sam and Sara build a Charming Car to carry the Prince's blocks and save the day? This program will emphasize creativity, cooperation, engineering, math and literacy skills.

**LEGO Junior Builders** This introductory K-1 LEGO set allows learning through creativity and constructionism using standard sized lego bricks, plates, and minifigures. Activities focus on cross-curricular learning through design, building, and classification. Earn your builder's license to cConstruct  a bridge, build a wheelchair, and create a machine that you invent. Use language skills to set a scene and build with sounds.

**LEGO Junior Builders STEM** This program continues with LEGO Learn to Learn curriculum and focuses on STEM based activities, critical thinking, and problem solving. Make your own math game, build symmetrical designs, and learn about simple machines by building a lever. Design structures, animals, and communities in collaborative and educational challenges.

**LEGO Engineering Concepts**
In Lego Engineering Concepts investigate simple machines including gears, pulleys, cams, inclined planes, and ratchets. Challenging STEAM based projects include a measuring car, a fishing rod, and a balance.  Through the building process learn about force and motion, gear ratios, and friction. Turn a hammer into a dancing clown and work with your partner to create the best street sweeper!

## LEGO Engineering 2: Machine Power

Machine Power looks at the uses of energy to power machines. We'll use wind power, mechanical energy, and chemical energy to propel our drag racers, dogbots, and land yachts. Find out which leg design will help your bugbot win the race.  Determine what gear combo will let your car pull the heaviest object. Test wheel sizes to see which can help get a power car up a steep hill the fastest!

**Lego Robotics 1: In the Wild, 2-5**
The We-Do Robotics system features LEGO models that incorporate working

motors and sensors with simple programming software. Kids will work as scientists and engineers to build, program, and test working models. Building dancing birds, drumming monkeys, and roaring lions to learn about simple machines, complex motion, and the concept of randomness.

**LEGO Robotics 2: Adventures**

Continue your robotics journey with LEGO robotics. Create bots that compete in soccer games, and fans to cheer them on. Incorporate tilt sensors, cams, and motion sensors and attempt a daring airplane rescue and sail a boat in a storm. Complete your We-Do adventure by designing your own interactive robots to compete in challenges you and your team dream up!

**ONLINE: * (at home)**

**Game Design with Tynker Fall 1 & 2**

Learn programming using a fun scenario-based approach and build games! Help an astronaut collect supplies, navigate a friendly dragon through obstacles, and apply knowledge of angles to navigate a spaceship Actor on a grid. Continue the programming fun with BeatBot Battle and program a robot to make it dance. Learn about sequencing, patterns and logic to prepare you to go on a mission to navigate Red Baron's Adventure through the desert collecting medals.

**Creative Coding Studio with Tynker Winter/Spring**

Discover programming through art, music, and math. Start with coding sounds and music, make a band and program beatboxing gnomes. Animate dragons and learn to draw and color your computer animations. Make your own Whack-A-Mole style game and learn about conditional programming as you build an Alien Adventure game. Win big and create a multi-level game with a hero, enemies, power-ups, and doors that lead to different levels.

***Technical Requirement** Online courses require a modern desktop computer, laptop computer, Chromebook, or Netbook with Internet access and a Chrome (29+), Firefox (30+), Safari (7+), or Edge (20+) browser. No downloads required.