

# Summer Classes 2024

All classes \$220 per half day

## WELCOME TO SUMMER AT LEONARDO'S BASEMENT

We are excited to present our schedule of summer workshops and are optimistic about returning to a normal number of offerings. Every year instructors dream up ideas for classes after watching and listening to you during the previous year. They will encourage you to design and build engineering, art and technology projects that spring from your imagination.

Leonardo's Basement is unlike any educational organization in the world. It is the largest (and oldest, since 1998) making space for builders of all ages. It is dedicated to helping students develop projects by dreaming and taking risks. To learn decision making by making decisions. To learn problem solving by solving problems. To develop technical skills using hand and power tools, computers and other technology. And to value process over product while learning important personal skills. And, to have fun being curious, creative, and industrious.

You will have considerable freedom. Along with freedom comes responsibility. We expect you to be self-directed, to respect others, and to work hard. We expect that you will follow three simple rules:

**Be safe, be nice, and have fun.**

We look forward to seeing you!



Steve Jevning  
Co-Executive Director/Founder



Tracy Nielsen  
Co-Executive Director

## NOTES

- Individual and collaborative project building in engineering, art, design, and technology for ages 6-17.
- 11 weeks of full and half-day workshops Monday-Friday begin June 19.
- Extended Day in AM (8:00-9:30 am) and PM (3:00-5:00 pm).
- Lunch: students registered for both an AM and PM workshop should bring a lunch.
- All half-day workshops cost \$220. [Scholarships](#) are available.
- Cancellation Policy - If you cancel a class:
  - 1) At least three weeks before the class begins we will refund the entire class fee, less a \$50 processing fee;
  - 2) At least two weeks before the class begins we will issue a credit for the entire class fee to your Leonardo's Basement account for a future class or workshop,
  - 3) Less than two weeks before the first day of class you will not receive a refund or credit.
- Workshop located in southeast Minneapolis, near University Ave Hwy 280, at 2 Malcolm Ave SE, 55414. (The entrance to the building is on SE 4<sup>th</sup> St.)

Other questions? Look at [FAQ here](#) or [contact us](#) at info@leonardosbasement.org or 612-824-4394.

Register at [leonardosbasement.org](https://leonardosbasement.org)

# Summer Classes 2024

All classes \$220 per half day

## Week 1 - June 10-14

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe. The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Build What YOU Want**

This week the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools, and equipment that you will need to create your project(s). Ages 8-15

#### **Toy Inventor's Workshop**

Use batteries and motors and rubber bands and balloons and string and glitter to make tops, JiggleBots, catapults, optical toys, and things with wheels. You can invent and make your own board game or card game. Experiment with hand-cranked contraptions and make new ones. Ages 6 - 12

#### **LEGO Dream City**

Our cities are continually evolving. Build your own city (and the occasional monster) using our ginormous collection of LEGO bricks as we learn how cities work and grow. This class is about building with LEGO bricks and you can expect a few surprise pop-up building competitions during the week, but the only requirement is an interest in the world's favorite construction toy. (LEGO maniacs encouraged.) Ages 8-15



### PM

#### **Animaliers**

Create animals real and imaginary using wood, foam, wire, springs, cardboard, paint, feathers and fabric. Use faux fur to make your fox furry or bottle caps to make your dragon's scales shine! Sew, saw, staple and snip to bring everyday objects to life. Wooden horse or lizard king . . . you can make anything! Ages 6-12

#### **Toolcraft**

Do you ever just want to hit nails with a hammer? Or drill holes with a drill? This is the perfect class for you if you've never tried using tools before! Make wacky nail sculptures with wood, nails and a hammer. Drill holes to make pictures on wood. Then use your new skills to construct something practical, whimsical, or both! You will also use other tools like handsaws, hot glue guns, vises and wire cutters. Ages 6-10

#### **Thrift Store da Vinci**

Start with thrift store and rummage sale stables like: clocks, figurines, paintings, frames, lamps and chairs. Make them your own using wood, paint, wire, fabric, beads, decoupage (and of course, their corresponding tools!) Create something that makes a statement, makes you laugh, or both! No experience required to create these one-of-a-kind pieces. Ages 12-17



#### **Fling It!!**

Use springs, rubber bands, air power & more to get objects small & large to fly through the air! Learn how they work, and then scale them up to launch balls, water balloons, or cupcakes. Ages 8-12

# Summer Classes 2024

All classes \$220 per half day

## Week 2 - June 17-21

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Logic Games Design**

Design and build 2- and 3-dimensional puzzles, mazes and games. Build 3D SOMA puzzles, and master some of the 240 solutions. Craft your own logic games (in the spirit of Master Mind, Guess Who, Traffic Jam, Sudoku, or Wordle), out of imaginative building materials. Ages 9-14

#### **Marbles and Mousetraps**

Let's build the biggest, most amazing, causation contraption that we can. Create a contraption that will tower above our heads and send balls of energy knocking things over under our feet. Perhaps you will add some amazing features to the track. How big can you make it? How cool? How many times will you and your friends redesign and rebuild it? Ages 6-10

#### **LEGO Vehicle Design**

Short, long? Wheels or tracks? Wings or fins? Large or small? Make the wildest ride you can imagine after digging through buckets of plastic bricks. All blue? Room for six minifig passengers? Make a plan, change your mind, take it apart and perfect your ideal vehicle. Build a ramp or attach to a zip line to test. Ages 8-12

#### **Furniture Making**

Learn and practice your woodworking skills. Build a coffee, side or end table; a step-stool or bench, or a bookshelf. After you decide upon size, style and design, you will learn more advanced woodworking and construction techniques including measuring and cutting parts, joinery, power-tool use, and wood finishing. Ages 12-17

### PM

#### **Animation Nation**

Explore various styles of animation, learn about editing software and use special effects to create short movies. Experiment with Claymation, 2D and 3D stop-motion, pixilation, green screens, and lighting. Work in small teams to discover how to make stories come to life, frame by frame. Ages 10-16

#### **Build What YOU Want**

This week the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools, and equipment that you will need to create your project(s). Ages 6-12

#### **H2(g)O**

Work inside the shop to build seaworthy projects and then take them outside to launch in multiple water resources in the Adventure Playground. You will design, build, and test vessels that to go in, on, or under the water. Use foam, wood, upcycled objects and the necessary tools. Perhaps you'll make boats, narwhal, rafts, submarines, mermaids, octopi, Sponge Bob, sharks, launchers, squirters, or splashers. You'll decide! Ages 6-9

#### **Assemblage & Bricolage**

Choose from really interesting materials and put them together in a way the world has never before seen! Combine art and engineering as you combine plastic, metal or wooden objects. Make kinetic sculpture or mobiles or puppets using fishing line and wire. Or perhaps a stationary mosaic. Make projects that are powerful, whimsical, unpredictable, poetic or practical (or, all of the above!) Ages 12+

#### **Make it Move**

Design, test, and build your own vehicles, game pieces and toys that really move! Test the limits of physics. Experiment with balloons, sails, rubber bands, and other ways to bring your project to life. So many possibilities, what will you make? How will it move!? Ages 8-12

# Summer Classes 2024

All classes \$220 per half day

## Week 3 – June 24-28

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Woodshop Projects**

Build your woodworking skills by designing and creating a project in the woodshop. and end up with a cool project of your own. Perhaps a stool, bench, birdhouse, or a box for your collectibles. Design, measure, cut; then assemble, sand and paint. Ages 12-17

#### **Wizards of Wood**

Saws, drills, files, hammers, vises, clamps and all of the wood that you can shake a stick at! Plus, scrap wood, plywood, 1x4's, 2x2's, 2x4's and more. Cut and shape wood to build one or more projects. Learn about fasteners and finishing too! Ages 6-10

#### **Chemistry, Bath and Beyond**

Craft a variety of body care products including bath salts, lip balms, scrubs and lotions. Customize your products by experimenting with different scents and essences. Maybe even create your own branding for packaging to have everything you need to treat your friends. Ages 9-16

#### **Where Pigs Fly**

Use springs, wood and rubber bands to build slingshots and other projectile-launching machines like catapults. After you have built a couple of prototypes and learn how they work, scale them up to launch balls, water balloons, and "pigs!" Ages 9-13

### PM

#### **Teen Welding**

Attention new and experienced welders: Learn how to cut and prepare metal, weld, then grind it to a perfect finish. Explore the techniques of MIG welding steel as you weld your imaginative designs, devices, and sculptures. Make a piece of art or something practical. Ages 14-17

#### **Playhouses**

Make your own playhouse out of cardboard as fancy or as rustic as you like. If you want, you can add a room each day of the week. Decorate the interior and exterior. It's YOUR cottage or castle, so design and build it so you can fold it up for when you take it home. Ages 6-12

#### **All You Can Build Buffet**

Choose from a smörgåsbord of materials (think: wood, game pieces, pulleys, fabric and bins, boxes and trays of other tasty options). Prepare them and/or take them apart with utensils, I mean . . . tools, like saws, drills, tape, hot glue, and wire. What you cook is up to you! Ages 6-12

#### **Classic Video Games IRL**

Make iconic pieces from your favorite games. Maybe host a race of Mario Luigi cars, Zelda's sword, a Minecraft Landscape or a PacMan that eats marbles! We have the tools and stuff to build with, you'll come up with the ideas! Ages 8-15

#### **Vegan Taxidermy**

Create completely unique stuffed animals for your bed, backpack or wall. Use existing stuffies, plush toys and fabric to make brand new beasts! Combine your favorite features from multiple creatures to invent new ones! Get inspiration from mythology, anime or your imagination. Sharp scissors, steady hands, hot glue and sewing supplies will bring your newly discovered critters to life! Ages 9-16

# Summer Classes 2024

All classes \$220 per half day

## Week 4 - July 8-12

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Imagine, Invent, Innovate**

Ever think of something that should exist, but doesn't? Have an invention you've been thinking about? Not quite sure exactly how it will work or how you should make it? This workshop will support your work on designs, solving problems, and building your ideas. Share your challenges and the project with others to get their suggestions. You'll leave with a prototype and the memory of models that didn't quite work. Enjoy the journey! Ages 6-12

#### **The Art of LEGO**

Use some of our thousands of tiny, misunderstood LEGO pieces to create things like framed mosaics, switch plates, necklaces, plant labels, earrings, backpack charms, key chains and more. How about beautiful crop art! (We are pretty sure there is a magical field from which LEGO are harvested). Make them for gifts, or just for you! Ages 10-15

#### **Furniture Reimagined**

Start with an ordinary chair, end table or shelf. Dust it off and develop a plan. Then, give it a never-before-seen design makeover! Add color, texture, gadgets and features (maybe wheels or lights, mosaic tiles or curtains?) to make a creation uniquely yours. We'll have the furniture and tools . . . you bring the pizzazz! Ages 9-14

#### **Lasers: 2D to 3D**

We have a powerful laser cutter that etches and cuts things . . . well, flat things that is. But you can make a lot of 3D things from flat things. Dioramas, puzzles, castles and other models. It's time to expand your thinking and create three-dimensional designs from two-dimensional pieces using CAD design software. Ages 12-17

### PM

#### **Advanced LEGO Robotic Challenge**

Each day you will solve a new challenge to test your LEGO robot building abilities. These might include a wall climb, canyon crossing, obstacle course, or others. Can your robot climb a 20-degree incline? What if the angle increases? How high can it climb? Can your robot cross a 6-inch canyon? What if the distance is increased; how wide can it traverse? On the first day you will brainstorm a number of challenge event possibilities and then start building. Ages 12+

#### **Adventure Playground BIG Build**

Last summer students began construction of a large Death Star in the outdoor Adventure Playground. They built the bottom half of the evil sphere and learned a lot about building round things! You will work in a group to build the top half: cutting and fastening wood, bending and installing metal conduit pipe, and covering the exterior with sheets of steel. Roll up your sleeves, slip on your gloves, and build something memorable! Ages 11+

#### **Creativity Convention**

This workshop offers you a different take-it-or-leave-it theme each day, incorporating engineering, design, art, and building. Work with tons of cool materials like wood, fabric, cardboard, metal, plastic, electronics and use the tools you need to work with them! Ages 6 - 12

#### **Reverse Engineering**

Old (and new) machines are really fun to take apart. They are full of twirly, shiny cool, bits and pieces that you can use to make NEW cool, shiny, twirly, mechanical things. Sorry, no hammers allowed!!! Ages 6-10

#### **Catapults, Slingshots and Trebuchets**

You will design and create projects that test the limits of laws of physics. Fling projectiles inside & out while you're here and take 'em home for additional mayhem. As a group you will create an epic launcher based on Roman or medieval designs! Ages 10-15

# Summer Classes 2024

All classes \$220 per half day

## Week 5 - July 15-19

### AM

#### **FrankenBikes**

Have you ever looked at a bicycle and thought, "I could do better," or, "It needs more wheels and taller handlebars"? Make cool wheeled contraptions that are fun to ride and learn how to use metalworking tools in the process. Cut bikes and other stuff apart and put it all back together again in clever and imaginative ways, all while challenging the laws of physics!

Ages 14-17

#### **Creativity Convention**

This workshop offers you a different take-it-or-leave-it theme each day, incorporating engineering, design, art, and building. Work with tons of cool materials like wood, fabric, cardboard, metal, plastic, electronics and use the tools you need to work with them! Ages 6 - 12

#### **Waterworks!**

Ever wanted to construct your own river of water? Use hose and PVC pipe and containers of various shapes and sizes to create your own stream of water, complete with boulders, waterfalls, lakes, and rapids. Think you can construct a small boat to navigate these treacherous waters and make it to the ocean? Test that too, and as always, launch water rockets!!!

Ages 6-10

#### **Sewing Chickens or Chicken Nuggets!**

Use a combination of faux fur, stuffies, felt, fleece, needles, thread, sewing machines and glue to make costume parts, stuffed animals or plush food. Perhaps paws, tails and ears for cosplay, (or everyday!). Maybe a squishmallow of your own design, a taco for your backpack, or a sushi toy for your cat! Ages 9-17

#### **Giant Maze**

Work as a team to design and build a human-sized maze or labyrinth. Add secret passages or mythical monsters, maybe Rube Golberg-style features or a big wedge of cheese at the terminus. This week, you are the designer, maker, and "rat!" Ages 10+

### PM

#### **Metalworking**

Learn your way around the metal shop. Cut, bend, grind, stamp and rivet or weld steel to create art, furniture, or whatever else you can imagine.

Ages 14-17

#### **Build What YOU Want**

This week the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools, and equipment that you will need to create your project(s).

Ages 8-14

#### **Reimagined Toys**

Take apart toys and turn them into something else, new toys or sculpture or games something else. We provide familiar and not-so-familiar toys for you to reverse engineer and redesign into incredible new creations.

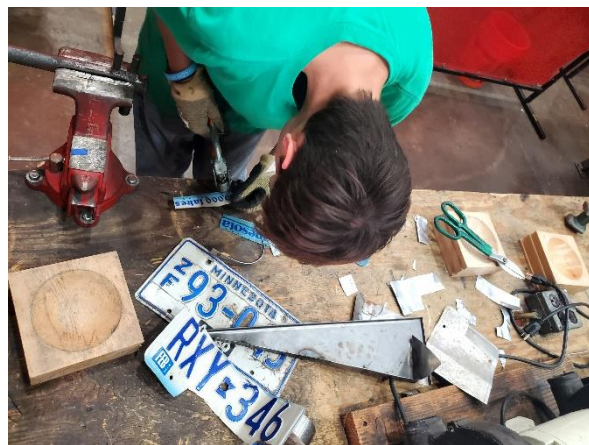
Place an action figure head on My Little Pony, then add wheels? Turn a stuffed butterfly into an airplane? How well does Kermit fly as a Frisbee? Bring your sharp sense of humor and innovative ideas. We have a ton of toys, but you can also bring your own too (just know they won't be the same when you leave!) Ages 6-12

#### **I Spy**

Calling all sleuths. Time to up your gadget game! How about some optical aids like glasses that let you see behind you, a periscope or binoculars? Maybe you'll design a watch with an invisibility cloak button or a necklace that holds secret messages. Develop codes and make maps; remember to use invisible ink. Take ordinary objects and retrofit them for secret compartments to hold ciphers, decoders, and other important treasure! Ages 6-10

#### **Ricochet!**

Propel a rolling ball between obstacles and through tunnels. Tip it over to switch on a light; You choose the path and ways to keep the momentum going! Part pinball machine, part marble maze, all your design! Ages 10-14



# Summer Classes 2024

All classes \$220 per half day

## Week 6 – July 22-26

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Wizards of Wood**

Saws, drills, files, hammers, vises, clamps and all of the wood that you can shake a stick at! Plus, scrap wood, plywood, 1x4's, 2x2's, 2x4's and more. Cut and shape wood to build one or more projects. Learn about fasteners and finishing too! Ages 6-10

#### **Tools 2.0**

You know how to use basic hand tools like saws, hammers, hot glue guns, screwdrivers, pliers, and cordless drills. Now learn how and when to use specialty tools and those with electrical cords. Miter boxes, chisels, levels, ratchets and sockets, Allen wrenches, pipe cutters, jig saw, orbital sander, and scroll saw. Make a bunch of projects using many different tools. Ages 9-13

#### **Engineering Design Challenge**

Can you design and build a vehicle that moves on its own? A building that can withstand an earthquake, hurricane, or tornado? How about a process for filtering polluted water or cleaning up an oil spill? Can you protect fragile cargo as it plummets to the earth? Let the workshop become your test lab as we tackle these engineering challenges! Ages 7-11



#### **Puzzle Room**

Imagine all of the elements for a great experience before designing and building a human-sized puzzle room. Theme? Elements? Riddles? Difficulty? Take over part of the shop and transform it! Test it out before sharing with others. Ages: 12-17

### PM

#### **All You Can Build Buffet**

Choose from a smörgåsbord of materials (think: wood, game pieces, pulleys, fabric and bins, boxes and trays of other tasty options). Prepare them and/or take them apart with utensils, I mean . . . tools, like saws, drills, tape, hot glue, and wire. What you cook is up to you! Ages 6-12

#### **Cardboard Cities**

The mayor gave you the key to a city that hasn't been built yet. Turn boxes, big and small, into the city of your dreams. Make a map and work with fellow city planners! The park could be next to the zoo or maybe across the street from the grocery store. The roads could be curvy or straight, with or without bridges for wildlife. Skyscrapers? Airport? Farms? You decide! Ages: 8-12

#### **LEGO Stop-Motion Animation**

Bring your LEGO creations to life through stop-motion animation! Build scenery, sets and props for your minifigures; grab a camera and begin filming your story. Add finishing touches like a title screen, sound effects, and credits. Ages 10-16

#### **Food Science Lab**

Melt, freeze, drizzle and blend your way to developing recipes for edible treats! Experiment with a variety of ingredients and methods of heating & cooling (temperature & flavor!) Candy and ice cream and fruit oh my! Ages 9-12

#### **Raiders of the Lost Junkyard**

Random old machines are really fun to take apart. They are full of twirly, shiny cool, bits and pieces which you can use to make NEW cool, shiny, twirly, robotic sorts of things. No hammers allowed!!! Ages 6-9

# Summer Classes 2024

All classes \$220 per half day

## Week 7 – July 29 - August 2

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **LEGO Stop-Motion Animation**

Bring your LEGO creations to life through stop-motion animation! Build scenery, sets and props for your minifigures; grab a camera and begin filming your story. Add finishing touches like a title screen, sound effects, and credits. Ages 6-10

#### **Logic Games Design**

Design and build 2- and 3-dimensional puzzles, mazes and games. Build 3D SOMA puzzles, and master some of the 240 solutions. Craft your own logic games (in the spirit of Master Mind, Guess Who, Traffic Jam, Sudoku, or Wordle), out of imaginative building materials. Ages 9-14

#### **Teen Installation Project**

Work with a variety of tools and materials (and your peers) to create a clever project that will be installed outside, in front of Leonardo's Basement. Think fancy display case ("little free library"-sized) that tells the stories about what happens inside the shop. Determine an architectural style for the structure then add dioramas, small projects, pictures, or other items to the interior. Solve practical challenges like making it secure, weatherproof and squirrel resistant! Develop distinctive design features with materials, colors, or perhaps solar lights. Work collectively to construct a one-of-a-kind, small-but-mighty, public installation! Ages 13-17

#### **Sew Great!**

A buffet of hand sewing, embroidery, and sewing with a machine! Bring a backpack, jacket or pair of jeans to upcycle - or use the new caps and aprons that we have - and add patches, stitches or beads. Maybe make a phone case or pillowcase or plush food for your stuffed animal. How about stitching some earrings? So many possibilities! This workshop is for beginners and experienced sewists. Ages 10 & Up

### PM

#### **LEGO City – Going UP!**

Work together to build a bustling LEGO City downtown. Build skyscrapers and solve ways to keep them from toppling to the ground. Create a transportation system for your minifigures to travel throughout the city--all while above ground! Build elevators to help the minifigures of LEGO City ascend to the top. Connect your buildings together with a skyway system. Make a zipline or tube system to help them get around. Note: all projects will be disassembled at the end of the week. No LEGO will be going home. Ages 9-15

#### **Give Me Some SPACE**

You will investigate space (including the planets and their old buddy Pluto). How vast is the universe? How big are the planets and stars? What are planetoids and asteroids? What else is in the vacuum of space? What IS a vacuum? Design a rocket to take you where you want to travel. Build a model space station. Imagine, explore, and invent.

Ages 6-9

#### **Electric Invention Lab**

Design a contraption, car, game or other creation. Use circuitry to create things that move and light up. Add switches and motors. Then test and re-invent until you are satisfied.

What do you want to build? Let's do it! Ages 8-12

#### **Toy Inventor's Workshop**

Use batteries and motors and rubber bands and balloons and string and glitter to make tops, JiggleBots, catapults, optical toys, and things with wheels. You can invent and make your own board game or card game. Experiment with hand-cranked contraptions and make new ones. Ages 6 - 12

#### **Miniature Dioramas**

Start with an Altoids tin, glass bottle, compact, cigar box, or other small container. Use polymer clay, fabric, wire, tiny toys, paint, wood, beads, images and other treasure to create a mini scene. Create a nook for your bookshelf, ship in a bottle, or whimsical surprise for the person who opens that cookie tin! Ages 12-17





# Summer Classes 2024

All classes \$220 per half day

## Week 8 - August 5-9

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Toolcraft**

Do you ever just want to hit nails with a hammer? Or drill holes with a drill? This is the perfect class for you if you've never tried using tools before! Make wacky nail sculptures with wood, nails and a hammer. Drill holes to make pictures on wood. Then use your new skills to construct something practical, whimsical, or both! You will also use other tools like handsaws, hot glue guns, vises and wire cutters. Ages 6+

#### **Community Building**

Develop your creative building skills to give back. You'll work together to build a project for a partner in the community. It might be a sign for a playground or a bench at a senior center. Perhaps an animal house and feeders at a school or amenities for a community garden. We'll find the partner. You'll do the design work and creating! Ages 13-17

#### **Causation Contraption**

Build the most amazing Rube Goldberg-esque apparatus that you can. Design and create an incredible machine that will tower over your head and send energy knocking things over under your feet. Perhaps you will add noise-making or physics-defying features to a track. How big can you make it? How cool? How many times will you and your friends rebuild it? Ages 9-14

#### **Interior Designer**

Design things that make your personal space more FUNctional. You'll measure floor and wall dimensions, note floor type and the amount of light in the area that you want to improve. Think items like clocks, mirrors, foot stools, coat rack, lights and 3-dimensional art. Take-apart and reconfigure, or build your projects from scratch to create one-of-a-kind accessories and furnishings. Ages 9-16

### PM

#### **Craft Lab**

Make purses out of albums, boards out of cork, unicorns out of horses, rainbows out of beads, robots out of wire...AND/OR anything everything out of: paint, ribbon, fabric, wax, needles, thread, buttons, plastic flowers, rubber bands, heat gun, CD's, costume jewelry, stickers, leather, beaded chain, Shrinky-Dinks, sharpies, duct tape, colorful cellophane, glitter, Modge-Podge, seashells, bottle caps, tennis balls, feathers, pom-poms, hot glue, rivets, staples, drills, dowels, key rings, dowels, craft sticks. What will you craft? Ages 9-14

#### **Invent What You Want**

This week, the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools and equipment that you will need to create your project(s). Ages 6-10

#### **Thrift Store Design Challenge**

Sift through an eclectic mix of wares and furniture. Things like: end tables, frames, chairs, clocks, plant stands, paintings & shelves. Repurpose, rehab, restore (and even combine) for a fun and practical piece! Roll up your sleeves for little carpentry, a little paint, a lot of decision making. Ages 12-17

#### **Faerie Castles, Goblin Huts, and Troll Bridges**

Create the perfect habitat for the creatures that live in your garden or porch. Perhaps a castle with a slip-n-slide; A carousel with a popcorn cart; Or a magical shoe with a duck pond? You decide what they need and use metal, wood, rock and plastic (with the corresponding tools) to build the world of their dreams. Ages 6-12

#### **Wheels, Water & Wings**

Split your week into three not-necessarily-equal parts: land, air, and water. Make wheeled creations that zoom down mountains and roll over hills. Craft birds, gliders or superheroes that coast over skyscrapers. And build ships, mermaids, or rafts to sail down the river, through the rapids, and to the sea. Ages 8-13

# Summer Classes 2024

All classes \$220 per half day

## Week 9 - August 12-16

### AM

#### **Adventure Playground**

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### **Welding**

Attention new and experienced welders: Learn how to cut and prepare metal, weld, then grind it to a perfect finish. Explore the techniques of MIG welding steel as you weld your imaginative designs, devices, and sculptures. Make a piece of art or something practical. Ages 14-17

#### **Build What YOU Want**

This week the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools, and equipment that you will need to create your project(s). Ages 8 -12

#### **Scientists in the Workshop**

Turn the shop into your personal laboratory! A little biology, a little physics, and a lotta fun! Grow bacteria and crystals. Play with your new friend, Bernoulli. Orchestrate chemical reactions. Explore surface tension and experiment with ice, both wet and dry. Ages 6-9

#### **Fakery Bakery**

It looks so tasty . . . but there's nothing here to eat! Stock the shelves with your favorites: cookies, cupcakes, parfaits, candy, ice cream cone? It's up to you. Ingredients at this bakery include: foam, paint, wood, plastic, fabric, resin, hot glue, and shellac. Your projects will trick everyone (except maybe the dog!) Ages 10-16

#### **MakeCode Arcade**

Go retro and spend the week at the arcade -- no quarters needed. Program a 2-D retro arcade-style game using the MakeCode Arcade platform. MakeCode Arcade is a web-based code editor that can use either block editor interface (like Scratch) or JavaScript for programmers of all levels to create arcade-style games. Add your own artwork to your game to make it one-of-a-kind. Play and share your game with others on the web and on a handheld gaming machine that you will also build! Ages 13-17

### PM

#### **Woodshop Projects**

Build your woodworking skills by designing and creating a project in the woodshop. and end up with a cool project of your own. Perhaps a stool, bench, birdhouse, or a box for your collectibles. Design, measure, cut; then assemble, sand and paint. Ages 12-17

#### **LEGO Masters**

Are you up for a daily LEGO building challenge? Themes for the structure or problem or theme will be drawn from a hat each day. How will you plan and build your solution? How will you manage your construction to generate a really cool project in the allotted 2-hour building time? Ages 10-17

#### **What Makes it Tick?**

Ever wonder what makes a clock tick, an engine whine, or a monitor hum? In this class you'll take apart all kinds of stuff and figure it out! Machines, mechanisms, printers, laser scanners, bicycles, chainsaws; whatever you can find! Use some of your favorite harvested pieces and some new parts to build a project if you wish. Ages 6-10

#### **Engineers of the Sea**

You will design make model boats, ducks, mermaids, rafts...whatever you can dream up that rides or glides on the surface of water. Your vessel may require a sail, wings, motor, fins, or a propeller. Whatever it takes, we'll make it out of a variety of materials. Use wood and foam plus learn how to use the tools to cut and attach them. Of course, there will be many chances to test and re-design your craft or creature in the water! Ages 6-9

#### **Sporty Inventor**

Begin with an existing piece of sports equipment, then modify it to make it better or for a completely different game! Maybe a Frisbee that goes farther, tennis rackets modified to catch ping-pong balls or a croquet-soccer hybrid game of your invention. Design, build, play and repeat! Ages 9-12

# Summer Classes 2024

## Week 10 - August 19-23

All classes \$220 per half day

### AM

#### Adventure Playground

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe. The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### Wooden Forge

Craft a wondrous single or double-edged training sword. From wood! Start with a straight, sturdy 1x4, then make big cuts with a table saw before using hand tools like chisels, surfboards, rasps, and files on your way to a hard, sharp, edge. You'll need a handle design, too. Hopefully, you will have time to make a sheath. Ages 10-14

#### Invent What You Want

This week, the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools and equipment that you will need to create your project(s). Ages 6-12

#### Curiosity Built the Cat

Treats, beds, tags or toys for pets of any kind. Design and build for your pet, the pet you hope to get or your next product line! Ages 9+

#### Chess & Tic-Tac-Toad

Want a personalized chess set, battleship game or backgammon board for the next time you play? Or to invent your own game? We have a mountain of materials that can be used to create boards, markers, cards, dice, dice cups and terrain. Think: wood, hardware, toy parts, jewelry, metal, plastic, silverware, wire, woodburners, paint and foam cutter. Ages 12-17



### PM

#### Build What YOU Want

This week the workshop is yours. Your scientific lab, woodshop, studio, craft room, giant junk drawer. Yes, we are here to help you; but the big project decisions are all yours! Look everywhere for the exact materials, tools, and equipment that you will need to create your project(s). Ages 8-14

#### LEGOLAND at Leonardo's

We have a plethora of LEGO including pieces for cities, ships, castles, and spaceships. We also have plants; plus animal and human minifigs. This is a build what you want workshop; build whatever you choose. Perhaps a machine, a game or puzzle, a medieval forest, boats to float or a Star Wars battle. Best of all. You decide. You can make as many things, or as big a project, as you have time to finish (and take apart on Friday)! Ages 9-12

#### The Art of Messiness

Summer is coming and it's your chance - nay, your duty - to take advantage of the warm weather by doing all of the messy, squishy, crazy things outside that you can't do in winter. We'll occupy ourselves with a shaving cream slip-n-slide, paint water balloons and maybe have a food fight. Start collecting your ideas so you can bring your messy dreams to life! Ages 6-9

#### Engineering Simple Machines

Who knew that you could build so many cool machines with stuff lying around the house? Explore materials & tools to construct simple machines. You will be the engineer using your own designs for vehicles, a pulley system and an inclined plane race track. Ages 6-10

#### Daily Design Challenge

Each day you will solve a new creative challenge by designing and building a solution. Work solo, or on a small team, to solve a puzzle, craft a game, or build a project. Use your imagination and creativity, problem solving and wits, supported by the materials and tools in the workshop to complete your task. No previous experience required. Ages 12-17

# Summer Classes 2024

## Week 11 - August 26-30

All classes \$220 per half day

### AM

#### Adventure Playground

The term "junk playground" (dubbed Adventure Playgrounds in The UK in the 1940's), was coined by Danish architect Carl Theodor Sørensen in 1931 when he imagined a place where children "could create and shape, dream and imagine" like playing at a construction site. There are over 1,000 such play/build areas around the world, mostly in Europe.

The outdoor space at Leonardo's Basement is a place for building ephemeral and permanent projects individually or in a group. Create fantasy worlds in the giant Death Star, build a catapult, or just mess about. Abundant hand tools and a wild assortment of building materials are available to realize your vision or create a new game. Work a little, play a little . . . outside! Ages 6-16

#### Rube Goldberg Contraction

Build a big - very BIG - machine as a group project in the "build what you can," "make a ton of mistakes," spirit. The workshop has very tall (30') ceilings so you won't be able to hang things from it. Rather, you will craft support columns or use ladders to achieve the necessary height for zip lines and pulleys and other hardware to create your chain reaction. Ages 12-17

#### All You Can Build Buffet

Choose from a smörgåsbord of materials (think: wood, game pieces, pulleys, fabric and bins, boxes and trays of other tasty options). Prepare them and/or take them apart with utensils, I mean . . . tools, like saws, drills, tape, hot glue, and wire. What you cook is up to you! Ages 6-12

#### Labyrinths and Mazes and Coasters

Grab some graph paper and design labyrinths (with a single path to the center and back out) and mazes (with multiple choices of path and direction). Find and modify materials to transform those drawings into 3-dimensional games. This week, marble mazes meet pinball machines and collide with roller coasters! Ages 9-14

### PM

#### Boatworks

Ahoy, landlubbers! You make small model boats, ships, galleons, rafts...whatever you can dream up that rides on the surface of water. Your vessel may require a sail, oars, motor, propeller, or a viewing deck for the captain. Whatever it takes, we'll make it out of a variety of materials. Use wood and foam plus learn how to use the tools to cut them. Of course, there will be a big tank of water to test your craft! Wear your sailing cap! Ages 6-12

#### Mini Golf Madness

Design and build the cleverest mini golf course ever. Make moving obstacles and ramps, tracks and bridges and hidden holes to challenge each other. Perhaps your course has a trivia component, a joke challenge, or a water feature. Create custom clubs or paddles, too! Ages 9-14

#### Tools 1.0

Do you ever just want to hit nails with a hammer? Or drill hole with a drill? This is the perfect class for you if you've never tried using tools before. Or even if you have! Make wacky nail sculptures with wood, nails and a hammer. Drill holes to make pictures on wood. Then use your new skills to construct something practical, whimsical or both! You will also use other tools like handsaws, hot glue guns, vises, and wire cutters. Ages 6-9

#### Craft-tactical

Bring your imagination and let your ideas run wild. We have so. much. stuff. Seriously! Like a button maker, picture frames, polymer clay, paint, cardboard, adhesives, paint, heat guns, foam cutter, ribbon, shrinky-dinks, carving knives, drills, mirrors, beads, jewelry, jewelry wire, fabric, needles, dowels, foam, Mod Podge, and vats and vats of assorted and colorful trinkets on hand. Ages 12-17

