

# Summer Classes 2025

All classes \$240 per half day

## WELCOME TO SUMMER AT LEONARDO'S BASEMENT

We are excited to present our schedule of 100+ summer workshops for ages 6-17. 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 9.
- 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, Monday – Friday, cost \$240. [Scholarships](#) are available.
- Cancellation Policy: All cancellations must be made by email. 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)

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## Week 1 - June 9-13

### 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

#### **Toy with Ideas**

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

#### **Explorations in Laser Cutting**

Design projects that will use the laser engraver. You can etch wood, metal, plastic or glass. Start by designing your project using CAD software, then send your design to the laser for "printing." Create dioramas, puzzles, or dice towers! Etch drawings and words to make 2D art or cut multiple pieces and glue them together to make 3-dimensional objects. Ages 11+



### 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 birdhouse, chess set, stool or a box for your collectibles. Design, measure, cut; then assemble, sand and paint. 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

#### **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

#### **Sensory Celebration**

Do you love fidget toys and stimming? Invent fidgets of your very own! Get ready for slime, squishies, clickers, fuzzys, and spinners! Use foam, hardware, glue, fabric, glitter, charms, wood, hinges, and more! Ages 8-14



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## Week 2 - June 16-20

### AM

#### **Crash Test Cars, for Dummies**

Create model cars and test them on the hand-built ramps and jumps of your custom designed course. Make a custom a dummy to ride inside. Buckle-up! Ages 9-13

#### **PVC Archery**

Create your own bow, arrows, quiver, and targets. Focus, breathe, and release. Become aplomb enough to hit a plum! Increase your aim and range. Experiment with arrow building and find the perfect ones for you. Choose an archery archetype. Perhaps Artemis, Robin Hood, Atlanta, Diana, William Tell, Legolas, Skadi, or Katniss Everdeen. Ages 12-17

#### **Adventure Playground**

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#### **Board Game Genius**

You make the pieces, the board, and the rules. Take inspiration from your favorites... Otrio, Ticket to Ride, Mastermind, Traffic Jam or even Wordle! Make a personalized version of a classic like chess, checkers or battleship for the next time you play?! We have a so many materials for your games, Think: wood, hardware, toys, jewelry, construction toys, metal, plastic, silverware. Ages 8-12

#### **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

### PM

#### **Build BIG!**

You may have seen ginormous projects inside the Leonardo's Basement workshop, in the outdoor Adventure Playground, or even on the news! Four-story castles, giant cardboard sharks, and wheeled wooden Trojan Horses are big build traditions here. Join the 20205 crew to design and build a bigger-than-life project that will live at Leonardo's Basement for all to enjoy. Ages 10-17

#### **CAD Basics**

Discover and explore the exciting world of 3D design. Create projects using 3D printers and laser cutters. Learn how to bring your ideas to life with easy-to-use Computer-Aided-Design (CAD) tools, and print clever inventions to improve your life, or trinkets to decorate it! Ages 12+

#### **Make Something of Nothing**

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

#### **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

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## Week 3 – June 23-27

### AM

#### **Adventure Playground**

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#### **Dragon's Hoard Jewelry Making**

Adorn your head, arms, ears, water bottle, keychain, backpack and more. Break into our amazing hoard of glass, plastic and metal baubles, jewels and beads, pair with jump rings, clasps, elastic and wire! Make fuzzy keychain charms with foam and fabric. Sculpt custom beads and pendants with polymer clay. Polish off your week by crafting a box or display stand using wood burners and maybe more jewels (really!). Ages 12-17

#### **Let's Get Muppety!**

Design, construct, and animate puppets using a variety of materials, including foam, fabric, wire, and recycled items. Experiment with form, color, and movement to craft your own unique character Then bring it to life through storytelling and motion. Ages 10-15

#### **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

#### **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

#### **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

#### **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

#### **Extra-ordinary Furniture Makeover**

Start with an ordinary chair, chest, end table or small shelf. Dust it off and develop a plan. Then, give it a never-before-seen design makeover! Add color, texture, gadgets and features to make a creation uniquely yours. We'll have the furniture and tools . . . you bring the pizzazz. Ages 13-17

#### **Electric Avenue**

Design a contraption, car, sculpture, or other creation. Then use simple electric circuitry to make it light up, buzz, or move. Learn about selecting and connecting batteries, stripping wire, choosing switches, lights and motors. Test and re-invent until you are satisfied. What do you want to build? Let's do it! Ages 9-14

#### **Junk Food!**

How real can food look . . . without actually being food? Have you always wanted to create a Scooby-doo sized sub sandwich? A gooey chocolate cake the size of your dog? Or, a tiny slice of pizza that fits in your pocket? Explore what you can cook up using foam, felt, clay, paper, cardboard, wood, beads, plastic paint and more! Ages 10 &

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## Week 4 - July 7-11

### AM

#### **Zines 4 Teens**

Sift through an electric mix of vintage & new postcards books, maps, cards, stickers, and other papers! Design and illustrate your own mini magazines, and wall hangings. Perhaps you'll decoupage 3-dimensional objects, too. Share your voice as you learn techniques for collaging, sticker making, stamp carving, button creating and other paper craft! Ages 12-17

#### **Step Right Up! Weld a High Striker**

You've seen, or even tried them, at carnivals. Work as a group to design and build a high striker carnival game! How tall will it be? How heavy does the base need to be? Do we have bell? After you develop a plan, cut, weld, and grind the metal before testing it. Finally, install it outdoors in the Adventure Playground for others to try. Ages 14-17

#### **Adventure Playground**

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#### **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

#### **LEGO Ziplines, Wheels and Gears**

Design, test, and build your own toys, vehicles and other contraptions using your favorite construction toy. Build towers and a trolley for a zipline. Make a recognizable or fantasy vehicle. Build a wacky contraption built primarily from gears. Combine any of the above to craft your special machine. Ages 9-13

### PM

#### **Peanut Butter & Jelly Cat!**

Create animals and anthropomorphic characters using wood, foam, wire, springs, cardboard, paint, feathers and fabric. Give your capybara a tiara! Use faux fur to make your fox furry! Add a smile & eyes to make friendly pies! Sew, saw, staple and snip to bring everyday objects to life. Ages 8-15

#### **Bookshelves, Benches, and Beyond**

Learn and practice your woodworking skills while building a bench, bookshelf, treasure box, or something else. The size, style, and design are up to you. Get ready to learn more advanced woodworking and joinery techniques, power-tool use, and wood finishing! Ages 13-17

#### **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

#### **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

#### **Legendary LEGO Animation**

Our LEGO characters are waiting for you to help them tell their stories of myths and legends! Re-tell an historic tale or create your own. You will work in small groups to create the scenes, take pictures, produce and edit a video of your work! Ages: 9-15



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## Week 5 - July 14-18

### AM

#### **Hand-crafted Wands**

Wands are first mentioned in the Odyssey, over 3,000 years ago. Wizards and witches use them to cast spells, good and bad. Fairy godmothers make magic happen in *Wicked*, and they are, of course, important accessories in the world of Harry Potter. Carve your very own wand constructed from different kinds of wood and finish it with wood burner, varnish or paint and decorative embellishments. Remember, the perfect wand will find you! Ages 13-17

#### **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

#### **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

#### **Giant Maze**

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

### PM

#### **From Electricity to Electronics**

Learn the difference between electricity and electronics. Use batteries, switches, lights and motors to create circuits; wire up breadboards, write programs, and make LEDs twinkle! Then incorporate into a physical project of your own design. Ages 11-17

#### **Wooden Castles**

Design towers and dungeons with dragons and trap doors on your model. Create ramps and catapults with springs and lights and hinges. Or, build a spectacular castle like the one that Cinderella lives in. Or, Hogwarts. Perhaps add ghosts like in the Tower of London. Learn woodworking skills along the way and take your creation home at the end of the week. Ages 6-12

#### **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

#### **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

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## Week 6 – July 21-25

### AM

#### **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

#### **Giving Back, Community Building**

Use your creative building skills to give back. You'll work together to build a project for an organizational partner in the community. Examples from previous groups include: signs for a community garden, games for a Special Education classroom, and fidget toys for memory care residents. We'll find the partner. You'll do the design work, construction and installation. Ages 13+

#### **Test your Mettle; Create with Metal**

Make tiny creatures, jewelry and 'bots out of old tools, watches, nuts, bolts, glass beads, resistors, cogs, springs, and anything else you can get your hands on. Learn to bend, cut and shape metal. Use dapping blocks, letter stamps, snips, files and more. Then attach pieces together with wire, rivets, adhesives and solder too. Ages 10-15

#### **Adventure Playground**

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#### **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

### PM

#### **Star Wars Ships & Sabers**

Join with the galaxy's biggest Star Wars fans to make stuff from your favorite scenes. Start with a ship; AT-AT, TIE fighter? Add a Rey staff and a light saber? Perhaps a headband with Yoda ears or Leia's hair? Absolutely! Mandalorian and "The Child?" Bring your epic ideas. Act out scenes on the Death Star, which is conveniently docked at Leonardo's Basement! Ages 8-12

#### **3D Design and Print**

Use CAD software to design 3-dimensional objects like video game or anime characters, customized jewelry, game pieces for new game or D&D die. Create a sculptures or playful gadget or practical devices like accessories or inventions for your bike. Then, print your design in plastic on one of our Creality Ender 3 printers. You figure it out. Ages: 14-17

#### **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

#### **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

#### **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

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## Week 7 – July 28 - August 1

### AM

#### **Stop (& Go) Motion Animation**

Bring motionless drawings, clay, paper, toys, LEGO, sawdust . . . or anything else, to life with movie magic! Tell your story through the magic of stop-motion techniques. For beginners and experienced animators. Ages 9-15

#### **Adventure Playground**

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#### **Build a Buddy Workshop (aka Vegan Taxidermy)**

Does build a bear workshop lack the creative freedom that you desire? Build your own furry friend, puppet, or doll. Your creations can be big or small, animal or vegetable! Utilize sewing techniques to give your fur, feathers, and fabric a life (and a personality!) Ages 9-17

#### **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, surforms, 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 12-17

#### **Invention Convention**

Creative inventors will love the freedom to master their own style of creativity. Learn to balance your wide-open imagination with the focus of tool use and a finished product. Step through the process of fantasy. Draw up a plan and build very real, and very cool, projects. Ages 6-12

### PM

#### **Bolf! (Bowling + Mini Golf)**

There is evidence of bowling in Egypt dating back to 5200 BC. The modern game of golf, on the other hand, originated in 15th-century Scotland, with its ancient roots in the Roman Empire and China. You will apply this knowledge, and your familiarity with the games, to design and build your own creation that is a combination of the two. Think mini-golf course size, but with real bowling balls! Ages 12-17

#### **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 6-12

#### **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 11-17

#### **LEGO: Land and Sea**

Build a LEGO castle that might include a curtain wall, gatehouse, moat, battlements, arrow slits and internal structures like a keep and a dungeon. And knights!

OR, build a fabulous lair for mythical creatures, horses, dinosaurs, pets, or other wildlife.

OR, construct LEGO ships (with pirates) for telling your story: ships with cannons, rafts and buccaneers; islands with volcanoes, treasure, and crocodiles; beaches with palm trees, shipwrecks, and sharks. Ages 9-15

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

Use rubber bands, cardboard, bouncy balls, springs, trophies, and lots of other great "junk" (including old toys) to invent new toys & games! Catapults, optical toys, things with wheels, board games, doll castles; you are the inventor! Ages 6 - 12



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### AM

#### **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

#### **RC Road Club**

Why are race car tracks so flat? We'll build up, down and all around, and build a RC car track that makes use of space and whatever materials we can find. Think jumps, loops, obstacles, switchbacks up walls, pits of mud and ramps going out windows! We'll have a few RC cars to race, but bring your own if you have one. Ages 9-12

#### **Weld What You Want**

Attention new or experienced welders: put on your safety gear and start welding. You will explore the techniques of welding steel and then let your imagination run wild. The sky is the limit as you weld your designs, devices, and sculptures. Ages 14+

#### **Adventure Playground**

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#### **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+

#### **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

#### **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

#### **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

#### **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

#### **Roll, Float, and Fly**

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 2025

All classes \$240 per half day

## Week 9 - August 11-15

### AM

#### **LEGO Universe**

The universe is already huge, and it's expanding. Use our extensive collection of LEGO to build your own city (and the occasional monster), spaceship (with aliens), planet or other extraterrestrial creation. How will your world function, change and grow? Expect a few surprise pop-up building competitions during the week. The only requirement is an interest in the world's favorite construction toy. (LEGO maniacs encouraged.) Ages 8-15

#### **Electric Avenue**

Design a contraption, car, sculpture, or other creation. Then use simple electric circuitry to make it light up, buzz, or move. Learn about selecting and connecting batteries, stripping wire, choosing switches, lights and motors. Test and re-invent until you are satisfied. What do you want to build? Let's do it! Ages 9-14

#### **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

#### **Make Something of Nothing**

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

#### **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

### PM

#### **CAD Basics**

Discover and explore the exciting world of 3D design. Create projects using 3D printers and laser cutters. Learn how to bring your ideas to life with easy-to-use Computer-Aided-Design (CAD) tools, and print clever inventions to improve your life, or trinkets to decorate it! Ages 12+

#### **Creepy Crawly Creatures**

Is Halloween your favorite holiday? Come on over to make spiders and worms, zombies and monsters, gremlins, goblins, and creepers. Mix and match toys, trophies, dolls and stuffies to make franken creatures and explore other spooky possibilities in this monster mash of a class! Ages 8-12

#### **Invention Convention**

Creative inventors will love the freedom to master their own style of creativity. Learn to balance your wide-open imagination with the focus of tool use and a finished product. Step through the process of fantasy. Draw up a plan and build very real, and very cool, projects. Ages 6-12

#### **Making and Breaking Outdoor Games**

Design your own yard game or improve on one of your favorites! From badminton to bocce, croquet to cornhole- you make the rules, establish the penalties, and present the winning trophy. You'll modify existing sports gear, partnered with new materials and big ideas! Ages 9-12

#### **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

## Summer Classes 2025

All classes \$240 per half day

### Week 10 - August 18-22

#### AM

##### **Daring Derby Designer**

Design, build and tweak your foot-long wheeled car or creature or hot dog. Go for style, go for speed, go for gophers! Then, work together to build a ramp and components. Multiple races, challenges and belly laughs are sure to follow with your wild and wacky pinewood derby-style racetrack. Ages 8-12

##### **World Building, for Tabletop Strategy Games**

Construct your own miniature world! Build dilapidated buildings, unbreakable defense lines, natural structures. Laser cut, carve, and assemble miniature pieces. Design, build, and paint terrain, whether it's for games like Warhammer and Infinity, a game of your own invention, or for no game at all! Want to paint your miniatures? You can do that, too! Ages 12+

##### **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

##### **Adventure Playground**

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

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#### PM

##### **Altoids Tin Tableau**

Bring big ideas for miniature projects: pocket pets, faerie houses, book nooks, mini dioramas, game pieces, or a collection of your own design! ...Mini, lilliputian, trifling, bantam, diminutive, little, wee, petite, minuscule, teeny...Ages 11-17

##### **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+

##### **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

##### **LEGO Dream Build**

Ever wonder how they design and build those giant LEGOLand objects? Have ideas for building a giant creation but find yourself short a few hundred LEGO pieces? Want to work in a group with other LEGO fanatics to construct something that would take weeks to build on your own? Here's your chance! Design and build an iconic LEGO masterpiece that will be on permanent display at Leonardo's Basement. Ages 10 & up

##### **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

# Summer Classes 2025

## Week 11 - August 25-29

All classes \$240 per half day

### AM

#### Adventure Playground

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#### Rube Goldberg Contraption

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

Natalie

#### Carnival Games

Step right up, kids, step right up! We'll spend the week recreating some of the most popular games at the fair -- Milk Bottle Knockdown, Ring Toss, Balloon Burst, Basketball Free Throw and Skee-Ball. Come try your hand and see if you have what it takes to win big! Ages 6-12

#### Water Over (or Under) the Bridge

Construct a river of water: use a hose and PVC pipe and containers of various shapes and sizes to create your own stream complete with boulders, waterfalls, lakes, and rapids. Add a bridge. Or bridges.

Construct small boats or rafts, perhaps add sea monsters or mermaids to navigate the treacherous waters. Will they make it to the ocean?

Ages 6-12

#### It's a Dog-Treat-Dog World

Make a sturdy tug toy or chew toy for your dog. Or a school of stuffed fish or other playful teasers for your cat. Perhaps your pet needs a new climber or bed or dish mat. Design and build a house or bridge or tunnel or toy for your guinea pigs, hamsters, reptile or amphibian. No house pet? Make something for a wild critter like a bird feeder or squirrel ice cream truck! Ages 10-16

#### 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

