2024 MagLab Open House Demonstrations

Demo	Location	Description
Magnet Toys Big & Small	45T Hybrid: World's Strongest Magnet	The 45T is the world's strongest magnet. Come learn about this giant 30+ ton research tool, make your own toy 45T magnet models and play with other fun magnet toys.
Painting with Barbie Pink Pigments	A-wing corner	Pigment molecules will be extracted from food items and used to paint special science art. The way these pigments get extracted is similar to how the MagLab's instruments discovered PINK was the oldest biological color -- BARBIE PINK, of course!
Magnet Laucher Toy	ASC	Aim and launch magnets toward a target!
Big Bubbler and Slomo	ASC	Giant bubbles and bubble movers using handheld electro-magnet sticks, and slo-mo challenge using iron powder and a strong neodymium magnet.
Become a Human Top on the Human Levitator	ASC	Stand and spin as you can levitate off the ground with the power of magnets

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Diffusion Cloud Chamber & Radiometric dating	ASC	We bet you've never seen a Diffusion Cloud Chamber particle detector. See how it works and learn more about radiometric dating in Archeology.
Rubens tube	ASC	This flame tube helps show acoustic standing waves in a tube.
Maglev Trains: Superconductor Levitation	ASC	See a mini MagLev Train float around a liquid-nitrogen cooled track.
Electrostatic toys	ASC	A toy van de Graaff generator levitates tiny shapes into the air!
LEGO Microscope	Atrium	Like the MagLab's powerful microscopes, come see this real working microscope made from LEGOs!
Play Dough Circuits	Atrium	Make a circuit using playdoh!
Fuzzy Faraday	Atrium	Like a classic Wooly Willy Toy, make your own fuzzy face on this electricity & magnetism pioneer, Michael Faraday

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The National Science Foundation	Atrium	Stop by to meet the National Science Foundation and learn how they support science across all 50 states, including at the MagLab. "Travel" to a black hole for a one-of-a-kind Science Selfie!
Jeopardy	B-wing Demos	Science themed Jeopardy games tailored to adults and children.
Lite Brite - Toying with Light	B-wing Demos	Toy around with light as you learn how it interacts with matter.
Polarizing Play with Forky	B-wing Demos	See how light polarizes when stopped by Forky from Toy Story.
Thermoelectric Train Engine	C- wing demos	All aboard this toy steam engine that demonstrates the conversion of heat to mechanical work.
Crystal Growth and Design for Thermoelectric Applications	C- wing demos	Showcase of crystal growth and thermoelectric devices.

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Testing critical current in superconductors	Characterization & Microanalysis	How is critical current in superconductors measured? See the tests our lab uses and watch a live test on a superconductor in super-cold liquid nitrogen as data is displayed in real time.
Thomas the Magnet-electric Train	Characterization & Microanalysis	See an electric train driven by magnetic fields
A big fancy toy: seeing atoms of materials with a TEM	Characterization & Microanalysis	Come learn how researchers can see atoms of materials using a Transmission Electron Microscope (TEM).
Scanning Electron Microscope and Focused Ion Beam (SEM-FIB): A Big Machine for Tiny Objects	Characterization & Microanalysis	The Scanning Electron Microscope (SEM) uses an electron beam instead of light to visualize samples with greater magnification and resolution compared to traditional optical microscopes. Our state-of-the-art SEM can achieve magnifications of over 2 million times and investigate structures with nanometer-scale resolution. In the Helios microscope, we also have a second beam, a Focused Ion Beam (FIB), that can be used to mill and cut the sample. With this resource, we can create 3D images. It opens up a vast microscopic world for exploration and

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		science. The demonstration will feature a presentation of the microscope.
Resistive Magnet Cooling Operations	Control Room	See inside the MagLab's Control Room where mega-watt power systems and complex water-cooling processes support the MagLab's magnet operations. A scaled down model will help explain how critical infrastructure is key to the making the MagLab's world-record instruments run.
Cold Wheels: Cryo Rocket Cars	Cryo Lab	Like hot wheels, but super, super cold! Come see these cars that operate at temperatures colder than outer space
Strength of Materials Demonstration	C wing labs	Demonstration of a tensile test on high strength materials on a hydraulic test machine.
Smoke Ring/Vortex Launcher	DC Corridor	Will use party fogger and vortex cannon to blow out a candle from a distance.
Silly Putty	EMR Demos (room c101)	"Silly Putty" will be prepared in real time from Elmers glue and borax solution. Food coloring will be added. A sample in a plastic bag will be given to kids to take home.

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Red Cabbage	EMR Demos (room c101)	0.4% solution of hydrochloric acid and 0.4% solution of sodium hydroxide will be added, using small plastic pipets, to the red cabbage juice which changes color from red (acidic solution) to green (basic solution).
Toy Piano "Name That Tune" (audio Fourier transform)	ICR Demos	A toy piano will play well-known melodies. How many notes do you need to hear before you can "name that tune"? At the same time, a computer with a microphone performs a Fourier transform that allows us to "see" those musical notes on a screen.
Penny and Feather demo	ICR Demos	A penny and a feather both reside in a clear plastic tube approximately five feet in length, held vertically. When the tube is inverted, the penny and feather fall to the other end of the tube. Will the penny fall more quickly than the feather? It depends...
Spinning spectra	ICR Demos (NM116)	Nuclear spins help scientists extract information about the structure and function of complex stuff like soda. See how the spins create a spectral signal that is different for Coca-Cola and Diet Coke.
Machine Shop	Machine Shop	See some of the area's best engineers, instrument makers, machinists and welders and learn how they use

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		sophisticated design and engineering software in combination with a wide array of machinery to create high-end, custom parts for magnets, instruments, probes and more. The machining suite of equipment includes manual machinery, CNC lathes, mills and a six-axis wire EDM.
Dancing Droplets	Magnet Cells: Cell 11	Watch these dynamic dancing droplets presented by MagLab researcher Dr. Jamel Ali and his research team. Learn what makes them move and why they matter for future innovations in medical treatments. You can even create your own dancing droplets at home!
Chocolate Printing	Magnet Cells: Cell 11	A demonstration of 3D printing of chocolate and soft materials.
Florida Center for Interactive Media: Designing Authentic, Augmented Reality Learning Activities for Online Courses	Magnet Cells: Cell 12	Try several augmented reality experiences and learn how "toys" like AR can help people understand complex information.

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Superconductivity Live Demo	Magnet Cells: Cell 14	What's the difference between a non-superconducting and superconducting material? See for yourself with these samples inside a glass dewar filled with liquid nitrogen and learn why superconductors are super cool!
Magnetic Darts	Magnet Cells: Cell 2	Visitors will throw plastic darts with small steel tips into a magnetic field. Upon entering the fringe field, the dart will take unpredictable paths to reach the field center.
Electromagnetic accelerator	Magnet Cells: Cell 4	Demonstrations of the fundamental theory of an electromagnetic accelerator. The first is the electromagnetic cyclotron, which is composed of eight electromagnetic coils assembled in a circle, and it shows the acceleration of a small iron ball through the magnetic field control of each electromagnet. The second demo is a coil gun, also composed of 5 electromagnets. It will demonstrate the acceleration of a small iron ball on a straight rail.
Physics of Toys	Magnet Cells: Cell 6	Levitating spinning magnets; Magnetometer for race cars; Magnetic cannon
FAMU-FSU College of Engineering	Magnet Cells: Cell 7	Hands-on Engineering activities for K-8.

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Quarter Shrinker	Magnet Cells: Cell 8	Watch scientists shrink quarters to the size of nickels.
Challenger Learning Center	Magnet Cells: Cell 9	Fun STEM activities brought to you by The Challenger Center
Bitter Disk Art Sculptures Exhibit	Magnet Factory	See art made from magnet parts (and by our very own magnet engineers)
Slinky Magnet Coils & Races	Magnet Factory	Come race Slinkys and see how some of the MagLab's world-record magnets get built in coils kind of like a slinky.
"My Little MagLab Jr (& Transformers!)"	My Little MagLab	"The Mane Event - Complete an electrical circuit to “light the Autobot’s darkest hour” and then become part of a joystick for a game of pinball. • Seaponies and Sharkticons - Nopony panic! Use the power of magnetism to attract the sea ponies away from the evil sharkticons in this magnetic fishing rescue. • Rainbow Dash & Starscream’s Aerial Spectacular - Everypony is invited to create your own Decepticon jet out of paper to fly through a hula-hoop target.

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		• Guardians of Harmony - Music is for everypony! Play the theme songs for “My Little Pony” and “Transformers” with science, or create your own melody. • MagLab Summer Camp Information Table - Find out more about the MagLab’s Summer Camps."
Ride the Wave Train	NMR Demos (NM106)	See how electromagnetic waves behave in an open transmission line using O- gauge train. The rail track will act as the transmission line. Watch as the caboose passes through the transmission line at quarter, half and full wavelengths. The lights turn on, dim and turn off depending on the spot they are on the track.
Rare Earth Magnets	NMR Demos (NM118)	Children and adults can play with the rare earth magnets and demonstrations, under strict supervision.
Magnetic Dancing Doll	NMR Demos (NM118)	Watch a doll spin with the power of magnets.
Electromagnetic Effect	NMR Demos (NM118)	A current is introduced, either from a battery or another source of electricity, and flows through the wire. This creates a magnetic field around the coiled wire, magnetizing the metal as if it were a permanent magnet.

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DNA extraction experiment	NMR Demos (NM118)	Extract and observe DNA from readily available materials.
Cryo Flowers & Ballons	Outside Back	Freeze flowers and balloons and watch them shatter like ice!
Giant Potato Head Toy & Potato Launcher	Outside Back (behind DC Field)	Potatoes get launched faster than the speed of sound and you can play with our larger than life potato head toy.
Archeological Toys with National Parks Service	Outside Back (behind DC Field)	Items found at archaeological sites that have amused people of all ages. Marbles and dominoes have a more historical use whereas Chunkey is an activity that the Native Americans used to prepare youth to hunt.
Gulf Specimen Marine Lab	Outside Back (behind DC Field)	Several touch trays containing safe-to-handle colorful starfish, conchs, sea urchins, sponges, hermit crabs, and other creatures provide the ultimate hands-on experience! Also see several no-touch acrylic aquariums filled with toothy, clawed creatures such as Gulf toadfish, stone crabs, sea bass, and more! You get up-close viewings of fish and invertebrates you may have never seen before that are found right here in the Gulf of Mexico!

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FWC Black Bear Management	Outside Back (behind DC Field)	Bear related artifacts will be on display by the Florida Fish and Wildlife Conservation Commission.
American Institute of Aeronautics and Astronautics (AIAA) at FAMU-FSU College of Engineering	Outside Back (behind DC Field)	See rockets built by this engineering club and design team. Launch your own Alka-Seltzer rocket.
MoBus Solar Sustainability Lab	Outside Back (behind DC Field)	Visitors to MoLab's MoBus will be able to climb on board and get hands-on with solar science. Activities will include connecting circuits to power small gadgets using the power of the sun, as well as creating solar-spin-art to bring home as a momentum. Visitors will also be able to observe the engineering mechanics that enable MoBus to run on solar energy.
Junkyard Demo	Outside Front	Watch as an electromagnet drops a steel plate to crush water jugs and other items, including toys.
Florida Fish and Wildlife Conservation Commission (Invasive Plant Management)	Outside Front	Use a small shovel to fill up a take-home container with soil. Then plant a few seeds and water the plant with a mister.

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Wildlife Calls and Historic Toys with St Marks Wildlife	Outside Front	Make animal sound replicas and old-time toys including turkey in a cup, balancing bat, and spinning button.
Florida State University Coastal and Marine Lab (FSUCML)	Outside Front	Learn about the amazing things happening at the Marine Lab!
Play Lab	Outside Front	This kid-sized cardboard play lab lets children play scientist with some real-life equipment in spaces inspired by the special research areas at the MagLab.
Liquid nitrogen ice cream	Outside Patio	Watch us make ice cream using liquid nitrogen and grab your very own taste!
Solar viewing with Tallahassee Astronomical Society	Outside Patio	Look at the sun with special Solar white light telescope, Hydrogen alpha telescope & other astronomy exhibits.
What's a dinosaur's favorite candy?	Patio	There were many different types of dinosaurs during Earth's Cretaceous Period 145-66 million years ago and—just like us—each of them had a favorite kind of food. Some of them were herbivores (plant-eaters) like Iguanodon and Triceratops, others were carnivores

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		(meat-eaters) like Tyrannosaurus rex and Gigantosaurus, and some were mostly piscivores (fish-eaters) like Spinosaurus. Come see and taste which candy from today different dinosaurs would love.
WFSU	Patio	Tree bits and logs with insects.
Sugar Rocket Demonstration with Students for the Exploration and Development of Space (SEDS) at FAMU-FSU	Patio	A demonstration of Sugar Rocket Fuel in a 3-D printed spinning device to show the impulse of solid phase rocket fuel and demonstrate properties of material science via Newton's laws.
Sea-to-See	Patio	Touch tanks and marine invertebrate toys.
Scratch Art Etch-A-Sketch with Lemoyne Arts	Patio	Interact with an Etch a Sketch, and receive an explanation on how the toy synthesizes science and art. Then, create a piece of scratch art, using a stylus to draw into the scratch paper to reveal colors before assembling a construction papercraft frame that is inspired by the classic toy.

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Lego Ice Excavation with Leroy Collins Public Library	Patio	Lego people are trapped inside ice. Can you use science to test and find the best way for them to escape?
Rethink Energy Florida	Patio	STEM activities related to clean energy and a healthier, more sustainable environment.
Protein Chemistry Toy Jewelry with Tallahassee Scientific Society	Patio	Using beads to represent amino acids, build a bracelet using a pipe cleaner. Spacer beads between the amino acids will represent peptide bonds.
TLH Amateur Radio Society	Patio	How do radios work? Learn and try your own with the TLH Amateur Radio Society
Toys under Pressure	Patio	Learn about pressure variations as we put toys under the pressure found at different ocean depths with a hydraulic press.
Volcano	Patio	See a mini working volcano erupt!