

# SCHOOL PROGRAMS GUIDE

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Sparking Success in Your Students!

SCIENCE • TECHNOLOGY • ENGINEERING • MATH

## School Field Trips, iSpace To-Go Outreach & Family Events



*"I was looking for a field trip that would help my students experience, hands-on, some of the science concepts I was teaching in class. The iMISSION experience not only did this but also incorporated other skills such as problem-solving, teamwork, communication, math, etc. My students were engaged and excited the entire time. I think what I liked best was the fact that my students not only had to collect data, but they had to interpret and make inferences about the data. This process is a skill that they will use for the rest of their lives. The organization by the staff and their enthusiasm made this trip one of the most exciting field trips I have taken."*

*—Mike Michalak, Mason City Schools*

As one of the leading field trip providers in the region, iSPACE has field trips, well...down to a science. We don't just make learning fun and exciting; we also inspire and expand your students' STEM (Science, Technology, Engineering and Math) knowledge so they can develop the skills necessary for the challenges of tomorrow. Our field trips strongly emphasize inquiry, critical thinking and our alignment to National and State Standards supports cross-curricular connections. Your students will use various strategies to analyze, infer, problem-solve, collaborate and communicate. We have completed the lesson plan for you and our interdisciplinary approach not only integrates science, math, engineering and technology but literacy and social sciences as well. Our programs can act as an introduction to a new concept or as a culminating event to reinforce your teaching. Students will experience new and innovative activities that complement your classroom curricula.

We don't just stop at field trips though. Our programs are available to come to you at your venue through our iSPACE To-Go Outreach, which includes programs for your classroom, assemblies, after-school, family nights, scout and youth clubs. We will bring all the necessary equipment to deliver impactful programs without ever having to get on a bus!

## Program Topics



Programs are aligned to National & State Standards, which can be viewed at [iSPACEscience.org/standards](http://iSPACEscience.org/standards). Each program is customized to appropriate grade level.

### The Art of LEGO

**Engineering®** Grades: PreK-3

Let the creative juices flow! Students will combine engineering and art by constructing LEGO machines that they will use to craft their own work of art.

### Storybook Science

 Grades: PreK-3

Exploring the science in beloved children's literature such as *The Mixed Up Chameleon* or *Sounds All Around*, engages even the youngest scientists through experiments and hands-on activities. Topic choices include sound, kitchen chemistry, magnetism, force and motion, space exploration, color science, density, polymers and more!

### Fun with Fizz

 Grades: PreK-3

Young scientists create crazy concoctions where raisins dance, blobs bob and fountains foam. Density, properties of matter, chemical and physical reactions are all part of the fizzy, fun concepts explored.

### Living and Working in Space

 Grades PreK-5

Students can find out if they "have the right stuff" to live and work like an astronaut in space. Activities may include building robot end effectors, practicing tasks wearing "space gloves" and investigating space food!

# Program Topics

## SOUNDS Like Fun to Me Grades: PreK-3

Get ready to enjoy some “good vibrations” when experimenting with the science of sound. Use your senses to explore vibrations that allow us to hear, feel and even see the effects of sound. Students will develop some “sound” science principles using hands-on activities to learn about waves, frequency, volume or pitch. A variety of “make and take” items complement this program.

## Scaling the Solar System Grades: PreK-6

Just how far away is the moon from Earth? How giant are those gaseous giants found within our solar system? Out-of-this-world activities will model scale-to-distance and scale-to-size concepts. We think your students will be surprised with what they discover!

## Peculiar Polymers Grades: PreK-6

What do contact lenses, milk jugs, plastic bags and chewing gum all have in common? They are all made from synthetic (man-made) polymers. Using a variety of hands-on activities, students will be introduced to polymers, their properties and everyday uses. Get set for an ooey-gooley good time.

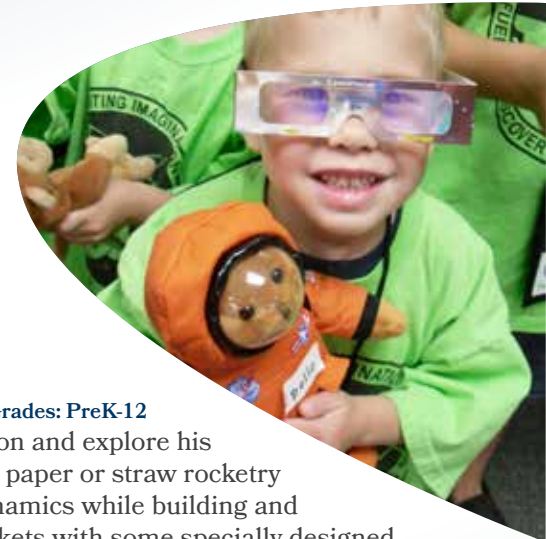
## There's More to LIGHT than Meets the Eye

Grades: PreK-6

Join in the fun as we shed some “light” on the science of light! Students' learning will be illuminated as they discover the critical role light plays in the exploration of our universe. Students will investigate properties of light and participate in engaging activities where they can “see and hear” evidence of light beyond the visible spectrum.

## LEGO Engineering Grades: PreK-6

Calling all LEGO- Maniacs! Students investigate the principles of engineering as they work in teams to build and test simple and compound machines using LEGO Educational kits. Extend engineering skills with motorized, green energy or pneumatic/hydraulic options.



## Blast Off – Rocketry Grades: PreK-12

Blast off with Sir Isaac Newton and explore his three laws of motion through paper or straw rocketry activities. Investigate aerodynamics while building and launching paper or straw rockets with some specially designed high-powered air launchers. Guaranteed to be a BLAST!

## LEGO WeDo Robots Grades: 2-4

Get ready for a safari full of LEGO models that “come to life” when students program them on a computer. Model options include a lion that roars and snores, an alligator that chomps, a monkey that drums out a variety of rhythms, twirling birds and more.

## LEGO MINDSTORMS Robots – RoboArt Grades: 4+

Can a robot create art? Robots are beginning to take their place in both visual and performing arts. Explore how they are making their artistic impressions and program a LEGO MINDSTORMS robot to create a patterned art masterpiece!

## LEGO MINDSTORMS Robots Grades: 4+

Will robots replace astronauts in space? What about jobs here on Earth? See what types of robots NASA is using in space exploration as well as robots that impact our everyday lives. Students program autonomous robots and teach them to make decisions using sensors in order to master a variety of robotic challenges.



## Program Topics

### Mass Versus Weight (NASA Curriculum) Grades: 4+

Explore this “heavy-duty” concept, where the terms “mass” and “weight” are often misunderstood and are used interchangeably, even though they have different meanings. Students replicate experiments that astronauts conducted on board the International Space Station and compare their results using NASA video clips allowing them to “weigh in” correctly on this topic.

### iMISSION: Space Base Simulation Grades: 4+

Mission Control is calling educators to be advised that an iMISSION is not an ordinary field trip! Students are immersed into the various roles of living and working on a lunar research base and will be challenged to apply STEM skills in this fun and unique learning experience. Problem-solving, teamwork and communication skills become key elements and crew members discover that the combined efforts of many teams are required for successful completion of the simulation’s activities as well as any emergencies the crew may encounter on their adventure. Only available at iSPACE facility.

## We can come to you!

Our school programs can be brought to you as an outreach program conducted in your classroom or other venue. We will bring all necessary equipment to deliver inspiring STEM knowledge. Let us lead your students through new and innovative activities that complement traditional classroom curriculum without ever having to get on a bus.

*From the teacher perspective,  
an iSPACE iMISSION is “out of this world” for several reasons.  
First - student engagement!!!! My students were completely  
engaged and stepped up to make sure they didn’t let anyone down.  
I felt useless because everything is so well run. The program is  
inclusive and the staff handles special needs students with grace  
and dignity making them included, while being aware of how  
to meet their needs.*



## iTeach Educator Professional Development



Teaching STEM is not rocket science... oh wait, it actually can be if you are in an iSPACE rocketry workshop! We want to empower educators by building confidence for teaching STEM topics through workshops and resources that will aid in the development and implementation of engaging lessons and dynamic learning experiences for students. After all, teaching STEM doesn't have to be rocket science, but it should be a blast!

*This is THE BEST hands-on training I have received in 10 years for use in my classroom and for my own personal understanding of these standards!*

### iTEACH Programs include:

- Instructional Strategies & Interactive Modeling
- Lesson Plans & Standards Alignment
- Contact hours
- May include materials for your classroom (additional fee)
- Ashland University credit may be available

## Educator Professional Development Workshops Available

Our programs can be customized to meet your needs.

Integrating STEM and Inquiry Learning into the Classroom  
Digital Storytelling  
I Am a Scientist  
Force and Motion  
Light  
Sound  
Electricity  
Field Trip to the Moon  
LEGO Education Kits

We offer training for a variety of kits.

LEGO DUPLO  
LEGO Simple Machines  
LEGO WeDo Robots  
LEGO Mechanisms  
LEGO Mechanisms-Motorized or Pneumatics Add-On  
LEGO NXT or EV3 Robots  
LEGO Build to Express

*Being a new science teacher, I feel like I would have been lost in the new standards without your guidance and help. However, as the year came to a close and my students tested, I not only felt like I taught them the necessary components of our standards, but I was also excited that we had so much fun studying them together!*



## Special Events & Programs



Visit [iSPACEscience.org](http://iSPACEscience.org) for more information, reservations and to see Special Events and Workshops that are added through the year.

### iSPACE Day

Soar in for a payload of hands-on activities & demonstrations in this free family event! Past activities have included: Ride a Hovercraft • Watch a Liquid Nitrogen Demo • Touch a Meteorite • Try on a Space Suit • Launch Rockets • Drive a Robot and more!

### FIRST Robotics

iSPACE supports, promotes and hosts FIRST Robotics programs. Competing in teams, students get real-world application of STEM concepts and participate in an atmosphere that encourages team building, entrepreneurship and sportsmanship.

FIRST events at iSPACE include:

FTC Championship Tournament: February

FLL District Tournaments for ages 9-14: January

Jr. FLL Expos for ages 6-9: January

### Cincinnati Regional Science Olympiad

The Science Olympiad provides recognition for outstanding achievement in science through interscholastic tournaments at the regional, state and national levels where students demonstrate their understanding of science, mathematics and technology, their problem solving skills and their ability to work as a team.

## Team Building or Organization Development Workshops

Using a variety of challenges that may include robotics, rocketry or our iMISSION simulation program, our corporate team will design a workshop uniquely suited to your needs. Our innovative, hands-on experiences can be used as a fun team building opportunity or re-create workplace issues (transition, communication, collaboration or reorganization), with discussions that will fuel energy and ideas as well as inspire lasting change. Conducted at iSPACE or at your school/district, programs include pre-workshop assessments, diagnostics, one-day workshop and post-workshop follow-up.

Educators consistently give iSPACE Professional Development workshops the highest possible ratings!

*The iSPACE educator workshop greatly enhanced my science instruction this year. Prior to attending, I had very few grade level resources to teach 3rd grade science. My involvement in the session not only improved my instruction, but greatly increased my students' level of engagement and enthusiasm for exploring scientific concepts.*

### Comments/Quotes from Organization Development Workshops:

- *Became more familiar with co-workers' way of working, heard others concerns, and got administration team on same page.*
- *What I liked best was:*
  - *Dysfunction pyramid – wow*
  - *The opportunity to be heard with the nonjudgmental expectations*
  - *The team building exercises (working together – communication)*



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iSPACE curricula  
and experiences  
are effective!

We successfully  
engage students with a  
4.5 engagement level  
on a scale of 1-5

We improve content  
knowledge via pre and  
post-tests recording  
43% better scores

We improve STEM  
career interest and  
awareness about STEM  
applications

We improve student  
confidence in ability to  
learn STEM



*The students were  
engaged and commented  
that it was the best  
field trip they've attended.  
I was very impressed  
with the knowledge  
and expertise of the staff,  
not only in the area of  
physical science,  
but working with  
students as well.  
Thanks so much!*