



727 West Main Street
Louisville, KY 40202

LouisvilleScience.org/teachers

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SPEED UP YOUR VISIT IN MARCH. Don't let transportation slow your Science Center visit down. Purchase an exhibit / IMAX combo package in March and receive \$35 off your school bus with Miller Transportation. Call 502 561.6100, ext. 6575 for details.


A background image of a microscope with an orange overlay. The microscope is shown from a low angle, focusing on the objective lenses.

 LOUISVILLE
SCIENCE CENTER
2011-2012
EDUCATION GUIDE
SPRING EDITION

MAGNIFY YOUR TEACHING EXPERIENCE

For more information, or to plan your visit call 1 800 591.2203, ext. 6575.

GUITAR: The Instrument That Rocked The World

Presented by  at&t

> **January 22 – April 22**

Enroll your students in the school of rock as you experience the cultural impact of one of the world's most recognizable icons, the guitar. Investigate the unique sound of the guitar when you create vibrations, manipulate sound waves, and test decibel levels. Explore cultural changes and advances in technology, electromagnetism and amplification through the unique history and evolution of the guitar. Crowd surfing not required.

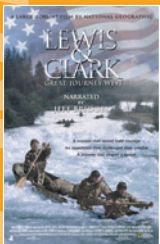
[SUPER-SCIENCE IT] Rock out with your students when you add the class *Properties of Sound*. See LouisvilleScience.org/teachers for this and other class descriptions.



Tornado Alley

Follow a daring filmmaker and a team of driven scientists as they seek to encounter one of Earth's most awe-inspiring events — the birth of a tornado. Experience the relentless strength of nature's elemental forces as they literally surround tornadoes, gathering the most comprehensive severe weather data ever collected.

Sponsored by



Lewis & Clark: Great Journey West

It's a true-life adventure that defined a continent and changed the course of a nation's history forever. With stunning aerial cinematography and meticulous recreations, *Lewis & Clark* dramatizes the legendary early 19th-century expedition that crossed the uncharted North American West.

[SUPER-SCIENCE IT] Learn about the expedition's Kentucky connections and forge new territory in the *Forge Ahead!* leadership program.



Roar: Lions of the Kalahari

Join a pride of nature's most captivating and majestic creatures in a film set against the stunning backdrop of Botswana's Kalahari Desert. *Roar: Lions of the Kalahari* tells the story of lions living near an African water hole teeming with wildlife. Witness a battle for life, home, and offspring when a young lion tries to dethrone the lion king and the story of one royal family that struggles to survive in their kingdom, the Kalahari.

[SUPER-SCIENCE IT] Add an *Animal Antics* class to understand why the lion is king of the jungle. Visit LouisvilleScience.org/teachers for more information.

KENTUCKY PROGRAMS

Explore Kentucky! | All Ages

Investigate your community through the eyes of a scientist in the Science Center exhibits. Encounter local biomedical researchers, discover species native to Kentucky habitats and check out feats of engineering and innovative products manufactured in Kentucky. Then, walk down Main Street to *KentuckyShow!*, a 30-minute, large screen multi-media experience that captures Kentucky's people, culture, history, music, spirit, and more! Program is self-guided through Science Center exhibits and includes a *Kentucky Exhibit Guide*.

Cost: \$5.00 per student and chaperone, teachers are FREE.

Note: Thanks to generous underwriting, there is no cost to attend KentuckyShow!

Forge Ahead! | Grades 4–8

In 1804, Meriwether Lewis and William Clark set out on a journey commissioned by Thomas Jefferson to find a water route to the Pacific Ocean, and to explore the unknown territory acquired in the Louisiana Purchase. Over the course of two years, Lewis and Clark and their Corps of Discovery would encounter unknown wildlife, plant species, indigenous tribes and hazardous terrain as they forged new territories in the West. Students will forge new territories of their own using the IMAX film *Lewis & Clark: Great Journey West* as a launch point to foster leadership, teamwork, and communication skills and discover the courage and bravery needed to explore the unknown.

Cost: \$20.00 per student, \$10.00 per teacher and chaperone. | Length: 9:30 A.M. – 1:00 P.M.

Note: Minimum 20 students. Program includes box lunch.

PROGRAMS

Virtual Programs | Grades 4–12

Bring the Science Center to your students with Virtual Programs. Each program includes an hour-long videoconference session with a Science Center educator, a kit of materials to use during the program, and pre- and post-link activities. To see a full listing of Virtual Programs visit LouisvilleScience.org/teachers.

Cost: \$125.00 in-state, \$200.00 out-of-state.

Pulse of Surgery | Grades 7–12



Students at the Science Center link to a live open-heart surgery performed by a medical team at Jewish Hospital. During real-time surgery, students will interact with the surgical team and learn about the procedure, the tools used, and the techniques that must be mastered in order to perform a successful open-heart surgery. Program includes pre- and post-visit curriculum guides. For more information and available program dates visit

LouisvilleScience.org/pulseofsurgery.

**Cost: \$10 per student, 30 students minimum.
\$5 per additional teacher or chaperone,
one teacher per 30 students free.**

Program support from Jewish Hospital & St. Mary's HealthCare, Greater Louisville Medical Society, and Medical Society Professional Services.

Overnight Adventures | Grades 1–8

Overnight Adventures keep the excitement going all night long. All overnights include after-hours and second-day admission, a science demonstration, program activities, an IMAX film, snack, and breakfast. Students will also participate in a flashlight scavenger hunt. Overnights are aligned to state and national standards. Choose from two available themes:

1. Uncharted Territory

> **Open-enrollment Dates: February 10 and April 27**

Based on the film *Lewis & Clark: Great Journey West*, journey through history to uncover secrets about amazing artifacts.

Curriculum Connections: Historical Perspective, Geography, Physical Science

2. Storm Chasers

> **Open-enrollment Dates: March 16 and May 18**

Experience a phenomenon of your own as we journey through the eye of the storm to explore the science behind tornadoes. Close the evening with a late-night showing of *Tornado Alley* in the IMAX Theatre.

Curriculum Connections: Transformation of Matter, Earth and Space, Biological Change

Cost: \$30 per student, teacher or chaperone.

Note: Available to groups of 100 or more any night of the week based on availability. Groups of fewer than 100 may sign up for scheduled open-enrollment dates.

Science Celebrations

FREE with admission!

Get more bang for your buck when you schedule a visit during a Science Celebrations. These celebrations give students face time with a community of scientists, researchers, and professionals that demonstrate the real-life importance of careers in science, technology, engineering and math.

National Engineers Week — February 23–25

NanoDays — March 30–April 1

National Lab Day — May 10–12

Coming Soon!

We'll bring science to your school in this new off-site program that includes a science show, hands-on activities and pre- and post-program materials. Focused on energy and energy efficiency, the program introduces students to sources of energy, how energy is generated and transmitted, and how we can become better ambassadors of energy conservation. Watch for more details in the spring.

Presented by  PPL companies

Louisville Water Company Fridays



Join Louisville Water Company educators at the Science Center on special Fridays to do experiments and activities using water as a basis for learning. **Free with admission.**

Visit LouisvilleScience.org/teachers for dates and times.

Science Fair

Science Fair season is right around the corner. If you are interested in getting your students involved in a Science Fair, we can help! We'll get you started and connect you with local resources to provide students with ideas, tools, and mentors. Contact Science Fair Coordinator, Floria Shackelford, at floria.shackelford@louisvilleky.gov or 502 560.7167 for more information.

EARLY CHILDHOOD

ScienTots | February 6 and March 12

Little ones will explore fearlessly on these dates with no big kids in sight. Package includes activities in all exhibit areas, time in KidZone and reservations in the lunchroom.

Cost: \$8.00 per student or chaperone, teachers are FREE.

Add-an-IMAX: \$2.00 per student, teacher, or chaperone.

Animal Antics | Grades Pre-K–3

Choose from four focus areas designed to introduce young students to animals, their unique characteristics, habitats, and adaptations.

1. Fantastic Flyers
2. Snack Attack
3. Daring Defenses
4. Animal Architecture

Cost: \$2.50 per student, sold only as an add-on to exhibit or IMAX packages.

Teacher Training

Teaching science can be intimidating, especially when working with younger students. The Science Center is here to help! With a wide variety of topics, we've got your school, Head Start program, or childcare center covered. Programs are led by a Kentucky Credentialed Trainer and include classroom instruction and take-home materials. For more information visit LouisvilleScience.org/teachers.

Cost: Varies by topic and instruction time.

CLUB-ED

For One Night Only!

Educator Night | Friday, January 27 | 5:00 – 9:00 P.M.

Party like a rock star during this exclusive educator event. Rock out in *GUITAR: The Instrument That Rocked The World* and enjoy an exclusive screening of the IMAX film *Tornado Alley*. Then, get a back stage pass into the Science Center's spring line-up of education programs.

RSVP to EdPreview@louisvilleky.gov or 502 561.6100, ext. 6143.

Note: Free for teachers and their immediate families. Must present a valid school ID or pay stub.

Club-ED

Have you joined Club-ED, the Science Center's exclusive resource for educators? If not, you're missing out on exclusive discounts and offers, invitations to educator events like Teacher Appreciation Day, 10% off in the Science Center Gift Shop, and a membership card that entitles you to two free planning visits each year! Sign up now at LouisvilleScience.org/ClubED.

Educators receive a 10% discount on all Science Center memberships. Call 502 560.7158 to purchase your membership today.

School Rates and Reservation Information

Permanent Exhibits: \$5.00 per student or chaperone, teachers are FREE.

IMAX-only: \$5.00 per student or chaperone, \$2.00 per teacher.

Add-an-IMAX: \$2.00 per student, teacher, or chaperone.

Lunchroom Reservation: \$0.50 per student or chaperone, teachers are FREE.

To plan your visit, call 502 561.6100, ext. 6575 or 1 800 591.2203, ext. 6575.



The Science Center would like to extend a special thanks to Louisville Chemistry Partnership for their contribution to provide field trip scholarships for schools in the west and southwest region of Louisville.

The Science Center would also like to thank Horseshoe Foundation and New Albany Floyd County Education Foundation for underwriting field trips for all 2nd grade students in the New Albany Floyd County School system.

LEARN STRING THEORY

GUITAR: THE INSTRUMENT THAT ROCKED THE WORLD

JANUARY 22 - APRIL 22

Do science.

MAKE AN OSCILLOSCOPE

- You will need:
- Metal soup can
- Masking tape
- Balloon
- Rubber Band
- Small mirror
- Glue
- Flashlight

Carefully cut the ends out of a soup can using a can opener and cover the edges with masking tape for safety.

Cut the neck off of a balloon and stretch the large part of the balloon over one end of the can. Secure the balloon with a rubber band.

Next, attach a small mirror to the balloon-covered end with glue and let dry.

Working in pairs, have one student talk into the open end of the can while a partner shines a flashlight onto the mirror.


What happens? The sound waves created by speaking into the can cause the balloon to vibrate, and this vibration is shown by the reflection of the light on the wall.

What happens when deeper or higher-pitched voices speak into the can?

What other sounds can you use to make the balloon vibrate?



THE
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MUSICIANS

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