

# LAUNCH A LEARNER

## CELEBRATING 15 YEARS BOOSTING BRAINS AND IGNITING IMAGINATIONS

Exploration Place serves as a statewide leader in STEM education through schools, libraries, scouts and the general public.

- Outreach just keeps growing.
  - 922 outreach programs reached 32,193 participants.
  - Almost 1,000 kids attended summer camps and one-day workshops (in FY 2013/2014).
  - Exploration Place hosts a Boy Scout troop.
  - 18,290 participated in school and youth group field trips (in FY 2013/2014).
  - Average more than 200,000 visitors and education outreach each year.
  - Reached our 3 millionth visitor in November 2014.
  - Second-most-visited attraction in Sedgwick County and Kansas.
  - Facility used for more than 100 rental events (FY 2013/2014: weddings, business events, community events, other events).
  - 2,700 member households.
  - Growing adult-oriented events including Museum of the Undead and Death by Chocolate.
  - Will host our 40th traveling exhibit in 2015 - Wildlife Rescue, opening Saturday, Jan. 24.
  - We have exhibits that speak to our community, including:
    - Exploring Our Only Home
    - AgMagination
    - Kansas in Miniature
    - Exploring Flight and Design
- Developing science curriculum for USD 259 (grades 1-5, 60 curriculum activities), teacher professional development (12 sessions), pilot testing with Communities in Schools.
- Special, not-to-be-missed events:
  - Death by Chocolate (entering its 9th year - almost 800 in attendance)
  - Spooky Science (new family-friendly Halloween event - about 1,000 total attended)
  - Museum of the Undead (successful 2nd year of this adults-only event 260 vs. 150 last year)
  - Gingerbread Village (2nd year - 2,700 total)
  - Smallgrass (3rd year, in partnership with Tallgrass Film Association)
- Teambuilding - partnering with Butler Community College to provide corporations and organizations with teambuilding program using the KEVA exhibit.
- Collaborations with partners - more than 15 (FY 2013/2014) such as Dynamite Dino Day with Museum of World Treasures, Music Tasting with KMWU, Arts Partners Bridging Art and Science gallery, Butler Community College, Independent School, Friends University.

- An iconic building on the river that serves as a place of discovery.
  - 100,000 square feet of space.
  - A 20-acre site situated on the Arkansas River in downtown Wichita.
  - A mission-driven, not-for-profit, 501(3)(c), supported by public funds and contributions from individuals, corporations and foundations.
  - Opened April 1, 2000.
  - Four main exhibit areas housed in the Island Building. There was once an island on this very space called Ackerman Island.
  - Landside Building consists of a stunning lobby, ticketing, Explore Store, dome theater, Vanishing Cowboy exhibit, Explorer Room (rental/special event/education activity space), classrooms and WaterWay Hall (rental space).
  - Explore Store offers science, education and funky fun. Offers fair trade items, supports local vendors too. No admission needed to shop the store.
  - No admission needed to do the dome.
  - Part of Museums on the River district (Botanica, Cowtown, Indian Center, Wichita Art Museum).

## SCIENCE

- Kansas Pavilion Rejuvenation
  - Will focus on the geography of Kansas and includes:
    - Big Back Yard
    - Water Power
    - Extreme Weather
    - Geology/Paleontology
    - Aquifer
    - Demo carts
    - Current exhibits include two tornado simulators.
- Homeschoolers: 428 attended workshops and classes (FY 2013/2014), monthly sessions in fall and winter, special homeschool science day in February.
- Hands-on classes
  - Anatomy fundamentals - from the brain to the eye.
  - Liquid nitrogen freezes anything it touches to -322 degrees.
- Heads Up Health - how kids and their parents/guardians can work together to learn healthy habits, and to spark an interest in children (even adults looking for a second career) to pursue careers in the health field.
  - Big Mouth (now open)
  - Brian teasers: very popular puzzles and other mind benders to get your brain working
  - Germs, bacteria, DNA and Cells
  - Big Eye (to come)
- Summer Camp - the most attended in past four years was this past summer
- Host Wichita Regional Science and Engineering Fair - a feeder for the state science fair - 27 participants (FY 2013/2014)

## TECHNOLOGY

- Technology = tools for life. Technology is more than just computers.
- Butler Community College Studio
  - iMacs featuring the latest operating system, Mavericks and Adobe Creative Cloud, 3D software Cinema 4D and Sketchup, and GameMaker game design software.
  - Focus on coding, design, game creation for kids in grades 5-8.

- Boeing Dome Theater and Planetarium
  - Largest dome theater in Kansas.
  - 60-foot tall, 360-degree screen.
  - New projection and sound system.
  - Two new shows in 2015: Animalopolis and The Last Reef.
- Kansas Kids Connect
  - People connecting via technology (whether you live in the city or country).
  - Ignite spark in the young child to love STEM.
  - Preschoolers in an agricultural world.
- Robotics outreach programs
  - Building robots and programming them.
- Solar telescopes have special lenses that allow the naked eye look directly into the sun.

## ENGINEERING

- KEVA: Build Your Mind
  - No glue. Just gravity.
  - 4 ½" long wooden blocks used to build structures (1/4" thick, 3/4" wide).
  - World record of tallest KEVA tower, set at the National Building Museum, Washington D.C., 5,123 planks 51' 18" (a quote from Albert Einstein that's in this exhibit: "I have no special talents. I am only passionately curious.")
  - Base of world record tower is about 2 feet wide and it took 10 hours to build. No glue was used.
  - Early exploration with simple blocks builds a subconscious understanding of mathematics and physics – even early calculus. Other concepts visitors encounter:
    - Balance, counterbalance, leverage
    - Velocity/mass/force relationships
    - Slope vs velocity
    - Momentum
    - Optimum proportions
    - 2D vs 3D design
    - Linear vs parabolic shapes
    - Symmetry
    - Problem-solving
    - Innovation
    - Teamwork
    - Quantitative math
    - Geometric shapes
  - Use KEVA for team building sessions (building teams).
  - CreatorSpace
    - Tinker, create, innovate
    - 3D printer will be used.
    - You can use chicken wire and pliers to construct lampshades and lanterns.
    - Snap circuits are used to make "blinking" holiday cards.
- Design, Build, Fly
  - First full exhibit pavilion renovation since 2011.
  - Opens in 2017.
  - Engineering/manual focus.
  - All elements will be removed except the Wind Wall: made of 350,000 disks = population of Wichita area when EP opened.
- Exploring Flight and Design
  - Includes hands-on exhibits highlighting the Wright brothers' first flight covering 120 feet in 12 seconds on Dec. 17, 1903.
- Where Kids Rule
  - Three-story kids castle with more than 60 STEM-based activities.
  - Simple machines: catapult (how far back do you have to pull the wooden arm to get the ball to hit the shield).
  - Arch Bridge Kit: if built correctly an adult (or even three adults) can stand on it.

# MATHEMATICS

- Making a Landmark exhibit
  - Building is based on geometry, namely a toroid – start with a cylinder, stretch it until the two ends meet and form a circle. Think donut or innertube. That’s a toroid.
  - Beams or glulams hold up the concave and soaring convex roof on the two EP buildings, to keep the walls in place. No beams have identical shape or length.
- Math Family Nights: 12 stations of fun family activities – 32 held in January – May 2014, serving 6,379 students in schools throughout south central Kansas. Because of demand, have created Family Math Engineering Nights and Family Math Science Nights.
- Math in Motion
  - The Foucault Pendulum
    - 44 feet high.
    - A period = the amount of time it takes for the pendulum to swing out and back.
    - The period of this pendulum is 7.5 seconds.
    - The period is used to calculate its height.
    - The pendulum demonstrates that the Earth rotates on an axis.
  - Paraboloid
    - This steel wire sculpture hanging above the main lobby.
    - Rotates and you can see its saddle-like surfaces.
    - This form gives its object strength while using the least amount of weight (1,800 pounds; 256, 64 in each of the four sections. Multiple lengths. Wires are not curved, but their 3-D appearance create the illusion of curves. Duration of rotation: 3 minutes).
- Gravitram
  - Mechanical elevators and gravity transfer the silver ball throughout this unit.
  - This exhibit is a mix of kinetic art and engineering.
- Hands-on math classes: zombie attack – Calculating the rate of infection =  $R$  naught
- Nanoscience exhibit:
  - We call it the “itty bitty science.”
  - 1 billionth of a meter = 1 nanometer
  - Nanotechnology is found in computer chips and sunblock.

