



# ANNUAL REPORT 7.17 TO 6.18



## LETTER FROM THE PRESIDENT

We are deeply grateful to all those who participated in our programs this year – whether as a student, a parent, a volunteer or a donor. We could not have accomplished all the exciting things we did in 2017-2018 without you! This year was enriching, exciting and heart-warming, thanks to everyone involved. Together, our team made it possible for LEARN’s kids to:

- **Attend Fun, Hands-On Classes:**
  - **Explore FIRST LEGO League Junior – Aqua Adventures** – A hands-on intensive for 5 to 9-year-old kids in mechanics, engineering and invention, focused the water cycle, conservation and fluid dynamics.
  - **Explore FIRST LEGO League Robotics – Hydro Dynamics** – A hands-on intensive in robot design, building and programming for 9 to 14-year-old kids.
  - **The Icky, Sticky Human Body** – An applied human anatomy and physiology class for 5 to 9 year olds that introduces kids to science as they explore the human body.
  - **Game On! Design, Develop & Play Your Own Video Games** – A deep dive into computer programming, game design, storyboarding and story development as kids create their own video games using the Unity game development engine.
  - **Slurp, Sizzle & Sling** – Kids joined us in making things slurp, explode, buzz, fizz, gurgle, ooze, sizzle, froth and pop. In this chemistry, electronics and engineering program for 9- to 13-year-olds, we did dozens of hands-on projects.
  - **The Mini-Bot Build** – Another hands-on intensive in robot building and programming, this time for high school kids.
- **Participate in One-Day Events:**
  - **Engineering Extravaganza** – A fun-filled day of learning disguised as play as kids travel from station-to-station designing their own solutions to our engineering challenges!
- **Dive deep into STEM in Summer Camps:**
  - **The Icky, Sticky Human Body** – An applied human anatomy and physiology camp for 5- to 9-year-old kids.
  - **Robo Camp – Hydro Dynamics** – A mini-competition in FIRST LEGO League robotics.



1. Father and Son Test Their Craft in the “Moon Shot” at this Year’s Engineering Extravaganza

- **Game On! Design, Develop & Play Your Own Video Games** –A camp focused on computer programming, game design, storyboarding and story development for 10- to 14-year-olds.
- **Slurp, Sizzle & Sling** – A hands-on intensive in chemistry, physics and engineering for kids from the ages of 9 to 14.
- **Geeks for Kids Car Build** – A community service project in which our mentors and high school robotics team designed and built a dozen custom cars for kids with movement limitations so that they can explore their world and play with friends on their own.
- **Get a taste of STEM in Community Events** – Community service events like Maker Faire, STEM enrichment programs, Library Science Nights and School Science Nights.

In addition, we continued to field robotics teams. Our FIRST Tech Challenge (FTC) robotics team, The Red Hot Techie Peppers finished their eighth season with another bang. They won numerous awards at local and regional events they attended, and they advanced to the MO State Championship where they posted some of the highest scores of the day and went on to compete in the FIRST World Championship.

While achieving all these things, the team mentored younger kids in LEARN's classes, served as counselors at our summer camps and participated in the Geeks for Kids car build.

Every one of these programs was a blazing success thanks to the wonderful kids and the terrific mentors and sponsors who brought smiles to our faces. Read on to learn more about what the kids did!

Thanks for another wonderful year!

Rebecca Kidwell, President  
LEARN Science & Math Club



1. Members of the Techie Peppers, Celebrating Their Win

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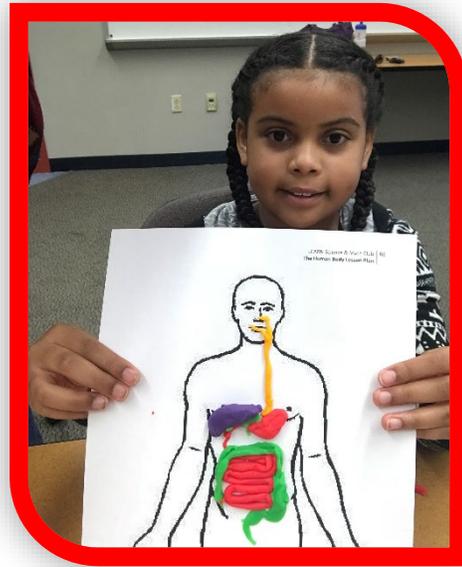
## OUR PROGRAMS

LEARN Science & Math Club is a 501(c)3 non-profit. Since 2004, we have been providing kids from the Kansas City metropolitan area with rich science and math experiences through robotics, engineering and programming projects and laboratory experiments. We actively foster the collaboration, organization and communication skills necessary to work and play together.

At LEARN, we know there is a natural scientist inside every kid, and our mission is to foster those native abilities. Whether they plan to become lawyers, chefs or physicists, kids should feel bold and confident in a technical world; we work hard to make that possible. We use robotics programs such as the FIRST LEGO League and FIRST Tech Challenge as well as invention programs such as the Lemelson-MIT InvenTeam program as learning platforms as well as many home-grown curricula. Below, you will find a summary of our 2015 to 2016 programs.

### FIRST Tech Challenge

In 2010, LEARN Science & Math Club launched a high school robotics program. Our rookie team, The Red Hot Techie Peppers, had a bang up first year – winning the 1<sup>st</sup> Place Connect Award and the 2<sup>nd</sup> Place Inspire Award at the Southeast Missouri State Qualifier and the 1<sup>st</sup> Place Motivate Award at the Missouri State Championship. Every year since, the triumphs have continued as the team earned top honors at nearly every tournament they have attended.



**2. A Future Doctor, Showing off Her Model of the Human Digestive System**



**3. The Red Hot Techie Peppers**

If you've not heard of FIRST Robotics, you've missed out on one of the coolest, hands-on learning platforms for building math and science skills. FIRST makes computer science and engineering "hip" by building a sports-like, team-based competition around robotics. Hundreds of thousands of kids from around the world get together and build robots that solve weird, exciting and difficult challenges every year.

### When

The high school team met fifteen to twenty hours per week during the competition season, and they met ten hours per week in the off-season.

### For Whom

Kids do not have to be super-geeks to get involved. If they are interested in business, graphic design, marketing, accounting, computer programming or engineering, we have got something for them! The FIRST Tech Challenge program is for kids 13 to 18 years of age.



5. A Red Hot Techie Pepper Flexes Her Tech Muscles

### Fall Classes

This fall was filled with fun! LEARN offered two programs for kids from 5 to 14 years of age: Explore FLL Jr.'s Aqua Adventure and Slurp, Sizzle & Sling.

### Explore FIRST LEGO League Junior's Aqua Adventure

Water, water everywhere! How does it flow through our lives? We explored these issues and many more in Aqua Adventures. Because, what kid doesn't like to get wet, slosh around in the mud and the rain and float toys down the stream?

The class gave kids time to dive deep into water. We learned how we use water for many things every day. Where does our water come from? How does it get to us? Is the water cleaned or treated before we can use it? Why is it important to use water wisely? We explored all these issues - by meeting with experts, doing fun tech projects and taking some cool field trips. Then, we built Junior FIRST LEGO League models to display our ideas for improving a part of our water's journey.

Next, we dived into fluid dynamics – the study of how water flows. Why does water flow up and not down? How does it flow around a boat's hull? Why are duck's feet better than yours for swimming? Do submarines need fins? We will experiment to find the answers to these water mysteries and others. On the last day, you will show off all the projects you built in our Aqua Adventures showcase!

### What the Kids Designed & Built

The kids made dozens of projects during this deep dive into Aqua Adventures! Including:

- The Water Cycle in a Bag
- A Self-Watering Terrarium
- A Rain Gauge
- Rain in a Cup
- An Edible Aquifer
- Your Own Watershed
- A Race to the Drain
- A Sampling of Different Boat Designs
- Test Fins for Submarines
- Vortex-Powered Jellyfish
- And, More!

And, there was a secret hidden inside every project! While the kids were designing and building, they were learning about the Laws of Motion, forces and energy, hydrodynamics, buoyancy, potential and kinetic energy, gravity and more!



6. A Young Water Expert, Making Square Bubbles

### Slurp, Sizzle & Sling

What if a STEM class were designed by a kid? What would he or she choose? We bet it would be just like this class because Slurp, Sizzle & Sling! certainly checks all the right boxes! Glop...Check! Slime...Check! Fire...Check! Explosions...Check! Electricity...Check! Trebuchet...Check!

Kids joined us to make things slurp, explode, buzz, fizz, gurgle, ooze, sizzle, froth and pop! Because, of course, what kid doesn't love to make chaos (in this case – controlled chaos) happen? And, while we were doing dozens of hands-on projects, we were learning about chemistry, electronics and engineering.

- **The Projects**
  - Fizzing, Exploding Chemical Reactions
    - A Pool Full of Oobleck
    - Elephant's Toothpaste
    - Tea Bag Rockets
    - Fire Tornado
    - Glop
    - Dry Ice Crystal Ball Bubbles

- Sparking, Buzzing Electronics
  - Electro-Dough Circuits
  - Electro Football
  - Electro Sculptures
  - Whoops Robots
  - Junk Bots
- Fear-Inspiring (but relatively safe) Historical Weapons
  - Paper Clip Trebuchets
  - Airsoft Pen Poppers
  - Hwacha Rockets
- And, Other Electrifying, Eye-Popping Projects!

And, there was a secret hidden inside every project! While the kids were making all that magic happen, they were learning about electricity, circuits, chemical reactions, polymers, thermodynamics, surface tension, non-Newtonian fluids and more!

### Spring Classes

This year, LEARN hosted three spring classes: Sparkle, Buzz & Pop for younger kids, Cityscapes for middle schoolers, and The Mini-Bot Build for older kids. All three were bang-up successes.

### The Icky, Sticky Human Body

If you invite a five- to nine-year old kid to a human anatomy and physiology class, you're likely to hear, "Huh?" But ask them, instead, if they're interested in guts, brains and the weird little doohickies in their ears, they're likely to be intrigued. They'll be more than intrigued in our "Icky, Sticky Human Body" program. They'll laugh. They'll dive into more than two dozen hands-on experiments and games like dissecting a cow's heart and exerting peristaltic action on oatmeal as it moves through "our intestines." (Panty hose makes an amazing – and thrillingly disgusting substitute!) They won't even notice that they're learning a ton.

### What the Kids Learned

- Cells
  - Make a DNA Model
  - Create a Cell Model (and eat it!)
  - Play the Game "What Kind of Cell Am I?"
  - Make a Cell Division Flip Book
  - Follow Germs Through our Day
  - Grow Some Gross Bacteria
- The Skeleton
  - Crack some Bones



4. A Future Electrical Engineer Tests his Electro-Circuit

- Check out How Certain Substance Break Down Teeth
- Play Skeleton Bingo
- Build Your Own Skeleton
- Muscles & Movement
  - Map Your Muscles
  - Test Your Strength
  - Musical Muscle Identification Game
- The Circulatory System
  - Test Your Heart
  - Check out an Animal Heart
  - Make a Batch of Blood
- The Nervous System
  - A Trick of the Eye
  - Play Neuron Tag
  - Test Your Reflexes
  - Map Your Brain
- The Respiratory System
  - Create a Breathing Lung
  - Test Your Lung Power
  - Breath Like an Asthmatic
- The Digestive System
  - Make a Model Digestive System
  - Watch Acid in Action
  - Move Food Thru Intestines
  - Filter out Nutrients



8. A group of future doctors, dissecting a pig's heart

### Game On! Video Game Development

This class was for kids who love games – board games, card games and especially video games? And, it was for kids who believed they could build better games than the ones that line store shelves.

It was for everyone who wanted to design, write, develop and play even better video games. In this introductory course, kids created their own games using one of the tools professional game developers use – the Unity™ game engine.

They:

- Create their own worlds
- Tell their stories
- Design their characters
- Develop the game rules
- Bring their heroes and villains to life

- And, play a whole lot of fun games

This 12-week, project-based class took kids through everything they needed to know to make their own games. They mastered creating 2D and 3D environments and levels. They chose when and where to place treasures and traps. They designed mazes, mansions and more. And, they decided how to aid their heroes and thwart their enemies. For the final project, we worked as a team to design a multi-level, 3D game that they could take home and play with their friends and family. We provided the assets, they brought the creativity, and together we built exciting, new worlds!

### What Was on the Menu

- What Constitutes a Game & What Makes It Fun?
- Introduction to Unity™
  - What Unity™ Can Do
  - What You Will Learn
  - Play Some Games Built in Unity™
- The Elements of Gaming
- Design a Physical Game & Play Others' Games
- Play Existing Unity™ Game Frameworks
  - Flight Simulator
  - Auto Race
  - Maze
  - And, more!
- The Unity™ Development Environment
  - Scene View
  - Game View
  - Hierarchy Window
  - Inspector Window
  - Project Window
- Game Rules
  - What Are They?
  - How to Communicate the Rules
  - When to Break the Rules
  - Challenge: Revise Your Paper Game with Rules
  - Challenge: Enhance an Existing Unity™ Game with Rules
    - Add Features
    - Add Color & Special Effects
      - Audio
      - Animations



9. A Class for Kids Who Love Video Games

- The Particle System
- More About Unity™
  - Scripting
    - Creating and Saving Scripts
    - Variables
    - If/Else Conditions
    - Loops
    - Methods
    - Coroutines
  - The Physics Engine
- The Story
  - Why Is Story Necessary?
  - Who Is Driving the Story?
  - Motivation & Empathy
  - Challenge: Add a Story to Your Unity™ Game
- Introduction to World Design
  - Properties & Rules of Your World
  - The Vertical Spine
  - Causes & Consequences
  - Case Study
  - Challenge: Sketch Your World
- Character Development
  - How Your Characters Interact with Your World
    - Configuring the Camera
    - Options for & Limitations on Movement
    - Scripting Behaviors
    - Animations
    - Spawning
  - Level Design
  - Creating Borders for Your World
  - Creating the Play Space
  - Challenge: Develop a Map for Your Game
- Building the World
  - The Atmosphere
    - Placing and Adjusting Lights in a Scene
    - Light Types
    - Modifying Shadows
    - Baking Lighting
  - Incorporating the Story Line
  - Challenge: Create Your Atmosphere
- Story Development

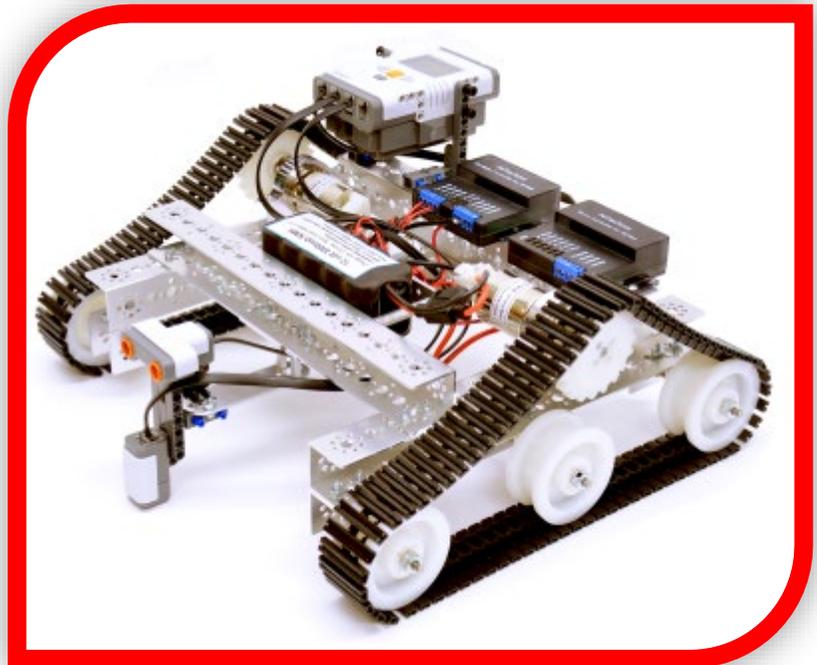


- Challenge: Summarize a Story You Know & Love
- Character Sketches
- Character Development
- Challenge: Develop a Narrative for Your Game
- Building & Deploying Your Games
  - The Build Process
  - Building Your Games
  - Legal Considerations
- Next Steps
  - How to Learn More
  - How to Create New & More Exciting Games
  - Play Each Other's Games
  - Take Your Games Home

### The Mini-Bot Build

In this class, 13 to 18-year-old kids designed, built and programmed four to six mini-bots to compete in a pentathlon of tag battles, jousting, doodling and an obstacle course race. This class was designed to build rapid prototyping skills in mechanical engineering and programming.

Kids built and programmed new robots in just a few hours each week. Then, they put those 'bots to the test on the field to win prizes and learn a ton. The kids built with the Tetrax system and programmed in Java.



10. A mini-bot under construction

### LEARN STEM Tastings

Here at LEARN, STEM Tastings are short-term programs that last for just a day or two and are designed to excite and enthuse kids so much that they want to try their hands at more complex projects and programs. Some STEM Tastings repeat every year. Others are one-time events, and the remainder rotate through our program line-up every few years. They all have something in common, though. They are whole lot of fun! Below, you will find a list of this year's events.

### Engineering Extravaganza

Kids from five to fourteen years of age joined us for a fun-filled day of learning disguised as play! Inside every child there was an engineer just waiting to...

- **Survive the Giant Egg Drop** - Design & test parachutes to protect the magical chicks that could save the world
- **Clear the Valley of Poisonous Snakes** - Construct extending grabbers & capture the snakes
- **Craft Paper Circuits** - Use our templates or design your own to create sparkling paper circuits
- **Build a Bristlebot** - Design and race your own bristle robot
- **Shoo away Angry Birds** - Build and test fire your own cork shooter
- **Paddle Down our River** - Create and race your paddle boat
- **Create the Coolest Paper Airplanes** - Then, compete to fly the farthest or most acrobatically
- **Fabricate a Triangle Slinger** - And, then take it out for target practice
- **Build a LEGO City** - Help us create the coolest LEGO city ever!
- And More!



11. A Young Engineer Testing Her Flying Tube

The kids moved from station-to-station building cool things all day long with our fun and wacky technical mentors or settled in and worked on a project for hours. We provided the challenges, the supplies and the engineering guidance; the kids built whatever they could dream. Their imagination is the only limit!

### Summer Camps

Weekdays, from June 4<sup>th</sup> thru June 29<sup>th</sup>, 9a to 4:30p, LEARN Science & Math Club hosted the coolest summer camps! This summer, we hosted four week-long camps.



12. A Young Maker Conducts a Fluid Dynamics Experiment

### **Aqua Adventures**

How does water flow around a boat's hull? Why are ducks' feet better than yours for swimming? We answered these and other mysteries as we explore the water cycle, conservation and fluid dynamics!

### **The Icky, Sticky Human Body**

Ask kids if they're interested in guts, brains and the weird little doohickies in their ears, and they're likely to be intrigued. And, they were as we explored every nook and cranny of the human body in this class on anatomy and physiology for ages 5 to 9.

### **Slurp, Sizzle & Sling**

Kids joined us in making things slurp, explode, buzz, fizz, gurgle, ooze, sizzle, froth and pop. In this chemistry, electronics and engineering camp for 9- to 13-year-olds, we did dozens of hands-on projects.

### **Game On! Video Game Development**

In this introductory course, kids created their own games using one of the tools professional game developers use - Unity. In the process, they learned how to design, storyboard, program and test video games.

### **Community Events**

To extend our reach, LEARN Science & Math Club also sponsors activities at many free community events. This year was no exception. We hosted booths with lots of fun, hands-on projects at a variety of events. These included KC Maker Faire and school Science Nights.



13. In Slurp, Sizzle & Sling, Scientists Test Surface Tension

### Community Service Program – Geeks for Kids Car Build

In the spring of 2017, LEARN's Board, tech mentors and high school robotics team – The Red Hot Techie Peppers – decided to put their years of engineer training and their community connections to an even more exciting use – building custom, electric cars for kids with movement limitations. That year, they build one test car. This year, together with professional engineers, programmers and other robotics teams, they built a dozen more cars.



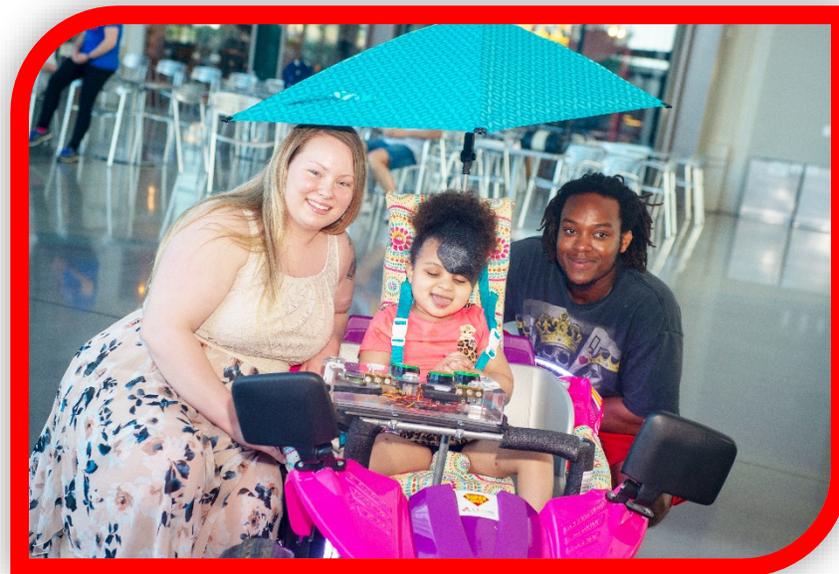
14. A Sibling Test-Driving her Brother's Car

### Our Motivation

More than 500,000 American kids under the age of 5 have mobility problems that keep them from exploring, learning and playing like other kids. There are even more kids over the age of 5. Sitting on the sidelines, waiting for others to wheel them around, limits their intellectual, social and physical growth. We are committed to changing this dynamic.

### Our Kids

Our kids' challenges vary. Some cannot walk. Others can stand and walk with aids. Some cannot use their hands effectively or at all. Some can only move their heads and necks. We customize a car for each child's needs. Here are the stories of just a few of the kids we served this year:



15. A New Driver Checking out Her Hot Rod

Jerry

Our son was born healthy. When he was 2 years old, someone drove over him with a car while he was outside playing. The accident broke his back, severed his spinal cord and left him paralyzed from the waist down. He is a busy, rambunctious and social boy; he loves to play outside with his siblings and neighbors, but he has a hard time keeping up when he has to push his wheelchair.

Kiki

My daughter was a healthy, happy baby. When she was a toddler, however, she started losing skills. We learned that she has Rett's Syndrome – a condition that causes the loss of motor function. For now, she can crawl and stand, but she can no longer walk. She enjoys pushing buttons and flipping switches, but she can't always get her hands to do things she wants them to do. And, she can no longer talk; so, we don't know for certain what she needs or understands. All she's ever been able to do is watch other kids playing from the side unless I'm holding her hands or pushing her in her stroller.

Henry

Our son has a chromosomal abnormality that is so rare that his doctors do not know what the consequences will be. For now, he's growing and learning, but more slowly than his peers. At three, he has just started walking. He LOVES his walker and works at it until he's dripping in sweat. He also loves the outdoors, but he can't keep up with the other kids or walk on uneven surfaces.

### Our Volunteers

Dozens of people – from seamstresses to computer programmers – came together to make this program possible. One of them described his experience as a volunteer, saying "I'm an IT consultant. I help companies figure out how to solve IT problems.... I don't build things. But, five minutes after meeting "my kid," I was hooked. After working all day on her car, I spent the evening shopping for a Moana doll because Moana is her favorite. Watching her drive her car for the first time with Moana by her side was the bomb!"



16. Taking Moana for a Spin

### The Statistics

- 6 months of work
- 39 strategy, design, build and delivery sessions
- 66 builders
- 8 corporate sponsors plus dozens of individual donors
- Over 5,000 labor hours
- Over \$17,000
- 6 hand-driven cars for kids with lower-body movement disabilities
- 1 joystick-driven car for a child with quadriplegia
- 1 joystick-driven car for a child with full-body rigidity
- 1 joystick-driven car for a child without arms
- 3 joystick- and remote-control-driven cars for kids with movement and developmental disabilities
- Endless joy and new opportunities for our kids



15. Cars Lined up for Delivery Day

### Geeks for Kids' Successes

For the kids we serve, these cars deliver freedom; they give them a chance to “run” and play with other kids. Jerry’s mom sums up the feeling that so many of the parents have shared. She wrote:

*Jerry has loved his car so much! He drove it almost every weekend including in the snow!! This car was amazing! He was able to be outside with family and friends, go places he would never have been able to roll his wheelchair!*

*We as his parents were able to see him be a “normal” kid again, the best part is that while he was in his car, he didn’t get stares, people didn’t assume that something was wrong with him. He looked like any other kid. I as his mom used to, and honestly sometimes still do, get so upset because people treat him so different. He is in a wheelchair; so, they assume he is unaware or delayed so they talk about him as if he doesn’t know. But in his car, that NEVER happened. No matter where we went, for a walk, to the park, we even took it to the zoo! He at that moment was, the same, “normal...”*

Our volunteers, too, found Geeks for Kids rewarding. We learned that we could promise no greater benefit to our volunteers (and ourselves) than the joy that we gave and the joy we received when we participated in Geeks for Kids. Delivering the cars we build is better than the best Christmas morning. As the kids drive their cars for the first time, they glow. Their parents cry. And, all of us - the sponsors, donors and volunteers - feel like we have done something that really matters.



#### 16. Builders Celebrate with "Their Kid"

Building these cars is also a great way to build team spirit. Geeks for Kids get teams thinking outside the box, working together and striving for the thrill of victory. Sure, the jocks have the Olympics and Corporate Challenge, but your team will build the tech that could one day save the world...or, at least, make a huge difference in kids' lives.

## LEARN's RESULTS

At LEARN Science & Math Club, we operate on the assumption that kids can do extraordinary things. And, they always prove us right! Our kids:

### Build Teams and Communicate Effectively

Our programs teach kids to:

- Work closely with other kids to analyze and solve complex, on-going challenges
- Treat others with respect, kindness and appreciation for the skills and abilities they bring to the project
- Research a topic, identify opportunities and present new ideas to professionals, government officials and the community



17. Our Rock'n Robo Rabbits FLL Team with Friends at The North American Championship in San Diego, CA

### Build Life Skills

Our kids:

- **Develop Strong Technology Skills** – Not all our kids want to be engineers; some want to be doctors, programmers or lawyers. All of them, however, know they benefit from being able to put technology to use. They learn sound engineering principles, strong computer, project management, mechanical and electrical engineering skills.
- **Build Business Skills** – Building and programming robots is cool, but solving real-world problems is even better. So, our team does more than compete in FIRST robotics challenges. They are launching a technology-related business. We bring in marketing, sales and accounting professionals to help them commercialize concepts like:
- **Created Script Alert** – One of our FLL teams proposed an innovative, Web-based product to prevent millions of injuries and deaths related to prescription drug dosing errors. Several members of that team moved up to our new high school team, and they won the Lemelson-MIT InvenTeam grant to fund the prototyping of this product.

### Make a Difference

Our kids have:

- Worked to reduce energy usage and pollution. They:

- Developed a Web application that encourages people to carpool by helping them to easily catch a ride with their Facebook and My Space friends
- Presented a proposal to the KC City Council and the Missouri State Legislature, encouraging them to implement a metro-area wide ride- and bike-sharing project
- Built emissions-free pedal cars and displayed them at the Nelson-Atkins Museum of Art and the KC Zoo on Earth Day to demonstrate it's possible to get around town without polluting
- Conducted a flash mob event called, "FREEZE to Save the Planet," to promote awareness of the many small things we can all do to reduce energy usage and pollution. To see a video of this event, visit [FREEZE](#).
- Created a patented biomedical engineering product called Script Alert that could save thousands of lives each year
  - Developed two food safety product concepts:
  - One, called Food Tracker, uses RFID technology to trace foods from farm to fork, ensuring the CDC and other experts can quickly track and stop food poisoning and contamination.
  - The other, called Stick EZ, uses existing immunoassay technology in the form of a small sticker to identify foods that are contaminated with food poisoning or pesticides.
  - Host Open Houses and Science Fairs
- Mentored Our FLL And Jr.FLL Teams – Most of our high school team members volunteer four to ten hours a week year-round to coach the younger kids in our program. This year, they led these teams to three 1st place awards.
- Hosted Summer Camps and STEM Classes – LEARN hosts three to five week-long science and math enrichment programs each year. Team members volunteer as camp counselors. These camps serve as both community outreach and a principal fundraiser for the team. Our high school team also assists with a variety of STEM classes including Circuit Board Design & Production, AutoCAD Inventor, the Mini-Bot Build and Programming in Robot-C. They also help us put on several free community service events such as Science Nights at the Kansas City Public Library and projects at the Kansas City Maker Faire.
- Designed and build custom, electric cars for kids – paying forward the skills they have learned and the gifts they have received in our programs.



18. Our Shadow Knights FLL Team Presenting Sticky EZ

## Achieve Big Things

Our younger teams:

- Took 1st Place awards in local and Regional competitions every year (and they've often taken home more than one award)
- Won 1st Place for the Chairman's Award – the top honor – their last two years in FLL
- Represented the Western Missouri and Kansas Region at North American Championship and at World Festival – making them one of the top 79 teams out of over 22,000 teams for the last two years. On both occasions, they finished in the top ten teams, earning the 1st Place Award for Inspiration.
- Been nominated twice and won an International Core Values Award for being one of a handful of teams from around the world that best demonstrates gracious professionalism, kindness and support for other teams

Our high school teams:

- Score High – Seven years ago, our rookie FTC team won the 1st place Motivate award, the 2nd place Inspire award and was nominated for the Connect award at the Southeast Missouri State Qualifier. They went on to earn the 1st Place Motivate Award at the 2012 State Championship. Since then, they have won numerous awards every season, advanced to the Missouri State Championship every year and won numerous awards there and competed in the World Championship several times.
- Designed Exhibits for Science City – For their City Imagineerium proposal, the team won a \$2,500 grant in the Burns & McDonnell's Battle of the Brains
- Developed Life-Saving Product – They won one of only fifteen MIT InvenTeam grants that were issued worldwide in 2012. Over the course of the school year, they developed a working prototype of their product, Script Alert. This biomedical engineering device tracks, guides and reports on patients' prescription medication. It has the potential to save hundreds of thousands of lives each year and was hailed as the most commercially viable and life-saving product at the Lemelson-MIT Eureka Fest in June 2013.
- Earned Money & Win College Scholarships – The team has two financial goals – to earn all the money they need to fund their robotics program and to help kids invest in their future. They earn a stipend for their outreach and community service work as well as qualify for FIRST scholarships.



19. One of the Pepper Drive Teams Guiding their Robot to Success

## OUR TEAM

LEARN Science & Math Club is an all-volunteer organization. We owe huge thanks to our wonderful Board members, mentors, coaches and teachers for their tireless devotion to making so many opportunities possible for kids from all over the Kansas City metropolitan area and around the world. Many of our team members work twenty to forty hours per week at LEARN after putting in full days at their “real” jobs.

### Our Board

We have a strong and diverse Board that provides guidance and unflagging support for our programs. Our Board includes:

- President – Rebecca Kidwell
- Vice President, Technology – David Sherrick
- Vice President, Security & Operations – Jeff Stice-Hall
- Secretary – Amanda Madrigal

### Our Volunteers

LEARN simply could not function without the many people who give their time to helping kids. For some of our larger events, we have as many as fifty volunteers devoted to helping, encouraging and keeping kids safe. This is equally true of our on-going programs. Week after week, dozens of parents and professionals band together to mentor and guide our kids.



**20. Some of the Geeks for Kids Volunteers, Celebrating the Delivery of a Car**

## OUR DONORS

LEARN’s donors bring joy, opportunity and a life-long love of science and math to kids throughout our community. With immense gratitude, we thank all our donors for making our work possible. Some of you are individuals, and others are large organizations. Whatever the size, your contributions are invaluable. You made so many children happy this year.

Below, you will find a list of our corporate sponsors. Many, many individuals generously contributed to our kids’ success as well. With concern for their privacy, we have not listed our individual donors by name.

### \$10,000 or More

- Rockhurst University

### \$1,000 to \$10,000

- Black & Veatch
- Saint Pius X Church
- Synthesis Solutions, Inc.
- The United Way
- UMKC's School of Computing & Engineering

### \$500 to \$1,000

- Garmin
- Henderson Engineers
- PTC
- The KC STEM Alliance



21. The Techie Peppers Relaxing after Geeks for Kids' Delivery Day

## HOW TO HELP

As we all know, success is expensive. Parents and kids continue to ask LEARN Science & Math Club for more – more classes, more camps, more events, more advice. While this is a wonderful situation to be in, it comes at a cost.

Over the last fifteen years, LEARN has grown significantly each year. Demand has outstripped our resources. We need to buy more computers, robots and other STEM equipment to meet the need. We also need dedicated meeting space to offer more programs, more often. And, we've done all this with no paid staff. Everyone involved has volunteered their time; some Board members have routinely volunteered 20 to 40 hours per week for thirteen years.

To continue to grow, we will need to eventually offer some form of compensation to those who are giving full-time service. In addition, we would like to offer scholarships for those kids who can't afford LEARN's very modest fees. Currently, fees are set at or below direct costs; consequently, we cannot easily afford to waive fees, but many families have asked for help. Presently, when we waive fees, a Board member will step in and pay the child's costs. We would like to be able to do more.

We also need to find a permanent home. LEARN always needs computers, supplies, accounting, marketing, legal and printing services. To meet these objectives, we will need to raise over \$100,000. And, our kids always need mentors. So, there are many ways you can contribute. Get involved and make a lasting difference in kids' lives.

## OUR BUDGET

For its first two years, LEARN Science & Math Club was funded largely by Kauffman Foundation grants and private donations. Since then, program income has brought in a significant share of our budget. We are deeply grateful to our sponsors, donors and grantors who providing the remaining funds and make it possible for us to buy supplies and equipment for our programs.

|                                    | 2017-2018 Actual | 2018-2019 Projected |
|------------------------------------|------------------|---------------------|
| <b>Income</b>                      |                  |                     |
| Contributions and Support - Cash   | \$12,610         | \$17,450            |
| Contributions – Goods & Services   | \$39,334         | \$27,550            |
| Earned Revenues                    | \$0              | \$0                 |
| Fund-Raisers                       | \$0              | \$0                 |
| Services                           | \$20,558         | \$45,000            |
| <b>Total Income</b>                | <b>\$72,502</b>  | <b>\$90,000</b>     |
| <b>Expenses</b>                    |                  |                     |
| Advertising                        | \$0              | \$250               |
| Bank Charges                       | \$0              | \$0                 |
| Contractor Expenses                | \$0              | \$0                 |
| Insurance - Corporate              | \$0              | \$750               |
| Legal Fees                         | \$0              | \$0                 |
| Office/Gen. Admin. Expenses        | \$21             | \$450               |
| Payroll Expenses                   | \$0              | \$0                 |
| Postage and Delivery               | \$0              | \$0                 |
| Printing and Reproduction          | \$0              | \$0                 |
| Professional Services Fees         | \$0              | \$1,500             |
| Salaries and Related Expenses      | \$0              | \$0                 |
| Rent                               | \$3,008          | \$5,000             |
| Program Costs                      | \$44,084         | \$50,000            |
| Taxes                              | \$0              | \$0                 |
| Telephone                          | \$0              | \$0                 |
| Travel                             | \$0              | \$0                 |
| Refund Expenses                    | \$0              | \$0                 |
| Utilities                          | \$0              | \$0                 |
| Web Development and Maintenance    | \$0              | \$0                 |
| <b>Total Expenses</b>              | <b>\$47,113</b>  | <b>\$57,950</b>     |
| <b>Net Profit/Loss - Cash Only</b> | <b>-\$13,945</b> | <b>\$4,500</b>      |
| <b>Net Profit/Loss - Total</b>     | <b>\$25,389</b>  | <b>\$32,050</b>     |

## Income

From 2004 to 2014, LEARN Science & Math Club grew substantially each year. For the last four years, LEARN Science & Math Club's income was similar to the previous year. This stasis is due to lack of resources. Demand exceeds our physical capacity. We need more space, more instructors and more supplies to host more classes, camps and events. Our current partners cannot lend us any more space, provide more time or funds; their resources are tapped out. We need to find new partners or new sources of income to pay for this space.

## Contributions and Support

The largest share of our income came from was contributions, contributed largely by Rockhurst University, Black & Veatch, St. Pius X Church, Synthesis Solutions, Inc., The United Way and UMKC's School of Computing & Engineering.

## Expenses

Through its history, LEARN's expenses have been largely those needed to deliver its services to the community. We have had incredibly low administrative expenses, and this year was no exception.

Our largest expense categories this year were those that represent LEARN's Cost of Goods which are the funds spent to serve our kids. The expense categories included in COG are Supplies & Materials for classes, camps, competitive robotics and STEM tastings. Combined, these categories represent 97 percent of LEARN's expenses. This year, LEARN sustained a loss. This loss was due to the explosive success of Geeks for Kids; because every car is delivered as a gift, the only income from this expense is from donations and sponsorships; we are ramping up our efforts to raise more money, build more cars and reverse this loss.

Administrative expenses included, in order of cost, rent for a storage facility to hold class supplies and administrative costs. Together, these expenses amounted to 6% of our total expenses. This administrative to production expenses ratio is so low because LEARN has operated as an all-volunteer organization throughout its history and channels nearly every dollar into services for kids.

## 2018 to 2019 Projected Budget

We have projected an 19% increase in income for next fiscal year as we push to expand Geeks for Kids. Currently, our goal is to achieve this increase through additional sponsorships.



22. A Camper Getting Ready to Dive into his Edible Cell Model

We have projected an increase in expenses. These increases occur in the following categories, in order of cost: program costs, rent, insurance and professional fees. The increase in program costs is entirely due to an expansion of Geeks for Kids. We also expect to have to pay rent for the first time to house our high school robotics program; St. Pius X Church has very generously provided our team space for free for the last four years. This has been a great blessing, making it possible for our kids to design and build robots, work on community service projects and – most importantly – to learn and grow. Unfortunately, the boiler has failed in our wing of the building, freezing pipes and causing terrible property damage. The church cannot afford to repair the building; so, they are going to tear it down. We have been searching for a new space for months without success. We believe will have to pay rent to continue the program; a modest estimate for this is included in next year's budget. Insurance and professional fees will not actually increase. We simply pre-paid some or all those costs in previous years; so, they did not appear in this year's Profit and Loss Statement. They will return to our Statement next year.