

LOUISVILLE REGIONAL
SCIENCE & ENGINEERING FAIR

Annual Report



2025

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The Louisville Regional Science & Engineering Fair (LRSEF) is a non-profit organization founded in 1964 and recognized as a Better Business Bureau accredited charity serving 59 KY counties as a regional fair sponsor with the following mission and vision:

The **mission of LRSEF** is to engage, encourage, and empower the students in our region by providing them with opportunities to showcase their STEM research, compete for awards, and form meaningful connections with mentors and peers.

The **vision of LRSEF** is to attract, support and inspire diverse and talented students; to foster a culture of scientific inquiry and excellence in our region; and to expand the STEM engagement of our community comprising students, teachers, parents, judges, community members and sponsors.

ABOUT LRSEF 2025



Hosted by the 100% volunteer Board of Directors, LRSEF 2025 welcomed 29 schools with 267 middle and high school students presenting 230 projects. There were 17 public schools at the event and 12 private schools. A total of 217 volunteer judges in teams of two or three interviewed students in two rounds of judging for category awards, while special awards judges met with students throughout the day. LRSEF ensures the safety of the participating students by requesting that all judges and volunteers participate in background checks.



LRSEF 2025 was held at the Swain Student Activities Center of University of Louisville on Saturday, March 1. This regional Kentucky competition is nationally affiliated with the Regeneron International Science & Engineering Fair and the Junior Innovators Challenge sponsored by Thermo-Fischer Scientific.

29

Schools

267

Students

217

Volunteer Judges



LRSEF 2025 RESULTS

On Saturday March 1, judging interviews took place for Category Awards of 1st, 2nd, 3rd and 4th place in 22 different STEM categories at both the middle and high school levels. All 44 of our category cash awards were sponsored by grants or donations from local companies and donors. Category winners received ribbons, certificates and a total of **\$6,805** in cash awards.

GE Best of Fair Awards of **\$2,820** and trophies were given to eight projects: three in middle school and five in high school. The top three schools in both divisions were awarded trophies and a total of **\$1,650** for their STEM programs.

To determine additional winners of over 60 LRSEF Special Awards sponsored by both local and national organizations, over 70 volunteer special awards judges donated their time to LRSEF. Once the judging was complete, a total of **\$4,700** was given to the **100** students winning the 2025 Special Awards.

In all, **\$15,975** was awarded to students and teachers achieving excellence in the STEM fields at LRSEF 2025. In addition, every student received a four-color printed program with their name and project title listed. a 2025 red t-shirt with sponsor GE Appliances logo along with a free backpack, LRSEF lanyard, a Louisville Water Company water bottle as well as breakfast and lunch.

The 2025 Awards Ceremony was hosted by LRSEF title sponsor GE Appliances, a Haier Company on fair day from 4:30 to 5:30pm to announce the winners. Over 1,000 people from around the region attended to hear the results.

\$15,975

Total Cash Prizes



IMPACT OF WORKING ON SCIENCE & ENGINEERING PROJECTS

For sixty-one years, LRSEF has sponsored the annual fair to encourage creativity and student research for middle and high school Kentucky students with support of their teachers, parents and mentors.

Why do teachers work so hard to help students participate in LRSEF? A leadership teacher shares her reflections,

"LRSEF is a wonderful opportunity to do project-based learning and also to help kids develop those soft skills like communications, organizational skills, time management, so many things that students do for this opportunity."

"Every kid who's ever done this has always benefitted from it — either through connections they've made, through friends, professional connections, or other opportunities that presented themselves, like moving on to state, or ISEF, and then the connections that come from that."



"I had the opportunity to share my research with many individuals at LRSEF and, later, with people from around the world at ISEF. Participating in ISEF was truly a memorable experience. I met passionate students from across the globe and learned valuable information from the many projects that were presented. Being part of ISEF inspired me to continue exploring real-world problems and finding innovative ways to solve them."

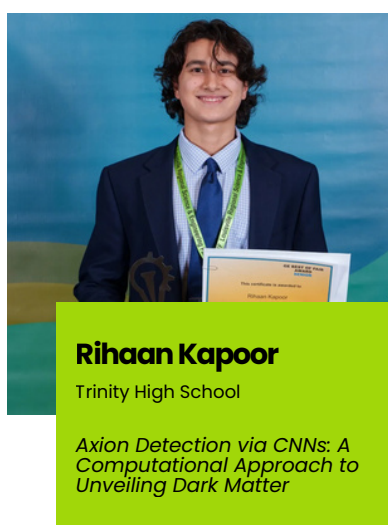
"Attending ISEF was an incredibly inspiring experience; I got to meet students from around the world who were passionate about science just like me. I learned a lot from fellow finalists, and it made me realize how far curiosity can take you."

LRSEF Student Participants

PARTICIPATION & REWARDS

For the **high school division**, 112 students from 15 schools participating, 11 public schools and four private schools. There were 91 projects presented, 16 were team projects and 75 were solo. **The winning schools were 1st Ballard High School, 2nd Central High School and 3rd North Oldham County High School.**

The top five high school students were named GE Best of Fair, and their projects were promoted to the Regeneron International Science & Engineering Fair held in Columbus, Ohio May 16–20, 2025. Each student received a trophy and a cash prize.



LRSEF was also honored to give the First Build Innovation Awards of \$750 to support post-secondary education to Anna Blair of Notre Dame Academy and to the team of Daksh Patel and Dev Patel of North Oldham High School. The Amazon Innovation Awards sponsored by a grant from the Kentucky Science & Engineering Fair went to Sally Escobar Perez and to Ashley Guadalupe both of Central High School.



For the **middle school division** there were 14 schools participating with six public schools and eight private schools. There were 141 projects presented, 128 were solo and 13 were team projects with 155 total middle school students in the event. Winning schools were **1st Saint Francis of Assisi, 2nd James Graham Brown School and 3rd Nur Islamic School of Louisville.**

The top three middle school projects were named GE Best of Fair with each student receiving a trophy and cash prize.

- **Lauren Duncan** – Saint Francis of Assisi, *Cattail Fluff: A New Natural Dye Adsorbent*
- **Karl Manke** – Saint Francis of Assisi, *Rose, a Potential Photosensitizing / Anticancer Agent*
- **Owen Park** – Saint Francis of Assisi, *A Breakthrough In Low-Voltage Regolith Mitigation*

Also, 14 middle school scientists were named as nominees for the Thermo Fisher Scientific Junior Innovators Challenge (JIC) national competition and two outstanding projects received special national awards. Karl Manke of Saint Francis of Assisi was named Lemelson Early Inventor and Owen Park of Saint Francis of Assisi was awarded the Department of Defense Leadership Prize. The Amazon Innovation Awards, supported by a grant from KYSEF went to Alim Aliyev of the – Nur Islamic School of Louisville and to Innasent Walker – Hopkinsville Middle School.



SPECIAL OUTREACH

To engage students from underrepresented minorities and those who qualify for free/reduced lunch in STEM activities, LRSEF gave 53 students entry fee scholarships (19% of the total participation).



53

Student Entry Fee Scholarships

19%

% of LRSEF Students Receiving
Entry Fee Scholarships

During the school year, teacher grants \$1,373.85 were given to support purchase of STEM supplies for qualifying classrooms. This effort is funded by a grant from Amazon, through the Kentucky State Science & Engineering Fair.

\$1,373.85

Teacher Grants Given

LRSEF STUDENT PARTICIPATION AT STATE FAIR (KYSEF)



LRSEF promoted 95 winning projects to compete in the 23rd annual Kentucky Science & Engineering Fair (KYSEF) held at Eastern Kentucky University on Saturday, March 29, 2025. Promotion by a regional fair is the only way students can compete at KYSEF. On that day, 36 of the 95 LRSEF projects won Category Awards.

Amelia Turner of St. Francis of Assisi won KYSEF Best of Fair in the Middle school division for *Exploring EMG Signals in a Planaria Model of Neurons*.

Twelve different LRSEF schools were represented among our winners at state: St. Francis of Assisi, South Oldham MS, Nur Islamic School of Louisville, as well as Ballard HS, Central HS, North Oldham HS, Trinity HS, St. Xavier HS, Notre Dame Academy, Eastern HS, Owensboro HS and Eminence HS. Nine students from LRSEF won Special Awards including another six additional LRSEF students named as Junior Innovators Challenge nominees and three students won Amazon Awards at KYSEF. See the full list of LRSEF KYSEF winners here: [**Congratulations to 2025 KY-SEF Winners – Louisville Regional Science & Engineering Fair**](#)

NATIONAL COMPETITIONS

LRSEF promoted five high school projects to the annual **Regeneron International Science & Engineering Fair (ISEF)** competition held in Columbus, Ohio, May 16–20, 2025. Four students attended including one female and three males from three different high schools. Each participant received a grant to support their registration, all expenses and travel to Columbus for the week-long competition. LRSEF also supported our Board member Glenda Jones, Chemistry Teacher and Science Chair at Ballard HS as our chaperone. The LRSEF group made the trip to ISEF with TEAM KY which included 20 students and five teacher/chaperones from across the Commonwealth.

A Regeneron ISEF-affiliated science fair (such as LRSEF) is a research-based, high school competition that is a member of Society for Science & the Public's affiliated fair network. This year the ISEF competition featured nearly 2,000 young scientists representing 49 states and 70 countries across the world. Top finalists are honored during a Special Awards ceremony and a Grand Awards ceremony with Category awards ranging from \$500 to \$5,000. At these events students hear the announcement of the top prize of \$75,000. In total, more than \$9 million was awarded to the finalists, who were evaluated based on their projects' creativity, innovation, and level of scientific inquiry.

Congratulations to two LRSEF winners at ISEF!

SPECIAL AWARD, AMERICAN CHEMICAL SOCIETY – \$2,000

Varshith Kotagiri

Gatton Academy of Science & Mathematics

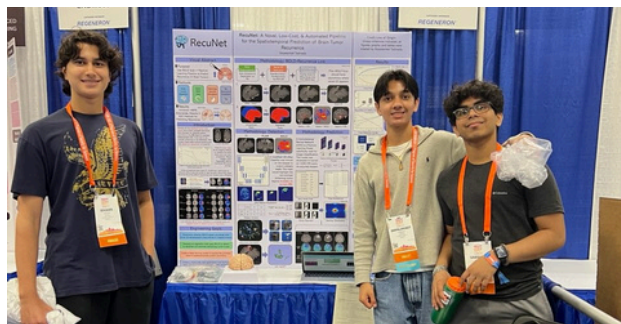
Developing a novel fluorescent sensor for detecting analytes in an aqueous medium

4TH PLACE, BIOMEDICAL ENGINEERING – \$600

Gopalaniket Tadinada

North Oldham High School

RecuNet: A Novel, Low Cost, & Automated Pipeline for the Spatiotemporal Prediction of Brain Tumor Recurrence



LRSEF is honored to become a part of the national competition for middle schoolers called **Junior Innovators Challenge (JIC)** sponsored by Thermo Fischer Scientific. The online application asks questions about student's science or engineering fair project and understanding of science and engineering in everyday life.

Fourteen LRSEF students were eligible to submit applications by the June deadline to be officially in the 2025 national competition. For LRSEF, 13 students completed the applications. Another six from LRSEF were selected at KYSEF and all of them completed the application. These students received t-shirts, bumper stickers, and other prizes. The entries are judged during the summer and 300 finalists will be announced in September. From these projects, 30 winners with their parent/guardian will win an all-expense-paid trip to the national finals in October in Washington, DC to compete for more than \$100,000 in awards and prizes and showcase their projects.

STRATEGIC PARTNERS

LRSEF celebrates our founders – Kiwanis! Members of the area Kiwanis Clubs were founders of the regional science fair in 1964 called LRSF (now LRSEF). The Kiwanis Club of Louisville returns over \$100,000 to the community each year, including a 2025 grant to LRSEF of \$2,500. Equally as important, each year about 40 local Kiwanis members volunteer on fair day at LRSEF serving as registration coordinators, the safety check team, food service helpers and in other helpful ways.

Volunteer Judges – on fair day over 215 regional STEM professionals from academics, corporations, research organizations and other science and engineering ventures donate their time and expertise to serve as volunteer judges of the LRSEF student projects. In teams of two or three they interview and inspire students as they listen to details about each project. Judges then collaborate to determine the top projects in 22 different science categories and for over 60 Special Awards. Without the generous service of our judges, many who serve year after year, LRSEF would not be a viable and creditable event for supporting student research.

The **Asia IMPACT group** is a volunteer affinity group of engineers and STEM professionals at GE Appliances, a Haier company. Since 2014, LRSEF has been one of the Asia IMPACT group's nonprofit charity partners. Four members of this group serve on the LRSEF Board of Directors. Throughout the year, Asia Impact raises funds for LRSEF through sponsored events; members volunteer in outreach sessions at regional schools and coordinate the LRSEF Special Awards program. At the fair, Asia Impact volunteers serve as judges for Category and Special Awards, help with set up and clean up, registration, and back of house computer functions. The GE Appliances volunteers host the Awards Ceremony.

The **Science Policy & Outreach Group (SPOG)** at University of Louisville is a graduate student organization connecting STEM researchers with the community and government officials to mutually benefit all. Volunteering at LRSEF is one of SPOG's largest outreach efforts, with members interacting with area students and encouraging them to become involved in STEM fields. For 2025 SPOG President Catherine Kaiser served on the LRSEF Board of Directors and the Education & Outreach committee. During the school year, SPOG volunteers to visit schools to help students and teachers brainstorm project topics for LRSEF. Many SPOG members are involved in research and understand the anxiety students have presenting to judges at LRSEF. Therefore, SPOG wants to ensure that LRSEF participants have additional opportunities to discuss their project on fair day. SPOG recruited 20 volunteer STEM Ambassadors to talk with and inspire students throughout the day of the fair.



2025 BOARD OF DIRECTORS

Carson Garrett – President

Site Quality Manager at American Synthetic Rubber Company (ARSC), wholly owned by the Michelin Group

Michael Moreland – Vice President for Education and Outreach

Chemistry & Physics Teacher, J. Graham Brown School, Jefferson County Public Schools

Jonathan Hodge – Vice President for Business & Legal

Attorney, Hodge & Smither PLLC

Meredith Jones Pritchett – Secretary

Chemical Engineer II, LG&E/KU

Theresa H. Mattei – Treasurer

Community Volunteer

Dr. Vanita Mani – Immediate Past President

Sr. Director of Technology, GE Appliances, a Haier Company

Fair Co-Directors

Appointed by LRSEF Executive Committee

Frederick J. Whitaker

Science Teacher, St. Francis of Assisi School, Archdiocese of Louisville

Keri Meador

Science Teacher, Central High School, Jefferson County Public Schools

Board of Directors

Jefferson County resident, unless noted

Joseph “Frank” Abell

Kiwanis Representative and Community Volunteer, Retired from Metro Corrections and Courier Journal

Natalia Alisha Blagaia

Principal, Nur Islamic School of Louisville

Karen R. Bowie

Reliability Engineer, BP Whiting

Kumar Chellappan

Program Director, Cross Product – Finishes, & Representative of Asia Impact, GE Appliances, a Haier Company

Eboni Neal Cochran

Community Member

Dr. Sam Earls

Assistant Director of Academic Services, Gatton Academy of Mathematics and Science at Western Kentucky University (Warren Co.)

Joe Erskine

Support Analyst, RFX Technologies

Carmen Estopare

Executive Director of Organizational and Talent Development, GE Appliances, a Haier Company

Corinne M. Greenberg, CHMM

EHS Manager, Louisville, ECKART America Corporation

Ravishankar Jayaram

Senior Manager, DT & Representative of Asia Impact, GE Appliances, a Haier Company

Glenda Jones

Science Teacher at Ballard High School, Jefferson County Public Schools

Catherine W. Kaiser

President of SPOG and a PhD candidate at the University of Louisville School of Medicine, Department of Biochemistry and Molecular Genetics

Kaya A. K. Muller

Professor of Chemistry, KCTCS – Jefferson Community & Technical College

Dr. Beth Quinn

Director of Education for the Doctor of Physical Therapy Program, Bellarmine University

Shannon Slate

Gifted and Talented Enrichment Specialist, Christian County Public Schools

Jennifer Vermillion

Teacher, Valley High School, Jefferson County Public Schools

Dr. Stuart Williams

Professor Mechanical Engineering, Speed School, University of Louisville (Oldham Co.)

Dr. Cassandra Woolley

MD Student/PhD in Microbiology and Immunology, University of Louisville

Student Advisor

Muhilan Balasubramanian

Ballard High School

Board of Directors – Emeritus Members

Keith Cole

Retired from Dover Corporation, former Kiwanis Clubs Representative

Ronda K. Fields

Retired Science Educator from Jefferson County Public Schools & former LRSEF Fair Director

Mark Garman

Retired from LRSEF Board after 10+ Years of Service, Kiwanis Representative

Dr. Lawrence Gettleman

Professor of Prosthodontics & Biomaterials, Emeritus, University of Louisville School of Dentistry

Dr. Tina Gibson

Former LRSEF Science Fair Director, currently at Mississippi State University

Joel Gittelson

Retired Engineer from General Electric Appliances, former LRSEF Fair Director

George McNair

Retired from Radio Sound Inc., Vice President of Manufacturing

Bob Olsen

Retired Mathematics Professor, KCTCS–Jefferson Community & Technical College

Terry A. Roach

General Manager, Carrollton Utilities

Deborah Shwab Fuller

Retired Science Educator from Jefferson County Public Schools

John Gary Spanyer

Evergreen Environmental, Professional Engineer (PE)

FINANCIAL SUMMARY

as of June 30, 2025

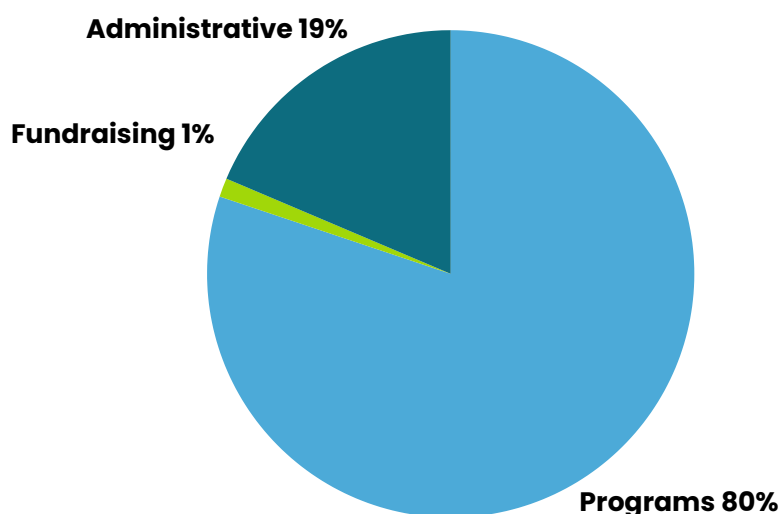
Source of Funds

Contributions, gifts, grants	\$54,416
Program service revenue	\$6,080
Investment income	\$4,705
Total Income	\$65,201

Total expenses:	\$53,999
Program expenses	\$43,274
Fundraising expenses	\$674
Administrative expenses	\$10,051
Income in Excess of Expenses	\$11,202

Beginning Net Assets	\$101,111
Changes In Net Assets	\$11,201
Ending Net Assets	\$112,312
Total Liabilities	\$12,491
Total Assets	\$124,803

LRSEF 2025 Expenses



Some of the LRSEF Board of Directors volunteering on 2025 fair day.

KEY INDICATORS

	<i>LRSEF Program Year</i>	<i>2021-2022 3/5/22 virtual</i>	<i>2022-2023 3/4/23</i>	<i>2023-2024 3/2/24</i>	<i>2024-2025 3/1/25</i>
Numbers Served	KY Counties eligible	52	52	59	59
	KY Counties represented	4	5	7	8
	# of high schools (HS) represented	10	12	12	15
	# of middle schools (MS) represented	10	10	14	14
	# of HS students participated	177	180	89	112
	# of MS students participated	116	155	131	155
State/National Recognition	# of MS selected for Thermo Fisher JIC	15	15	15	14
	# of projects nominated for KYSEF	93	93	95	95
	# of HS projects eligible to send to ISEF	5	5	5	5
Community / Industry Sponsorships	# of Amazon grant supported URM students or/qualified for free lunch	48 (16%)	40(12%)	34(15%)	53(19%)
	# of Categories sponsored (of 44)	35	32	44	44
	# of Special Award Sponsors (local)	19	19	20	19
Annual Fair by the #s	# of Projects Judged on fair day	253	294	200	230
	Total # MS & HS students at fair day	293	335	220	267
	# of students receiving awards	160 (55%)	174 (52%)	157 (71%)	175 (66%)
	# of board members (voting)	23	27	24	26
	# of sponsors	112	118	171	131
	Total # of Judges	185	215	216	217
	# of Special Award Judges (approx.)	(60)	(65)	74	70
	# of volunteers (Kiwanis & SPOG)	45	53	40	56
Annual Fair \$	Cash Awards given on fair day (\$)	16,580	14,870	14,623	15,975
	Total Income and funds raised (\$)	56,953	58,659	64,297	65,201
	Total Expenses (\$)	42,357	58,691	60,335	53,999

THANK YOU

LRSEF would not be possible without generous donations and grants from individuals, local foundations and organizations, as well as the corporate community. Click this link to see the **131 sponsors of LRSEF 2025**. Thanks to all.



LOOKING AHEAD

LRSEF 2026 will be held Saturday, March 7 at UofL's Swain Student Activities Center.

You can support our students as they pursue STEM research and develop projects for the next fair by donating online at lrsef.org.

GIVE NOW