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**VIRTUAL FAIR** 

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### 2022 Category Award Sponsors Junior

Animal Sciences (ANIM) — Shellie and Mark Garman Behavioral and Social Sciences (BEHA) — Kiwanis Club of Louisville

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Chemistry (CHEM) — In Memory of Dr. Thomas H.

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### 2022 Category Award Sponsors Senior

Animal Sciences (ANIM) — Highlands Environmental, LLC Behavioral and Social Sciences (BEHA) — Kiwanis Club of Louisville

Biochemistry (BCHM) — In Memory of Dr. Nancy Keck Biomedical and Health Sciences (BMED) — In Honor of Dr. Robert Ackland & John Kurt Brueckner

**Biomedical Engineering (ENBM)** — University of Michigan Alumni Club of Louisville

Chemistry (CHEM) — In Memory of Dr. Thomas H. Crawford

Computational Biology and Bioinformatics (CBIO) — The

Kentucky Chapter of the Air & Waste Management Association

Earth and Environmental Sciences (EAEV) — Linebach Funkhouser, Inc. Energy: Sustainable Materials and Design (EGSD) – The Werner Family

Environmental Engineering (ENEV) – All4 Materials Science (MATS) — Atlas Technical Consultants Microbiology (MCRO) — Anytime Waste Systems Plant Sciences (PLNT) — AAK Louisville Robotics and Intelligent Machines (ROBO) — American Synthetic Rubber Co. (a Michelin company) Systems Software (SOFT) — American Synthetic Rubber Co. (a Michelin company) Translational Medical Science (TMED) — Carbide Industries LLC



### **2022 Special Award Sponsors**

School Awards for top three Junior & Senior Schools Sponsored by LRSEF: Trophies made by APAF Amazon Innovation Projects – KY Science & **Engineering Fair** American Chemical Society American Society of Civil Engineers/ Kentucky Section APAF– Asia Pacific American Forum of GE Appliances, a Haier Company Bakelite Synthetics Inc. **BC** Plumbing Company Best of Fair Awards – Junior & Senior, GE Appliances, a Haier Company Churchill Downs, Inc.

Jefferson County Conservation District Kentucky Chapter of Air & Waste Management Association Kentuckiana Chapter of Certified Hazardous Materials Managers Kentucky Gas Association **KPFF** Kentucky Science Center Kentucky Society of Professional Engineers Kentucky Science & Engineering Fair Louisville Chapter of the Society for Neuroscience Louisville Water Company Maryam's Charity, Inc













### **Turner Gooch**

#### "Exploring Scale Remediation and pH"





### Aisha Abdulbaqi

"The Effects of Surface Temperatures on the Visibility of Fingerprints"





### Lucy Koerber

"Do Different Beverages or Artificial Sweeteners Affect Lactase Activity?"





### Agnes Loeser "Milkweed Extract Impacts PTP-1B and Cell Division"





### AMERICAN METEOROLOGICAL SOCIETY AWARD

# Julia Keeney

#### "Carbon-Scrubbing Insulation with Polyurethane Foam"



American Meteorological Society



### AMERICAN PSYCHOLOGICAL ASSOCIATION AWARD Margaret Meador

"The Effect of Rosa Damascena and Lavandula Angustifolia on Reducing Human Stress Levels"





#### AMERICAN SOCIETY OF CIVIL ENGINEERS AWARD

### **Todd Niemann**

"Pier Brace: Shapes and Drag Resistance"





#### AMERICAN SOCIETY OF CIVIL ENGINEERS AWARD

### **Nate Shields**

"Exploring Tsunami Wave Energy Dissipators"



LRSEF 2022 VIRTUAL FAIR

### ASM MATERIALS EDUCATION FOUNDATION

### Lila Glaser

"The Effects of Thermochromic Pigments on Bioplastics"





### ASM MATERIALS EDUCATION FOUNDATION

### Finn Oetken

"Exploring the Creation of Electrically Conductive Glass"





### ASSOCIATION FOR WOMEN GEOSCIENTISTS AWARD Johanna Hawley

"Does the Sinuosity of Streams Affect Erosion?"





### ASSOCIATION FOR WOMEN GEOSCIENTISTS AWARD

### **Ellie Jones** "Exploring How Temperature Affects Magnet Strength"





#### COMMUNITY IMPACT AWARD

### **Francis Fendig**

"Electrolytes and Membranes Roles in Hydrogen Production Through Electrolysis"





#### CREATIVE PROJECT AWARD

# **Gavin Thomson**

#### "Functional Physics: Sound Analysis Using Machine Learning"





#### BC PLUMBING COMPANY AWARD

# **Turner Gooch**

#### "Exploring Scale Remediation and pH"





### Amina Albarqawi

"The Impact of Aquaponic and Soil Systems on the Growth of Radish Plants"





### **Grady Amick**

"Brace Yourself: A Device Monitoring Medical Device Usage Compliance"



LRSEF 2022 VIRTUAL FAIR

# **Iris Apple**

"Signaling Transduction and Learning: A Molecular Basis in Plants"



LRSEF 2022 VIRTUAL FAIR

### **Drew Ashley**

"Phylogenetic Analysis of Omicron Gene Sequences in the Kentuckiana Region"





### Annika Chadha

"Building an Air Flow Sensor to Monitor Room Air Replacement for Safety Against COVID and Other Diseases"





# **Grayson Clark**

#### "Grayson's Science Fair on Distracting Noises"



LRSEF 2022 VIRTUAL FAIR

### **Tasneem Faiz**

#### "The Effect of Solution Type on Electrolyte Levels"





### Maxwell Griffin

#### "Star Track: An Automated Radio Telescope"





# *"Carbon-Scrubbing Insulation with Polyurethane Foam"*





# Maylin Kidwell

#### "Do Pips on Gaming Dice Introduce a Bias?"



LRSEF 2022 VIRTUAL FAIR

## Ifrah Shaik

"PostureBeepAI: Posture Detection and Alert Program"





### Shazia Shaik

"Project DeepWater: Using AI Deep Learning for Water Quality"





### BROADCOM MASTERS NOMINEES

### Katelyn Stroud

"Crumb Rubber Playground Pads May Cause Cell Toxicity in Children"





### BROADCOM MASTERS NOMINEES

### **James Welch**

#### "Creating a Robotic Gripper"





### CHURCHILL DOWNS ENGINEERING AWARD

### **Emary Thomas** "The Effects of Sucralose on Mystery Snails' Behaviors"





#### DEPARTMENT OF DEFENSE STEM LEADERSHIP PRIZE

### **Maxwell Griffin**

"Star Track: An Automated Radio Telescope" Sacred Heart Model School, Louisville, KY





### GE ASIAN PACIFIC AMERICAN FORUM -CLEAR THINKER AWARD Annika Chadha

"Building an Air Flow Sensor to Monitor Room Air Replacement for Safety Against COVID and Other Diseases"



GE APPLIANCES a Haier Company Asian Pacific American Forum



#### GIBSON FAMILY AWARD

### Shazia Shaik

"Project DeepWater: Using AI Deep Learning for Water Quality"



### JEFFERSON COUNTY CONSERVATION DISTRICT AWARD 1st PLACE Amina Albarqawi

"The Impact of Aquaponic and Soil Systems on the Growth of Radish Plants"





### JEFFERSON COUNTY CONSERVATION DISTRICT AWARD 2nd PLACE Jacob Quinn

#### "Seeing the Effects That Antioxidants Have on Biofuel Raw Material





### JEFFERSON COUNTY CONSERVATION DISTRICT 3rd PLACE Johanna Hawley "Does the Sinuosity of Streams Affect Erosion?"





### AMAZON INNOVATION AWARD

### Octane Hinojosa "Copper vs Silicon Solar Cell"





### AMAZON INNOVATION AWARD

### **Ester Line**

"Exploring The Impacts of Covid Mask Wearings on Exercise"





### AMAZON INNOVATION AWARD

### Hayden Ramsey

"Parkinson's Disease: Exploring The Combined Exposure Of Herbicides"





### KPFF ENGINEERING ACHIEVEMENT AWARD

Zoey Van Zee "Truss Me, I'm an Engineer"





#### **KENTUCKY CHAPTER OF AIR & WASTE MANAGEMENT AWARD**

# Josie Dunn

#### "Metal Remediation Using Fish Bones"





#### LOUISVILLE WATER COMPANY AWARD

# Josie Dunn

#### "Metal Remediation Using Fish Bones"

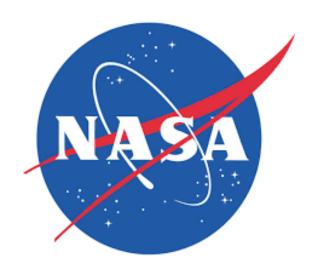




### NASA EARTH SYSTEMS SCIENCE AWARD

### Kai Nakamura

"Comparing Thrust Production: Exploring Potassium Chlorate and Nitrate"





### THAT'S GEOGRAPHY! CULTIVATING EMPATHY FOR THE EARTH AWARD Charles Hummel

"Exploring the Effect of Mixed Plastic Leachates on Human and Soil Bacteria"





#### NATIONAL OCEANIC & ATMOSPHERIC ASSOCIATION AWARD

### **Nate Shields**

#### "Exploring Tsunami Wave Energy Dissipators"





### OFFICE OF NAVAL RESEARCH AWARD

# Luke Conway

#### "Hydrophobic Coatings Effect Submarine Skin Friction?"





### OFFICE OF NAVAL RESEARCH AWARD

# **Meredith Elder**

#### "Exploring Power Line Galloping"





### OFFICE OF NAVAL RESEARCH AWARD

# Lucy Koerber

"Do Different Beverages or Artificial Sweeteners Affect Lactase Activity?"





#### RICOH USA, INC. AWARD

# **Todd Niemann**

#### "Pier Brace: Shapes and Drag Resistance"

### **RICOH** imagine. change.



### LEMELSON EARLY INVENTOR PRIZE

### **Drew Ashley**

"Phylogenetic Analysis of Omicron Gene Sequences in the Kentuckiana Region" St. Francis of Assisi School, Louisville, KY





### U.S. AIR FORCE ACHIEVEMENT AWARD

### **Elli Keeley-Fine**

#### "A Concern for Veterans: Exploring Plastic Burn Pit Smoke Toxicity







### U.S. METRIC ASSOCIATION AWARD

### Lucy Koerber

"Do Different Beverages or Artificial Sweeteners Affect Lactase Activity?"





### AMERICAN CHEMICAL SOCIETY AWARD

# **Samahir Dirie**

#### "Skin Moisturizer"





### AMERICAN CHEMICAL SOCIETY Sydney Breitenstein & Isabella Keyzer

"How is Water's Ability to Freeze Affected By Other Substances?"





### AMERICAN CHEMICAL SOCIETY AWARD

### Krish Gupta

"Biodegradation of Phthalate Esters in Landfills using Bacterial Dehydrogenase Consortium"





### AMERICAN CHEMICAL SOCIETY AWARD

# **Magaret Beatty**

"Kentucky Native Plants: Agents Against Cancer?"





### AMERICAN PSYCHOLOGICAL ASSOCIATION

# Suchita Tipirneni

#### "Now You See Me, Now You Don't..."



American Psychological Association



#### COMMUNITY IMPACT AWARD

# **Gia Patel**

#### "Which Product Works Best for People With Eczema?"



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#### **CREATIVE PROJECT** AWARD

### **Magaret Beatty** "Kentucky Native Plants: Agents Against Cancer?"





### BC PLUMBING COMPANY AWARD

### Menah Ali & Maggie Hall "Does Salt Make Water Boil Faster?"





### FIRST BUILD SCHOLARSHIP Nishu Anekere, Harrison Gover & Sahil Krishnani

"Water Pollution Detection Using Autonomous Drone Hardware and Software"



LRSEF 2022 VIRTUAL FAIR

### FIRST BUILD SCHOLARSHIP AWARD

### Logan Lewis

"The Spectrominator - A Transversely Excited Atmospheric Lasing System"





### GE ASIAN PACIFIC AMERICAN FORUM -CLEAR THINKER AWARD Zaheeb Tariq

"Making Accessing Information Easy Using an Automated System with Python"



GE APPLIANCES a Haier Company Asian Pacific American Forum



#### GIBSON FAMILY AWARD

### **Taylor Thompson**

"Future of Farming: How Does the Way We Farm Affect the Results?"



#### AMAZON INNOVATION AWARD

### **Tanner Aslan**

#### "Exploring Inverse Kinematics & Procedural Animation"





# Nishu Anekere, Harrison Gover, Sahil Krishnani

"Water Pollution Detection Using Autonomous Drone Hardware and Software"





#### KPFF ENGINEERING ACHIEVEMENT AWARD

# Andrew Key & Isaac Meffert





#### KY AIR & WASTE MANAGEMENT ASSOCIATION WASTE MANAGEMENT & CONSERVATION AWARD Krish Gupta

"Biodegradation of Phthalate Esters in Landfills using Bacterial Dehydrogenase Consortium"





KENTUCKY CHAPTER OF CERTIFIED HAZARDOUS MATERIALS MANAGERS AWARD

### Journee Abernathy

"Can Microorganisms Mitigate Plants with High Levels of Salt?"





KENTUCKY CHAPTER OF CERTIFIED HAZARDOUS MATERIALS MANAGERS AWARD

### **Dorcas Matsoumou**

"The Purification Process of a Valuable Resource"





#### LOUISVILLE CHAPTER OF THE SOCIETY FOR NEUROSCIENCE AWARD Suchita Tipirneni "Now You See Me, Now You Don't..."



LRSEF 2022 VIRTUAL FAIR

#### MU ALPHA THETA NATIONAL MATHEMATICS HONOR Dane Paprocki "Can Humans Generate Truly Random Numbers?"







### MU ALPHA THETA NATIONAL MATHEMATICS Veenasravani Pendyala

#### "The Sensory Potential of Synaptopodin<sup>3</sup>







#### OFFICE OF NAVAL RESEARCH AWARD

### Sophia Cheng

"The Most Efficient Method of Cleaning Oil Spills to Prevent Further Marine Pollution"





#### OFFICE OF NAVAL RESEARCH AWARD

## Sahil Chhabra

"Genome Engineering of Bacteriophage MooMoo"





#### OFFICE OF NAVAL RESEARCH AWARD

### Vaishu Pendyala

### *"Impact of Chemokines on Immune Cells in Pediatric Medulloblastoma Tumor Cells"*





#### RICOH USA, INC. AWARD

### Paris Boles & Lillian Long

#### "Hydroponic Lettuce"

### **RICOH** imagine. change.



#### SOCIETY FOR IN VITRO BIOLOGY AWARD

### Journee Abernathy

"Can Microorganisms Mitigate Plants with High Levels of Salt?"





#### STOCKHOLM JUNIOR WATER PRIZE

### **Amelia Dries**

#### "pH Levels in the Ohio River"





#### STOCKHOLM JUNIOR WATER PRIZE

### Aryanna Fisher

#### "Capillary Action"





#### U.S. AGENCY FOR INTERNATIONAL DEVLOPMENT (USAID) SCIENCE CHAMPION Kevin Brothersward

"Found: Reuniting Families Using Facial Recognition"





#### U.S. AGENCY FOR INTERNATIONAL DEVLOPMENT (USAID) SCIENCE CHAMPION Krithik Nadimpaiy

"The Road to Developing an Artificial Pancreas"





#### U.S. AIR FORCE ACHIEVEMENT AWARD

### **Eldino Kilim**

"Can The Shape of an Airfoil Effect Fuel Consumption?"







#### U.S. METRIC ASSOCIATION AWARD

### Veenasravani Pendyala

#### "The Sensory Potential of Synaptopodin"





#### YALE SCIENCE & ENGINEERING ASSOCIATION AWARD

### **Karthik Nadimpally**

"Using Multivariate Time Series Forecasting Neural Networks" to Predict Stock Prices"



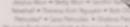


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**CATEGORY AWARDS** 

Research Johnson press AATS.

> Water and Ascorney Page - 8475-3

**Oliver Zitzer** 

"The Effect of Noise Pollution on Fish"

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**Emary Thomas** 

"The Effects of Sucralose on Mystery Snails' Behaviors"

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"Does Climate Change Affect Growth in Vanessa Cardui Butterfly?"

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### **Emma Diehl**

"Exploring the Purpose of Cicada Distress Call"

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#### ANIMAL SCIENCES HIGH SCHOOL

### **Brooke Bond**

#### "Music Affecting Behavior"

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HIGHLANDS ENVIRONMENTAL, LLC Environmental Consulting





#### ANIMAL SCIENCES HIGH SCHOOL

### Samuel Shumway

"How Does Ants' Speed Change Based on the Repetition of Traveled Pheromone Paths?"

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#### ANIMAL SCIENCES HIGH SCHOOL

## Bhavyasree Puchakayala

#### "The Perfect Environment for Terrestrial Isopods"

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Bella Holtgrave

"Implicit, Explicit Attitudes and Impulsivity and Alcohol Use In Teens"







**Gracyn Stockwell** 

"Does an Elevated Heart Rate Affect Decision Making in Children?"







### Sam Church

"Reaction Time to Senses: Does Smell Matter?"







**Grayson Clark** 

#### "Grayson's Science Fair on Distracting Noises"







### BEHAVIORAL & SOICAL SCIENCES Renelleda Saint-Hilaire & Andrea Salazar Cortez

"The Effects of Social Classes on Weight Loss"







#### BEHAVIORAL & SOICAL SCIENCES HIGH SCHOOL

### Safi Fofana

"The Effect of the Tempo of Music on People's Mood"







#### BEHAVIORAL & SOICAL SCIENCES HIGH SCHOOL

Aisha Mullick

"Effects of Different Pressure Types of the Development of Muscle Dysmorphia in High School Students"

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#### BEHAVIORAL & SOICAL SCIENCES HIGH SCHOOL

# Suchita Tipirneni

#### "Now You See Me, Now You Don't..."

#### **Sponsored By:**







Ellery Reynolds

"A Molecular Exploration: Vinyl Flooring and its Role in Leukemia"

**Sponsored By:** 





*"Milkweed Extract Impacts PTP-1B and Cell Division"* 

**Sponsored By:** 





Lucy Koerber

"Do Different Beverages or Artificial Sweeteners Affect Lactase Activity?"

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#### BIOCHEMISTRY HIGH SCHOOL

# " **Magaret Beatty**"Kentucky Native Plants: Agents Against Cancer?"

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#### BIOCHEMISTRY HIGH SCHOOL

## Krish Gupta

"Biodegradation of Phthalate Esters in Landfills using Bacterial Dehydrogenase Consortium"

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George Bryant

"Designing an Early Detection Device for Diabetic Neuropathy"

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**Ethan Reynolds** 

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"Brace Yourself: A Device Monitoring Medical Device Usage Compliance"

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## Callan Petruska

"Testing the Properties of Agarose Axonal Conduits"

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#### BIOMEDICAL ENGINEERING HIGH SCHOOL

## **Krithik Nadimpally** "The Road to Developing an Artificial Pancreas"

#### **Sponsored By:**



Alumni Club of Louisville, KY





#### BIOMEDICAL ENGINEERING HIGH SCHOOL

# **Bismah Rana**

"Non-Invasive Glucose Monitoring"

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Hayden Ramsey

"Parkinson's Disease: Exploring The Combined Exposure Of Herbicides"

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# Margaret Meador

"The Effect of Rosa Damascena and Lavandula Angustifolia on Reducing Human Stress Levels

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Elli Keeley-Fine

"A Concern for Veterans: Exploring Plastic Burn Pit Smoke Toxicity"

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## **Tasneem Faiz**

"The Effect of Solution Type on Electrolyte Levels"

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#### BIOMEDICAL & HEALTH SCIENCES HIGH SCHOOL

## **Emmanuel Edwards**

"The Effects of Music on Pulse and Respiration"

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#### BIOMEDICAL & HEALTH SCIENCES HIGH SCHOOL

*Katy Cano "Real Scent Vs. Artificial Scent"* 

**Sponsored By:** 





## BIOMEDICAL & HEALTH SCIENCES

Katey Buszkiewicz

"Comparison Between Family Fingerprints"

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#### BIOMEDICAL & HEALTH SCIENCES HIGH SCHOOL

#### Benjamin Cullens & Abby Ramsey "The Effect of Sugary Drinks on Tooth Color"

**Sponsored By:** 





# CELLULAR & MOLECULAR BIOLOGY Katelyn Stroud

"Crumb Rubber Playground Pads May Cause Cell Toxicity in Children"

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## CELLULAR & MOLECULAR BIOLOGY Charlotte Connally

"Synergism: Magnetic Fields Decrease the Need for a Novel Cancer Therapy"

1st

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# CELLULAR & MOLECULAR BIOLOGY Zaynab Pervez

"Endogenous Dipeptides Regulate Myosin ATPase During Skeletal Muscle Aging"





# CELLULAR & MOLECULAR & MOLECULAR BIOLOGY HIGH SCHOOL

"Do Citric Acid Sensitive Taste Neurons Innervate More Taste Bud Cells that Transduce Sour Tastes?"





## CELLULAR & MOLECULAR BIOLOGY Veenasravani Pendyala

#### "The Sensory Potential of Synaptopodin"





"Avoiding Cancer: Nitrates and Nitrites in Vegetables"

**Sponsored By:** 





## Kai Nakamura

"Comparing Thrust Production: Exploring Potassium Chlorate and Nitrate

**Sponsored By:** 





# Aisha Abdulbaqi

"The Effects of Surface Temperatures on the Visibility of Fingerprints

**Sponsored By:** 





## **Turner Gooch**

"Exploring Scale Remediation and pH"

**Sponsored By:** 







### Maggie Hall & Menah Ali "Does Salt Make Water Boil Faster?"

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Hadley Pearls Project"

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#### CHEMISTRY HIGH SCHOOL

## Sydney Breitenstein & Isabella Keyzer

"How is Water's Ability to Freeze Affected by Other Substances?"

**Sponsored By:** 







## **Samahir Dirie**

#### "Skin Moisturizer"

**Sponsored By:** 





## COMPUTATIONAL BIOLOGY & BIOINFORMATICS Jacob Holtgrave

"Does Smoking Increase the Risk & Severity of Skin Cancer"

**Sponsored By:** 







## COMPUTATIONAL BIOLOGY & BIOINFORMATICS Drew Ashley

"Phylogenetic Analysis of Omicron Gene Sequences in the Kentuckiana Region"

#### **Sponsored By:**







## COMPUTATIONAL BIOLOGY & BIOINFORMATICS Andrew Park

*"Identifying the Transcription, Translation, and Functionality of Circular RNAs Using High-Throughput Sequencing Data"* 







## COMPUTATIONAL BIOLOGY & BIOINFORMATICS Sharini Shah

"Outcomes of Tricuspid Valvectomies on IV Drug Users with Infective Endocarditis"







## COMPUTATIONAL BIOLOGY & BIOINFORMATICS HIGH SCHOOL Bella Norman & Sarisha Lohano

"Predicting Mycobacteriophage Gene Start Sites Using Artificial Intelligence"







## COMPUTATIONAL BIOLOGY & BIOINFORMATICS HIGH SCHOOL "Analysis on an Extend Chronic Wound Model"







## EARTH & ENVIRONMENTAL SCIENCE Patrick Galla

"Exploring Microfiber Migration in Soil"







## EARTH & ENVIRONMENTAL SCIENCE Johanna Hawiey

"Does the Sinuosity of Streams Affect Erosion?"







## EARTH & ENVIRONMENTAL SCIENCE Jackson Briley

"Effects of Foliage Density on Near Road Pollution Levels"







## EARTH & ENVIRONMENTAL SCIENCE HIGH SCHOOL Jamiah Brown

"How does acid rain effect soil?"

### **Sponsored By:**



Linebach • Funkhouser, Inc. environmental compliance & consulting





## EARTH & ENVIRONMENTAL SCIENCE HIGH SCHOOL Aiddan Robinson & Ben Kane

#### "Fluidized Bed Salt"

### **Sponsored By:**



Linebach • Funkhouser, Inc. environmental compliance & consulting





#### EMBEDDED SYSTEMS MIDDLE SCHOOL

# **Elise Aubrey**

"The Cane-Eye: A Pothole-detecting Cane for the Visually Impaired"





### EMBEDDED SYSTEMS MIDDLE SCHOOL

## Louie Murr

"Developing an Artificially Intelligent Device to Detect Vape Use"





### EMBEDDED SYSTEMS MIDDLE SCHOOL

## **Annika Chadha**

"Building an Air Flow Sensor to monitor room air replacement for safety against COVID and other diseases"





### EMBEDDED SYSTEMS HIGH SCHOOL Sahil Krishnani, Nishu Anekere & Harrison Gover

"Water Pollution Detection Using Autonomous Drone Hardware and Software"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN MIDDLE SCHOOL Thomas Galla

"Improving Dye-Sensitized Solar Cells with Sodium Alginate"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN MIDDLE SCHOOL Jacob Quinn

"Seeing the Effects That Antioxidants Have on Biofuel Raw Material"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN MIDDLE SCHOOL Frances Fendig

"Electrolytes and Membranes Roles in Hydrogen Production Through Electrolysis"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN MIDDLE SCHOOL Emily Koch-Serrano

#### "Constructing PEM Fuel Cells"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN MIDDLE SCHOOL LAMYA HICKMAN

"The Effect of Storage Temperature on Batteries Lifespan"





## ENERGY: SUSTAINABLE MATERIALS & DESIGN HIGH SCHOOL Malachi Barnes

"How Extreme Cold Effects Batteries, and How We Can lessen the Effect"

**Sponsored By:** 

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## ENERGY: SUSTAINABLE MATERIALS & DESIGN Matthew Casey, Isaac Miller & Hool Andrew Coleman

"Fuel Cell Car"

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## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS MIDDLE SCHOOL ZOEY VAN ZEE

#### "Truss Me, I'm an Engineer"







## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS MIDDLE SCHOOL MIDDLE SCHOOL

"Exploring Power Line Galloping"







## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS MIDDLE SCHOOL MASON NUNN

"Exploring Earthquake Tuned Mass Dampers"







## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS MIDDLE SCHOOL MAXWEIL Griffin

"Star Track: An Automated Radio Telescope"







## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS HIGH SCHOOL Addison Siwicki

"Mousetrap Powered Vehicle"





## ENGINEERING TECHNOLOGY: STATICS & DYNAMICS HIGH SCHOOL Eldino Kilim

"Can The Shape of an Airfoil Effect Fuel Consumption?"





# Seth Niemann

"Increasing Milkweed Effectiveness to Clean Oil Spills with Desiccants"







# Mckenna Riley

"Exploring Microfiber Remediation with Food Waste"







# Julia Keeney

"Carbon-Scrubbing Insulation with Polyurethane Foam"







## **Josie Dunn**

#### "Metal Remediation Using Fish Bones"







# Malick Diallo

"Comparison Between Natural and Synthetic Material Water Filters"







# Sophia Cheng

"The Most Efficient Method of Cleaning Oil Spills to Prevent Further Marine Pollution"







## **Dorcas Matsoumou**

#### "The Purification Process of a Valuable Resource"







## **Journee Abernathy**

"Can Microorganisms Mitigate Plants with High Levels of Salt?"







## MATERIALS SCIENCE MIDDLE SCHOOL Reagan Fleming

"Exploring Strengths of Bio-plastics After Exposed to Sunlight Using Antioxidants"







### MATERIALS SCIENCE MIDDLE SCHOOL

# Finn Oetken

"Exploring the Creation of Electrically Conductive Glass"







## MATERIALS SCIENCE MIDDLE SCHOOL

# Silas Noonan

## "Exploring the Effects of a Vacuum on Biofoam"







## HIGH SCHOOL Jaxson Liening "Analyzing the Dimensional Stability of Fabrics"

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# **Gus Reinhart**

## "Exploring the Fractal Dimensions of Melanoma"







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# Maylin Kidwell

## "Do Pips on Gaming Dice Introduce a Bias?"







## MATHEMATICS MIDDLE SCHOOL

# **Owen Singer**

"Correlating Anxiety and Depression with Coronavirus Cases and Deaths"









# **Nehemiah Borland**

## "Testing the Chaos Theory with M&Ms"







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# **Jaden Marshall**

## "The Science of The Bank Shot"







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# **Jordan Weiss**

## "The Monty Hall Problem"







# **Charles Hummel**

"Exploring the Effect of Mixed Plastic Leachates on Human and Soil Bacteria"





# Ella McGee

"Effects of Various Sugars on Specific Gravity when Fermenting Kombucha"





# **Marlowe Jeffreys**

#### "Exploring the Effects of Different Sodas on Streptococcus Mutans"





Calla Magnuson

"City vs. Country Honey; Which Kills Bacteria More Efficiently"





## Carlos Figueredo Zamora "Toothpaste Competition"







# **Isabella Martinez**

"The Effect of the Amount of Time a Mask is Worn on the Quantity of Bacteria"







# Muhilan Balasubramanian

"Effect of Homeopathic Disinfectants on Cultured Bacteria from the School Environment"







# Sahil Chhabra

"Genome Engineering of Bacteriophage MooMoo"







# Leland Bernauer

"Composite, Aluminum, Wood; Which Bat Produces the Most Exit Velocity?"

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# **Ellie Jones**

"Exploring How Temperature Affects Magnet Strength"







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## Christopher Kehdy "Magnet Gun"

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# **Penelope Harris**

"Exploring How Weathering & Temperature Affect the Performance of Golf Balls"

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# **Fernando Salazar Cortes**

#### "Physics in a pinball machine"





## PHYSICS & ASTRONOMY HIGH SCHOOL Aidan Koenig, Isabelle Hottman & Robert Rupley "Multi-Design Bridge Test"





## PHYSICS & ASTRONOMY HIGH SCHOOL

# Logan Lewis

"The Spectrominator - A Transversely Excited Atmospheric Lasing System"





## PHYSICS & ASTRONOMY HIGH SCHOOL

# **Curtis Feller**

#### "Running Water: How Does Temperature Vary?"





**Ava Thompson** 

"How Can Seed Priming Affect Drought Tolerance?"







# **Eva Donis**

## "Climate Change and Salinity Effects Plants"







# **Iris Apple**

"Signaling Transduction and Learning: A Molecular Basis in Plants"







# **Amina Albarqawi**

"The Impact of Aquaponic and Soil Systems on the Growth of Radish Plants







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# Zakariya Hassan

## "The Effect of Protein Supplements on Plant Growth"

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## Lillian Long & Paris Boles "Hydroponic Lettuce"

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# **Ciarra Russell**

"The Effect of pH on Plant Growth"

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**Taylor Thompson** 

*"Future of Farming: How Does the Way We Farm Affect the Results?"* 

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# ROBOTICS & INTELLIGENT MACHINES Shazia Shaik

"Project DeepWater: Using AI Deep Learning for Water Quality"







# ROBOTICS & INTELLIGENT MACHINES James Welch

"Creating a Robotic Gripper"







## ROBOTICS & INTELLIGENT MACHINES HIGH SCHOOL "Solar Powered Robot"







## SYSTEMS SOFTWARE MIDDLE SCHOOL

# Isaac Given

"Refugee Transportation Help: An App to Help Refugees with Transportation"





#### SYSTEMS SOFTWARE MIDDLE SCHOOL

### Rihaan Kapoor

"A Machine Learning Algorithm to Predict Disease Outbreak"





# Fahmeeda Mohammad

"Hacking the Air-Gap: Stealing Info from a Computer Disconnected From the Internet"





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# Ifrah Shaik

"PostureBeepAI: Posture Detection and Alert Program"





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### **Tanner Aslan**

"Exploring Inverse Kinematics & Procedural Animation"

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### **Kevin Brothers**

"Found: Reuniting Families Using Facial Recognition"

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# **Karthik Nadimpally**

"Using Multivariate Time Series Forecasting Neural Networks to Predict Stock Prices"

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# Zaheeb Tariq

"Making Accessing Information Easy Using an Automated System with Python"

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### **Caroline Cotton**

"Neoplasms: Exploring Their Creation and Cure with Kentucky Native Plants"





#### TRANSLATIONAL MEDICAL SCIENCE MIDDLE SCHOOL

### Harrison Jeffreys

#### "Does UV Exposure Effect Sunscreen Toxicity?"





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Leah Rasnake

"Exploring Blood Coagulation: The Effect of Native American Plant Extracts





Ornella Massy "Acne"

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Tuqa Saedi "Dandruff"

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### **Gia Patel**

"Which Product Works Best for People with Eczema?"

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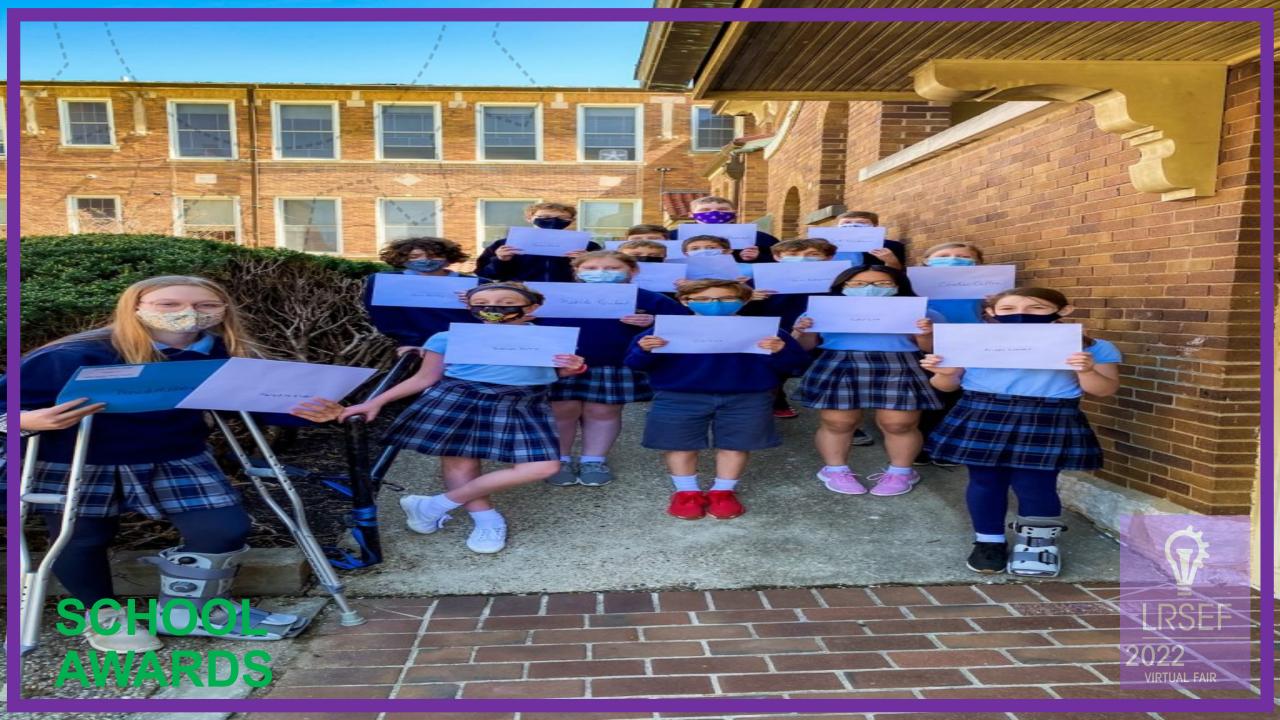
Vaishu Pendyala

"Impact of Chemokines on Immune Cells in Pediatric Medulloblastoma Tumor Cells"

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### St. Francis of Assisi School





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### Central High School Louisville, Kentucky





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# **Ballard High School**





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### Eastern High School Louisville, Kentucky

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### GE BEST OF FAIR AWARD JUNIOR

# Julia Keeney

"Carbon-Scrubbing Insulation with Polyurethane Foam" St. Francis of Assisi School, Louisville, KY





### GE BEST OF FAIR AWARD JUNIOR

# Maylin Kidwell

"Do Pips on Gaming Dice Introduce a Bias?" Noe Middle School, Louisville, KY





### GE BEST OF FAIR AWARD JUNIOR

### **Ifrah Shaik**

"PostureBeepAl: Posture Detection and Alert Program" Nur Islamic School of Louisville, Louisville, KY





### GE BEST OF FAIR AWARD SENIOR Nishu Anekere, Harrison Gover & Sahil Krishnani

"Water Pollution Detection Using Autonomous Drone Hardware and Software" Gatton Academy of Science & Mathematics, Bowling Green, KY





### GE BEST OF FAIR AWARD SENIOR

# **Karthik Nadimpally**

"Using Multivariate Time Series Forecasting Neural Networks to Predict Stock Prices" Ballard High School, Goshen, KY





### GE BEST OF FAIR AWARD Senior Sarisha Lohano & Bella Norman

"GenFind - Predicting Mycobacteriophage Gene Start Sites Using Artificial Intelligence" Gatton Academy of Science & Mathematics, Bowling Green, KY





### GE BEST OF FAIR AWARD SENIOR

# Veenasravani Pendyala

"The Sensory Potential of Synaptopodin" North Oldham High School, Goshen, KY





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# Suchita Tipirneni

"Now You See Me, Now You Don't..." Ballard High School, Louisville, KY







THANK EACH STUDENT THAT VIRTUAL LOUISVILLE REG ON FAIR, AS WELL AS THE PARE BOARD MEMBERS THAT WO EAR'S EVENT AS SUCCESSE

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