UAB-CORD CARSEF Winners
March 5, 2022

CARSEF TOP HONORS & REGENERON ISEF WINNERS

TRISHA BHEEMANATHINI
12th Grade
Alabama School of Fine Arts
Local and Global Factors in the Generalized Poggendorff Illusion

ELIZABETH LANCASTER
12th Grade
Alabama School of Fine Arts
Estimating Particulate Matter Exposure Across Populations in Alabama

CATHERINE KUNG
12th Grade
Indian Springs School
Recognition of American Sign Language (ASL) Trigger Words Using RF Sensors in Combination with Deep Neural Networks

MAYU NAKANO
11th Grade
Indian Springs School
Project Title – Evolution of Oncogenic Signatures within Glioblastoma Along a Spatiotemporal Axis
CARSEF Category Winners
Senior Division

BEHAVIORAL AND SOCIAL SCIENCE

1st Place
TRISHA BHEEMANATHINI
12th Grade
Alabama School of Fine Arts
Local and Global Factors in the Generalized Poggendorff Illusion

2nd Place
JACUB HEL
10th Grade
Hoover High School
Putting Music Theory to the Test: Emotional Effects of Scales and Intervals

3rd Place
REN PETERSON & HENRY EVANS
9th Grade
Alabama School of Fine Arts
The Effects of Music on Reaction Time

Honorable Mention
CHRISTOPHER EDWARDS
11th Grade
Holy Family Cristo Rey Catholic High School
Effectiveness of Learning Through Music

JAHNANI GRIMES & ALANA FILES
11th Grade
Holy Family Cristo Rey Catholic High School
Movies and Heart Stress

ARION ALLEN
12th Grade
Holy Family Cristo Rey Catholic High School
Social Media vs. Mental Health
BIOLOGY

1st Place
ZOYA ALEEZADA
9th Grade
Alabama School of Fine Arts
The Effect of Various Mediums of Mint Serving as a Fly Repellant

2nd Place
CAROLINE HANNAH
10th Grade
Patrician Academy
Beat the Bug

3rd Place
EVA LEDVINA
10th Grade
Jefferson County International Baccalaureate
Seasonal Differences in Bird Diversity in North Central Alabama

Honorable Mention
MAYA LUNDY
12th Grade
Alabama School of Fine Arts
Analyzing Phenotypic Differences in Life Cycle Stages in Agarophyton vermiculophyllum

LUIS SALAZAR
10th Grade
Holy Family Cristo Rey Catholic High School
Who Can Hold It Longer Short or Taller

VANESSA OLGUIN
12th Grade
Holy Family Cristo Rey Catholic High School
Lettuce Race
CHEMISTRY

1st Place
TYLER BOSTON
10th Grade
Holy Family Cristo Rey Catholic High School
Sports Drinks vs OJ

2nd Place
MADISON DRAKE
10th Grade
Holy Family Cristo Rey Catholic High School
Will it Boil?

3rd Place
TAYLIN FLANNIGAN
10th Grade
Holy Family Cristo Rey Catholic High School
Fizz Fast? Or Fizz Slow?

Honorable Mention
BENJAMIN KORNEGAY
11th Grade
Holy Spirit Catholic High School
Sour Patch Sizzle

LAYDA SEVILLA & EDDIE MIRANDA
12th Grade
Holy Family Cristo Rey Catholic High School
How Many Can a Penny Hold?
ENERGY AND TRANSPORTATION

1st Place
ADAM RUF
12th Grade
Hewitt-Trussville High School
Solar Powered Generator for Environmental Disasters

2nd Place
BLAINE WHITT, TYLER BACON & AUSTIN SMITH
12th Grade
Hewitt-Trussville High School
Backseat Safety Device to Keep Children Buckled and Prevent Them from Being Left in Hot Cars

3rd Place
KAYLEE BROOKS, SHELBY STOWE & HOLLIS PROSSER
12th Grade
Hewitt-Trussville High School
Designing a Safer Intersection
ENGINEERING

1st Place
CATHERINE KUNG
12th Grade
Indian Springs School
Recognition of American Sign Language (ASL) Trigger Words Using RF Sensors in Combination with Deep Neural Networks

2nd Place
JUDSON UPCHURCH
12th Grade
Hewitt-Trussville High School
Mid-Powered Rocket with Embedded Apogee and Time of Fight Control Systems

3rd Place
RYAN MONTGOMERY
12th Grade
Alabama School of Fine Arts
Synthesis and Characterization of Quercetin-, Tannic acid-, and Citric acid- Iron Complex Nanoparticles

Honorable Mention
J’ESSENCE BAILEY
12th Grade
Jackson-Olin High School
Which Bridge Can Hold the Most Weight?

CHASE ARMSTRONG & ZAC WILLIAMS
12th Grade
Hewitt-Trussville High School
Magnetic Space Boot System for Convenient and Easy Spacewalking

CARTER PARKER, ADDISON LOCKHART & OWEN SWINNEY
12th Grade
Hewitt-Trussville High School
Automatic Tee Machine
1st Place
ELIZABETH LANCASTER
12th Grade
Alabama School of Fine Arts
Estimating Particulate Matter Exposure Across Populations in Alabama

2nd Place
AANCHAL BEHARA
9th Grade
Alabama School of Fine Arts
Effect of Ocean Acidification on Calcification of Gastropod Shells

3rd Place
MARY CLARE INGRAM & MAREN SMITH
10th Grade
Homewood High School
Soiled Soils

Honorable Mention
ANNA EUBANKS
12th Grade
Hewitt-Trussville High School
Water Bottle Recycling Machine

AMILYAH SMITH
10th Grade
Holy Family Cristo Rey Catholic High School
Does Environmentally Friendly = Effective

ESTEFANI GARCIA
12th Grade
Holy Family Cristo Rey Catholic High School
Are Ants Picky Eaters
1st Place
DANIEL ZHAO
11th Grade
Alabama School of Fine Arts
Lan-DLE: Uncertainty-Aware Autonomous Landing of Fixed-Wing Aircraft with Deep Learning Ensembles

2nd Place
ALEX HALBESLEBEN
11th Grade
Holy Spirit Catholic High School
Traffic Simulation

3rd Place
AARON PIYA
12th Grade
Alabama School of Fine Arts
Using Machine Learning to Predict Muon Neutrino Effective Area

Honorable Mention
SHAH MCNAIR & EMIL ANTSELEVICH
9th Grade
Alabama School of Fine Arts
Classification of Emotion in Text by a Recurrent Convolutional Neural Network

BETHANY FORDING
11th Grade
Holy Spirit Catholic High School
The Josephus Problem

MASON KELLER
12th Grade
Mountain Brook High School
How EDR and Dashcam Data Can Be Combined to Better Recreate a Car Accident
MEDICINE AND HEALTH SCIENCE

1st Place
MAYU NAKANO
11th Grade
Indian Springs School
Evolution of Oncogenic Signatures within Glioblastoma Along a Spatiotemporal Axis

2nd Place
IAN SHEN & WILLIAM PENG
9th Grade
Alabama School of Fine Arts
Evaluation of Antibacterial Activity in Garlic Extract and Oregano Essential Oil

3rd Place
AMITH VARAMBALLY
11th Grade
Vestavia Hills High School
Gene Expression Profiling of Tamoxifen Treated Estrogen Receptor Positive Breast Cancers Identify FOS and Jun as Potential Therapy Resistance Genes

Honorable Mention
JARI CHEN
11th Grade
Hoover High School
Mutational Spectrums of LZTR1

JAMES SHI
12th Grade
Alabama School of Fine Arts
Determining the Best shRNA for Knockdown of ATRX mRNA

LAURA PHILLIPS
12th Grade
Hewitt-Trussville High School
Arthritic Hand Device
PHYSICAL SCIENCE

1st Place
ARJUN IYER
10th Grade
Homewood High School
Determining the Optimal Martian Trajectory

2nd Place
DAVID MAZUR & MIDHUN SADANAND
11th Grade
Hoover High School
Optimizing the Extrusion of Polymers for Fused Deposition Modeling (FDM) Through Enhanced Contact Pressure Distribution Mechanisms

3rd Place
ALEJO JONES & LEANDRO FELIPS
12th Grade
Holy Family Cristo Rey Catholic High School
Long vs. Short

Honorable Mention
AMBER TONI SMITH
10th Grade
Holy Family Cristo Rey Catholic High School
Does Hand Eye Dominance Affect Shooting Percentages

IAN MAXWELL
10th Grade
Holy Family Cristo Rey Catholic High School
Which Battery Brand Lasts the Longest

RACHEL MORROW
9th Grade
Holy Family Cristo Rey Catholic High School
Isopropyl Alcohol vs. Water
CARSEF Category Winners
Junior Division

BEHAVIORAL AND SOCIAL SCIENCE

1st Place
BRIONY LOPER
7th Grade
Holy Spirit Catholic School
Comprehension for Students’ Attention

2nd Place
WASFI AWWAD
7th Grade
Islamic Academy of Alabama
The Effect of Color

3rd Place
RHYANA MAHATSENTE
8th Grade
Tuscaloosa Magnet Middle School
How Does Video Gaming Affect Reaction Time in Adolescents?

Honorable Mention
ALIYYAH KHATOON-PETTY
8th Grade
Islamic Academy of Alabama
Stressed Out

DEANDRA THOMAS & MAKAILA STOECKER
8th Grade
Huffman High School
How Music Affects Your Test Taking Accuracy

JAIDEN SCOTT, JEREMIAH PICKETT & JACOB RAY
7th Grade
Green Acres Middle School
An Examination of the Correlation Between a Person’s Knowledge of a Song and the Song’s Tempo
Impact Walking Forwards and Backwards
**BIOLOGY**

**1st Place**
AEESHA MULANI  
6th Grade  
Tuscaloosa Magnet Middle School  
*Which is More Effective in Killing Germs*

**2nd Place**
GEORGE GRIFFIN GORDY  
7th Grade  
Holy Spirit Catholic School  
*Hey Bass, What’s For Dinner*

**3rd Place**
LAILA MUGHAL  
8th Grade  
Islamic Academy of Alabama  
*Iron City Eats*

---

**Honorable Mention**
HAROON NABI  
6th Grade  
Islamic Academy of Alabama  
*How Clean Are Your Hands*

---

AMELIA DILLARD  
8th Grade  
Duran North Junior High School  
*Acidic Soil Friend or Foe*

---

BRODY MACOLLY  
8th Grade  
Duran North Junior High School  
*Bacteria is Everywhere*
CHEMISTRY

1st Place
JOSEPH HARDIN
8th Grade
Holy Spirit Catholic School
Which Wood Smokes Least?

2nd Place
BRAYLYN ARRINGTON
6th Grade
Holy Spirit Catholic School
Spinny, Spinny Let Me Clean Your Penny

3rd Place
JULIA GRAY, KAYCE MURRAY & MCKINLEIGH DAWDELL
8th Grade
W.J. Christian School
Enchanted Crystals

Honorable Mention
SAFA ALNAHAM
7th Grade
Islamic Academy of Alabama
Ironic Breakfast

SAVANNAH STUBBS
7th Grade
Helena Middle School
What Melts the Ice Fastest?

MARAM ALAMARI
7th Grade
Islamic Academy of Alabama
Healthy Nails
ENERGY AND TRANSPORTATION

1st Place
ATHARV UDDI
8th Grade
Northridge Middle School
What is the Optimal Operating Temperature for Batteries in Electric Vehicles

2nd Place
HUDHAYFAH RASHEED & ZUBAYR RASHEED
8th Grade & 7th Grade
Islamic Academy of Alabama
Biodiesel vs Diesel

3rd Place
YUSUF NABI
7th Grade
Islamic Academy of Alabama
Cradle of Energy

Honorable Mention
REAGAN COTTINGHAM
7th Grade
Helena Middle School
Up, Up, and Away!

VENDETTA MUEHLBAUER
6th Grade
Islamic Academy of Alabama
Solar Car

HIBAH MOTHANA
6th Grade
Islamic Academy of Alabama
Keep It Cool
ENGINEERING

1st Place
ASHER WARREN
8th Grade
Duran North Junior High School
Avoiding Disaster

2nd Place
KASEN VIELLON
6th Grade
Holy Spirit Catholic School
Car Collision Damage Deduction

3rd Place
ALEX PADGETT
6th Grade
Holy Spirit Catholic School
Making Colonial Brick

Honorable Mention
CAYDEN ALLEN
7th Grade
Helena Middle School
Lego Bubbles

WYATT JERNIGAN
7th Grade
Helena Middle School
The Affects of Low Tire Pressure on the Speed of a Bicycle

HAMZAH ALZAT
7th Grade
Islamic Academy of Alabama
Longevity of Roofs
ENVIRONMENTAL AND EARTH SCIENCE

1st Place
SARAH SABATINO
7th Grade
Holy Spirit Catholic School
Is a Bundle Better?

2nd Place
KELLYM RANKIN
6th Grade
Hilltop Montessori School
Okra Seed Germination

3rd Place
AUBREY KENNEDY
7th Grade
Helena Middle School
Does the Type of Fertilizer Affect the Growth of Rye Grass?

Honorable Mention
JAMES REYNOLDS JR., LOGAN STINSON & KELSEY MURRAY
8th Grade
W.J. Christian School
Pyro Prevention

ABBY GIVENS
6th Grade
Holy Spirit Catholic School
Which Will Grow the Fastest?

LUCA ZELLNER
7th Grade
Evangel Homeschool
Red, Green, and Black Lights Tested, How Will These Plants Be Affected?
MATHEMATICS AND COMPUTER SCIENCE

1st Place
LOUISA MARKERT
8th Grade
Indian Springs School
MRI Image Analysis Using an Image J Based Algorithm to Predict New-Onset Dementia

2nd Place
MAYS MANGO & HAFSAH ALMUNTHAREE
6th Grade
Islamic Academy of Alabama
Catchy

3rd Place
MALAK ALABSI
6th Grade
Islamic Academy of Alabama
Zshould I Open It?

Honorable Mention
ANNA DEMPSEY & JACKSON HENDRIX
7th Grade
Helena Middle School
What Materials Can Block a WiFi Signal?
MEDICINE AND HEALTH SCIENCE

1st Place
SOPHIA GUO & NATHAN LEE
8th Grade
Northridge Middle School
Effectiveness of Hand Sanitizers by Price

2nd Place
SYMONE DAVIS & ALAN CHISEM
6th Grade
Green Acres Middle School
An Analysis of the Access to Whole Foods and its Impact on the Life Expectancy in Urban and Suburban Jefferson County Alabama Communities

3rd Place
GILIA JOHNSON & BRENNA BALLARD
8th Grade
W.J. Christian School
“You Got Me Bent”

Honorable Mention
CATHERINE OSUCHA
6th Grade
Holy Spirit Catholic School
Which Stains

RAGHAD SALEH
7th Grade
Islamic Academy of Alabama
Safe Deodorant
1st Place
NOORAAN ELBAHRAWI & LEEN ZIDAN
8th Grade & 7th Grade
Islamic Academy of Alabama
That’s Intense

2nd Place
OUSMANE DIALLO
8th Grade
Islamic Academy of Alabama
Temperature Tug of War

3rd Place
MARSHALL WILEY
7th Grade
Helena Middle School
Catching Stardust

Honorable Mention
ETHAN SWARDSON
6th Grade
Holy Spirit Catholic School
Let’s Roll

CHANCE LACEY
8th Grade
W.J. Christian
Resistance of Materials

ALEX ZHU & RACHEL SHU
6th Grade
Northridge Middle School
How to Discover an Exoplanet?