

UAB-CORD CARSEF Winners

March 2, 2024

CARSEF TOP HONORS SENIOR DIVISION

The 4 projects on this page advance directly to the Regeneron International Science and Engineering Fair

Abhai Anand

12th Grade

Alabama School of Fine Arts

Project Title: Parametric Design Optimization of Soft Pneumatic Actuators for Rehabilitation

Leonardo Hernandez

11th Grade

Homewood High School

Project Title: Investigating Wave Properties of Light Through a Simplified Double Slit Experiment

Ashu Anand

11th Grade

Alabama School of Fine Arts

Project Title: The Effects of Electrical Stimulation on Planaria Tissue Regeneration

Greeshma Vinoy

9th Grade

Alabama School of Fine Arts

Project Title: Assessing Environmental Toxicity Across Varied Habitats Through Daphnia Magna Analysis

CARSEF CATEGORY WINNERS

Senior Division

BEHAVIORAL AND SOCIAL SCIENCE

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

McNair Shah

11th Grade

Alabama School of Fine Arts

Project Title: A Comparative Study of Machine Learning Methods in Event Related Potential
Decoding for Autism Spectrum Disorder

2nd Place

Ayesha Korin

11th Grade

Islamic Academy of Alabama

Project Title: Testing How Bilinguals and Monolinguals Compare in Cognitive Function Tests

3rd Place

Kinley Wilson

10th Grade

Locust Fort High School

Project Title: Feeling Pitch Perfect

Honorable Mention

Natascha Helfrecht-Kannady

12th Grade

Alabama School of Fine Arts

Project Title: Association Between Concussion History and Perceived Psychological Distress in a
Sample of Alabama High School Football Athletes

Radhika Pant

12th Grade

Alabama School of Fine Arts

Project Title: The Effects of Color Palette Choice on Advertisement Engagement

Nancy Guzman, Jary Alberto Munguia, & Dorianni Mendoza

10th Grade

Holy Family Cristo Rey Catholic High School

Project Title: Your Music and Your Feelings

BIOLOGY – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Ashu Anand

11th Grade

Alabama School of Fine Arts

Project Title: The Effects of Electrical Stimulation on Planaria Tissue Regeneration

2nd Place

Erik Ledvina & Ibrahim Hamo

11th Grade

Indian Springs School

Project Title: Variation in Radula Morphology Within a Snail Species

3rd Place

Nicholas Godwin

12th Grade

Alabama School of Fine Arts

Project Title: Dietary Ketone Esters Slow Renca Renal and 4T-1 Tumor Growth

Honorable Mention

Paxton Jones & Shreyas Keshava

9th Grade

Alabama School of Fine Arts

Project Title: How Does Oil Affect the Growth and Development of Algae

Cynthia Liu

12th Grade

Alabama School of Fine Arts

Project Title: The Effects of TLR7 Stimulation on Mitochondrial Complex 1 Activity of Autoimmune B Cells

Anna Rayburn

11th Grade

Locust Fort High School

Project Title: Bad Breath Begone

CHEMISTRY – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Jakub Hel

12th Grade

Hoover High School

Project Title: Effect of Solvent Polarity on the Rate of SN1 Reactions

2nd Place

Sarah Sabatino

9th Grade

Holy Spirit Catholic High School

Project Title: Lightening Locks

3rd Place

Varsha Vinoy

12th Grade

Alabama School of Fine Arts

Project Title: Applications of Plasma Treatment on Polydopamine Coated 3D Printed Polymer Scaffolds

Honorable Mention

Cecilia Luna Gonzalez & Kelly Barrera

12th Grade

Huffman High School

Project Title: Northern Lights

Joi Littlepage

12th Grade

Wenonah High School

Project Title: Barbs and Bubblegum

Sofia Sanchez

9th Grade

Holy Spirit Catholic High School

Project Title: Keep Your Food Warm

ENERGY AND TRANSPORTATION – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Yiwen Wang

12th Grade

Northridge High School

Project Title: Producing Sustainable, Cost-Effective Aluminum-Sulfur Batteries Through a Triple-Function Cathode Design and Anion Charge Carriers

2nd Place

Albert Chen & Clark Baty

10th Grade

Alabama School of Fine Arts

Project Title: Simulating Solar Panel Efficiency Under Varying Dust Storm Conditions

3rd Place

Kayla Allen & Ryan Hunter-Jones

11th Grade

Locust Fort High School

Project Title: Blazing a Trail with the Seebeck Effect

Honorable Mention

Ruth Gregory & Caroline Krayner

9th Grade

Holy Spirit Catholic High School

Project Title: Detection and Alert System for Notifying Drivers and First Responders of Blocked Railway Crossings

Emma Kennedy

9th Grade

Holy Spirit Catholic High School

Project Title: Living on Sunshine

ENGINEERING – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Abhai Anand

12th Grade

Alabama School of Fine Arts

Project Title: Parametric Design Optimization of Soft Pneumatic Actuators for Rehabilitation

2nd Place

Nathan Lee, Justin Yoon & Alice Song

10th Grade, 11th Grade & 11th Grade

Northridge High School

Project Title: Exploring Broken Pipe Systems with a Wireless Amphibious Autonomous Pipe Crawler

3rd Place

Jacob Mullinax, Elliott Greene & Sam Brooks

12th Grade

Hewitt-Trussville High School

Project Title: Injection of Intravenous Fluids in Zero/Microgravity

Honorable Mention

Beck Peterson & Richard Davis

12th Grade

Hewitt-Trussville High School

Project Title: Shopping Cart for the Elderly and Disabled

Luke Hansen & Clark Box

12th Grade

Hewitt-Trussville High School

Project Title: Automatic Door Opener for the Disabled

ENVIRONMENTAL AND EARTH SCIENCE – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Greeshma Vinoy

9th Grade

Alabama School of Fine Arts

Project Title: Assessing Environmental Toxicity Across Varied Habitats Through Daphnia Magna Analysis

2nd Place

Radyn Moradkhani

11th Grade

Indian Springs School

Project Title: Predicting Mental and Physical Health Impacts from Prolonged Drought and Air Pollution with Machine Learning

3rd Place

Max Lizee

11th Grade

Indian Springs School

Project Title: Using Machine Learning to Predict Sanitary Sewer Overflows

Honorable Mention

Isabella Wise

11th Grade

Locust Fort High School

Project Title: Algae Assassins

Bellamy Williams

9th Grade

Alabama School of Fine Arts

Project Title: The Effects of Pectins on Copper Ion Concentrations in Water

Julia Downs

12th Grade

Alabama School of Fine Arts

Project Title: The Effects of Extreme Heat and Harmful Pollutant Concentrations on Hospitalization and Emergency Department Visits in Individuals with Asthma

MATHEMATICS AND COMPUTER SCIENCE – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Alexander Kim

12th Grade

Alabama School of Fine Arts

Project Title: Evaluation of the Association Between Airway Wall Thickness and ECAC

2nd Place

Tuan Tran

10th Grade

Indian Springs School

Project Title: Chronic Inflammation to Carcinogenesis: Unravelling Key Genes and Therapeutic Targets in Ulcerative Colitis and Small Intestinal Neuroendocrine Tumors

3rd Place

Noah Lowry

10th Grade

Alabama School of Fine Arts

Project Title: Transformer Networks Using mpMRI and Radical Prostatectomy Samples: Beyond Dominant Lesion Segmentation

Honorable Mention

Eli Mrug

12th Grade

Alabama School of Fine Arts

Project Title: Determining Attracting Regions of Parabolic Fixed Points

Srihansi Sagi & Prisha Sharma

11th Grade

Alabama School of Fine Arts

Project Title: Using Machine Learning to Predict Transcontinental Cardiovascular Mortality Trends to 2035

Dmitriy Sazonov

12th Grade

Alabama School of Fine Arts

Project Title: Every Interval at Once: The Application of Topology to Ethnomusicology

MEDICINE AND HEALTH SCIENCE – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Conrad Feng

11th Grade

Alabama School of Fine Arts

Project Title: An In Vitro Study of Hypertension: The Role of TGF- β Pathway in MCP-1 Overexpression Under Cyclic Strain

2nd Place

Rishi Yellamraju

12th Grade

Alabama School of Fine Arts

Project Title: Identification of Doxorubicin-Treatable Cancer Gene Mutations Through Quantitative High-Throughput Cell Proliferation of Yeast

3rd Place

Aanchal Behara

11th Grade

Alabama School of Fine Arts

Project Title: Localization of Frontotemporal Dementia Risk Gene Rab38 to Glutamatergic Neurons: Implications for Selective Neuronal Vulnerability

Honorable Mention

Monisha Bommu

11th Grade

Alabama School of Fine Arts

Project Title: The Relationship Between PM2.5 and Mental Health in Alabama

Ananya Mohanraj

12th Grade

Alabama School of Fine Arts

Project Title: Curvature of a Flow-Volume Curve and its Utility as a Diagnostic Marker for COPD

Emalyn Smitherman & Disney Simon

9th Grade

Locust Fork High School

Project Title: Energy Drinks...Tasty or Toxic

PHYSICAL SCIENCE – Senior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Leonardo Hernandez

11th Grade

Homewood High School

Project Title: Investigating Wave Properties of Light Through a Simplified Double Slit Experiment

2nd Place

Jordan Moon & Isaac Smitherman

11th Grade

Locust Fort High School

Project Title: Space Protection

3rd Place

Robert McManus

9th Grade

Hoover High School

Project Title: Bismuth Oxidation Over Different Variations of Wind Speed on Cooling

Honorable Mention

Lynae Hendrix

11th Grade

Locust Fork High School

Project Title: Cleaning for Criminals

James Godwin

10th Grade

Holy Spirit Catholic High School

Project Title: Effects of Magnetic Fields

CARSEF CATEGORY WINNERS

Junior Division

BEHAVIORAL AND SOCIAL SCIENCE

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Malak Alabsi

8th Grade

Islamic Academy of Alabama

Project Title: Artificial Incompetence

2nd Place

Noor Abumahfouz

7th Grade

Islamic Academy of Alabama

Project Title: Express to Destress

3rd Place

Hayat Nasher

8th Grade

Islamic Academy of Alabama

Project Title: Hot or Cold?

Honorable Mention

Josie Harvey & Emma Stephens

7th Grade

Siprey Valley Middle School

Project Title: Inside Out: Managing Emotions in Teenagers

Honorable Mention

David Melton

7th Grade

Green Acres Middle School

Project Title: The Stroop Effect

Honorable Mention

Rheem Maflahi & Fatima Nasher

6th Grade & 7th Grade

Islamic Academy of Alabama

Project Title: Brain Boosters

BIOLOGY – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Lacey Stinson & Sean Wilkerson

8th Grade

W.J. Christian K8 School

Project Title: The Hidden World of our Restrooms

2nd Place

Elizabeth Brak

7th Grade

Holy Spirit Catholic School

Project Title: Mushroom Growth and Music

3rd Place

Zakariya Rasheed & Uwais Durecut

6th Grade

Islamic Academy of Alabama

Project Title: UV Light, Fungi Fight

Honorable Mention

Yasmina Ghannoum

7th Grade

Islamic Academy of Alabama

Project Title: Speedy Dyes

Zainab Haji Jasem

8th Grade

Islamic Academy of Alabama

Project Title: Nanosilver

Sarim Mahmood

7th Grade

Islamic Academy of Alabama

Project Title: Ingredients to Kill

CHEMISTRY – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Aeesha Mulani

8th Grade

Tuscaloosa Magnet Schools

Project Title: What's In Your Water?

2nd Place

Algadi Reem & Almansoob Nedal

8th Grade

Islamic Academy of Alabama

Project Title: The Absorber

3rd Place

Aiya Baobad

8th Grade

Islamic Academy of Alabama

Project Title: Scenty Time

Honorable Mention

Brooklyn Bevel

6th Grade

Holy Spirit Catholic School

Project Title: Fruit Power!

William Cross

7th Grade

Holy Spirit Catholic School

Project Title: Got Electrolytes?

Devan McCollum

8th Grade

Jones Valley Middle School

Project Title: Drug Solubility

ENERGY AND TRANSPORTATION – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Rachel Shu, Alex Zhu & Maxwell Morgan

8th Grade

Northridge Middle School

Project Title: Battery Simulation Using Natural Resources

2nd Place

Vendetta Muehlbauer

8th Grade

Islamic Academy of Alabama

Project Title: Hidden Voltage

3rd Place

Diya Issa

7th Grade

Islamic Academy of Alabama

Project Title: Powered Bacteria

Honorable Mention

Remas Ahmed

8th Grade

Islamic Academy of Alabama

Project Title: Back to the Sun!

Iolo Coma

7th Grade

Holy Spirit Catholic School

Project Title: Get Some Sunlight

ENGINEERING – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Maryam Rasheed

7th Grade

Islamic Academy of Alabama

Project Title: Micro Rescue

2nd Place

Caroline Morrow

8th Grade

Duran North Junior High School

Project Title: The Durability of Paper Cups

3rd Place

Henry Bearden, Neil DeLaire & Aniketh Kalyan

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: What a Drag!

Honorable Mention

Whitt Shirley

6th Grade

Holy Spirit Catholic School

Project Title: Can You Hear It?

Madeline Mowry

7th Grade

Holy Spirit Catholic School

Project Title: AI or Human?

Alexander Padgett

8th Grade

Holy Spirit Catholic School

Project Title: Do You Truss the Arch?

ENVIRONMENTAL AND EARTH SCIENCE – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Laryn Word

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Cool It Down

2nd Place

Sofia Huebner & Laylaa Waller

7th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Melting Ice With Pressure: Does Ice Regelation and Pressure Melting Point Happen at Room Temperature?

3rd Place

Leen Saleh

7th Grade

Islamic Academy of Alabama

Project Title: Magnet-Tug

Honorable Mention

Maria Villanueva

7th Grade

Malachi Wilkerson Middle School

Project Title: Aquaponics

Maggie Hamner

7th Grade

Holy Spirit Catholic School

Project Title: Fur vs. Follicle: Oil Absorption

Margaret Taylor

6th Grade

Holy Spirit Catholic School

Project Title: The Real Lake View

MATHEMATICS AND COMPUTER SCIENCE – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Ela Melouk

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: The Role of Social Media in Human Trafficking

2nd Place

Haroon Nabi & Jade Alabsi

8th Grade

Islamic Academy of Alabama

Project Title: Mecha Battle

3rd Place

Connor Whitman

7th Grade

Hilltop Montessori School

Project Title: Sum-Thing's Wrong – AI's Get an F in Math

Honorable Mention

Murtada Eltoum

7th Grade

Islamic Academy of Alabama

Title: Minecraft: Human vs ChatGPT

Ibrahim Meskin

8th Grade

Islamic Academy of Alabama

Project Title: Sign Scouting

Alysse Russell

6th Grade

W.E. Putnam Middle School

Project Title: Rolling the Odds: A Dicey Exploration of Probability

MEDICINE AND HEALTH SCIENCE – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Maddie Lee & Lillie Reardon

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Plant-Based Alternative Antibiotics

2nd Place

Maryam Kanpher

7th Grade

Islamic Academy of Alabama

Project Title: Chile Saltpeter

3rd Place

Leen Dabbous

7th Grade

Islamic Academy of Alabama

Project Title: Bye Bye Carbs

Honorable Mention

Amelia Ali & Anwar Aldhybyani

6th Grade

Islamic Academy of Alabama

Project Title: Grease Be Gone

Canela Huerta

6th Grade

Holy Spirit Catholic School

Project Title: Nasty Teeth

Kylan Craig

7th Grade

Holy Spirit Catholic School

Project Title: Sweet Science

PHYSICAL SCIENCE – Junior Division

1st, 2nd, and 3rd place will advance to the Alabama Science and Engineering Fair

1st Place

Tameem Al-Muntharee

7th Grade

Islamic Academy of Alabama

Project Title: Crossed Up

2nd Place

Nicholas Sabatino

6th Grade

Holy Spirit Catholic School

Project Title: Hectic Hairspray

3rd Place

Alana Simien

7th Grade

Phillips Academy

Project Title: Magnetic Field and Light Intensity Variation

Honorable Mention

Noor Abouhouli

7th Grade

Islamic Academy of Alabama

Project Title: Ready, Set, Go!

Ibrahim Baobad

6th Grade

Islamic Academy of Alabama

Project Title: Seismic Solutions

Jayden Yoon

8th Grade

Northridge Middle School

Project Title: How Do Stretched Rubber Bands Affect Vibration Frequency?

SPECIAL AWARD WINNERS

AMERICAN PSYCHOLOGICAL SOCIETY

"Best" in Research in Psychological Science

Natascha Helfrecht-Kannady

12th Grade

Alabama School of Fine Arts

Project Title: Association Between Concussion History and Perceived Psychological Distress in a Sample of Alabama High School Football Athletes

ASSOCIATION FOR WOMEN GEOSCIENTISTS

"Best" Female Project in Geosciences

Aeesha Mulani

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: What's In Your Water?

NASA EARTH SYSTEM SCIENCE AWARD

"Best" Insight into Earth's Interconnected System

Elizabeth Ilari

12th Grade

Locust Fork High School

Project Title: Exoplanets

NOAA'S TAKING PULSE OF PLANET AWARD

"Best" Innovation for Improved Understanding of Earth's Dynamic Process

Zakiyah Anderson

11th Grade

Huffman High School

Project Title: Pollution vs. Plants

REGENERON BIOMEDICAL SCIENCE AWARD

"Best" Biomedical Science

\$375 Award

Conrad Feng

11th Grade

Alabama School of Fine Arts

Project Title: An In Vitro Study of Hypertension: The Role of TGF- β Pathway in MCP-1 Overexpression Under Cyclic Strain

RICOH

"Outstanding" Achievement in Environmental Challenges or Sustainability

Reagan Kelley

12th Grade

Hoover High School

Project Title: Is Biomass a Good Indicator of Light Pollution?

Garrett Reese

12th Grade

Hewitt-Trussville High School

Project Title: Lunar Bamboo Greenhouse

UNITED STATES AIR FORCE

"Outstanding" Project in STEM

Kayla Allen & Ryan Hunter-Jones

11th Grade

Locust Fork High School

Project Title: Blazing a Trail with the Seebeck Effect

Mustafa Jaber

7th Grade

Islamic Academy of Alabama

Project Title: Handed Hoops