

UAB-CORD CARSEF Winners

March 1, 2025

CARSEF TOP HONORS SENIOR DIVISION

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

Tuan Tran

11th Grade

Indian Springs School

Project Title: A Novel Multi-Epitope Vaccine Against Midkine – Regulator of Immune Evasion and Fibrosis in Pancreatic Ductal Adenocarcinoma

Sophia Guo

11th Grade

Alabama School of Fine Arts

Project Title: Sustainable UV-Curable Monomers derived from Glycerol for 3D Printing Applications

Ashu Anand

12th Grade

Alabama School of Fine Arts

Project Title: Developing Emulsion Additives to Enhance Rheological Behavior in Non-Aqueous Magnetorheological Smart Fluids

Harini Chakilam

12th Grade

Alabama School of Fine Arts

Project Title: Using Explainable AI in Immunohistochemistry Cell Images for Cancer Diagnosis

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

Ian Shen

12th Grade

Alabama School of Fine Arts

Project Title: Behavioral Effects of Acute Cocaine Exposure in *C. elegans*

2nd Place

Advitiya Kana

10th Grade

Hoover High School

Project Title: Reading the Mind in the Eyes

3rd Place

McNair Shah

12th Grade

Alabama School of Fine Arts

Project Title: Human Connectome Super-Resolution using Diffusion Models and Graph Neural Networks

Honorable Mention

Skylar Smith

12th Grade

Ramsay High School

Project Title: Mood and Mind: A Monthly Reflection

Nairit Jeethandran

12th Grade

Alabama School of Fine Arts

Project Title: Racial and Ethnic Disparities in Deep Brain Stimulation Therapy for Movement Disorders

Yuxin Shi & James Sellers

9th Grade

Alabama School of Fine Arts

Project Title: How Personality Traits & Emotional Intelligence Differ Across Specialty and Grade Level

BIOLOGY – Senior Division

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

1st Place

William Peng

12th Grade

Alabama School of Fine Arts

Project Title: A CRISPR Knockout Screen Systematically Identifies Critical Epigenetic Barriers in Direct Cardiac Reprogramming

2nd Place

Jeffrey Zhao & Sreehrishna Chintareddy

11th Grade

Vestavia Hills High School

Project Title: Predicting Protein Flexibility using Multiscale Differential Geometry Based AI Models

3rd Place

Jonesy Musgrove

9th Grade

Holy Spirit Catholic School

Project Title: SmartGrowth: Growth in Hybrid v. Organic

Honorable Mention

Prisha Sharma

9th Grade

Alabama School of Fine Arts

Project Title: Impact of Environmental Cadmium Exposure on Efferocytosis in Alveolar Macrophages

Aditya Anandakumar

12th Grade

Alabama School of Fine Arts

Project Title: Evaluating the Expression Pattern of p-CREB as a Readout for GNAS Knockout

Sherilyn Kau

11th Grade

Indian Springs School

Project Title: The Discovery of the miR-23a Cluster: An Osteogenic Bone Transformation

CHEMISTRY – Senior Division

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

1st Place

Sophia Guo

11th Grade

Alabama School of Fine Arts

Project Title: Sustainable UV-Curable Monomers derived from Glycerol for 3D Printing Applications

2nd Place

Elise Miles & Jada Welch

9th Grade

Ramsay High School

Project Title: Sunscreens vs. UV Light

3rd Place

Shresta Majeti & Nathan Lee

11th Grade

Northridge High School

Project Title: Improved Medicine Delivery Using Combined Target Techniques

Honorable Mention

Kayla Allen

12th Grade

Locust Fork High School

Project Title: Doobie Deleter

Anna Rayburn

12th Grade

Locust Fork High School

Project Title: From Petals to Potency: Isolating Apigenin in German Chamomile

Kelsey Standifer

9th Grade

Holy Spirit Catholic High School

Project Title: Bleeding Out

ENERGY AND TRANSPORTATION – Senior Division

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

1st Place

Noah Pearson, Shubh Patel & Maddox Springer

12th Grade

Hewitt-Trussville High School

Project Title: Energy Soles

2nd Place

Albert Chen

11th Grade

Alabama School of Fine Arts

Project Title: Developing and Testing of Simple Novel Dual-Axis Solar Tracking Design for Increased Performance

3rd Place

Jason Jiang

12th Grade

Hewitt-Trussville High School

Project Title: Making Traffic Intersection Safer

Honorable Mention

Annuska Dsa

9th Grade

Vestavia Hills High School

Project Title: A Review of Hohmann, Gravity Assist, and Lambert Orbital Maneuvers and Their Impact on Optimizing Space Travel Efficiencies

Michael McKnight & Tristan Lockte

12th Grade

Hewitt-Trussville High School

Project Title: Developing a CVT (Continuously Variable Transmission) for Individual Transportation

ENGINEERING – Senior Division

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

1st Place

Ashu Anand

12th Grade

Alabama School of Fine Arts

Project Title: Developing Emulsion Additives to Enhance Rheological Behavior in Non-Aqueous Magnetorheological Smart Fluids

2nd Place

Maizie Seltz, Michael Pennington & Shihan Tahmid

12th Grade

Hoover High School

Project Title: TremSteady Vibrating Pen

3rd Place

Kye McEwen & Neil Shull

12th Grade

Oxford High School

Project Title: Possibility of Active Aerodynamic Use in Motor Cooling

Honorable Mention

Tianjun Xu & Justin Yoon

11th Grade & 12th Grade

Northridge High School

Project Title: Aerial Thermal Imaging for Heat Detection in Inaccessible Areas Using Drone Technology

Matthew Vo, Caroline Chambers & Omari Bryant

12th Grade

Hoover High School

Project Title: Safe Workout Machine

Thomas Bray

12th Grade

Hewitt-Trussville High School

Project Title: Reach for Rescue

ENVIRONMENTAL AND EARTH SCIENCE – Senior Division

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

1st Place

Greeshma Vinoy

10th Grade

Alabama School of Fine Arts

Project Title: Process Optimization of Plasma Enabled Nanotechnology-Integrated Thermoregulative Textiles

2nd Place

Zoya Aleezada

12th Grade

Alabama School of Fine Arts

Project Title: Utilizing Time Lapse Photography to Evaluate Predators on the Nesting Beach of the Endangered Kemp's Ridley Sea Turtle

3rd Place

Saisha Sahoo & Nora Evans

9th Grade

Alabama School of Fine Arts

Project Title: Investigating the Effects of Pharmaceutically Contaminated Water on the Germination and Survival Rate of Helianthus Occidentalis

Honorable Mention

Aniketh Kalyan & Fanuel Tsehaye

9th Grade & 10th Grade

Northridge High School

Project Title: Tread Lightly: The Tire Wear Impact

Sarah Sabatino

10th Grade

Holy Spirit Catholic School

Project Title: The Soil Showdown

Margot Beukelman, Shelby Benoit & Leah Imbragulio

10th Grade

Hoover High School

Project Title: Base Line Data for Best Management Practices in Retention Ponds on Hoover High School's Campus near the Cahaba River

MATHEMATICS AND COMPUTER SCIENCE – Senior Division

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

1st Place

Harini Chakilam

12th Grade

Alabama School of Fine Arts

Project Title: Using Explainable AI in Immunohistochemistry Cell Images for Cancer Diagnosis

2nd Place

Adakin Wiley

12th Grade

Alabama School of Fine Arts

Project Title: Predicting Transcription Factor Binding Sites using Deep Learning

3rd Place

Miranda Hervis

9th Grade

Holy Spirit Catholic School

Project Title: Colorblind App

Honorable Mention

Hanbo Chen

11th Grade

Indian Springs School

Project Title: Predicting Transcription Factor Binding Sites using Deep Learning

Parker Patton

12th Grade

Alabama School of Fine Arts

Project Title: Hybrid Diffusion-Transformer Model for Stock Market Prediction

Ren Peterson

12th Grade

Alabama School of Fine Arts

Project Title: Comparing the Accuracy of SMOTE-Simulated Data to True Data

MEDICINE AND HEALTH SCIENCE – Senior Division

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

1st Place

Tuan Tran

11th Grade

Indian Springs School

Project Title: A Novel Multi-Epitope Vaccine Against Midkine – Regulator of Immune Evasion and Fibrosis in Pancreatic Ductal Adenocarcinoma

2nd Place

Aanchal Bahara

12th Grade

Alabama School of Fine Arts

Project Title: Overexpression of TFE3 in Susceptible Neuronal Populations: Enhancing Lysosomal Biogenesis and Cellular Resilience in Neurodegenerative Disease Pathogenesis

3rd Place

Conrad Feng

12th Grade

Alabama School of Fine Arts

Project Title: TGF- β 1 Activation in the Hypertension Associated Vascular Pathology of Dahl Salt Sensitive Rats

Honorable Mention

Jeremy Kalphus

11th Grade

Indian Springs School

Project Title: Finding and Testing a Potential Novel Treatment for Alzheimer's Disease

Emil Antselevich

12th Grade

Alabama School of Fine Arts

Project Title: Art and Science of Tissue Microarrays and Their Use in Basic Routine Special Stains in Histopathology

Martin Vizzina

12th Grade

Alabama School of Fine Arts

Project Title: Evaluating Treatment Quality for Huntington's Disease Patient's in Centers of Excellence

PHYSICAL SCIENCE – Senior Division

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

1st Place

Monisha Bommu

12th Grade

Alabama School of Fine Arts

Project Title: Using DeepPMD to Predict MoTe₂ Bilayer Properties

2nd Place

Srihansi Sagi

12th Grade

Alabama School of Fine Arts

Project Title: Laser Excited Atomic Fluorescence Spectroscopy for the Detection of Heavy Metals Cd, Mn, As, and Pb

3rd Place

Leonardo Hernandez & Hudson Winslett

12th Grade

Homewood High School

Project Title: Investigating the use of 2D Van der Waals Materials for Reduced Hybridization in Heterostructures

Honorable Mention

Asterion Lee-Irwin

12th Grade

Alabama School of Fine Arts

Project Title: Hot Gas Halo Detections Around Nearby Spiral Galaxies

Isaac Smitherman & Jordan Moon

12th Grade

Locust Fork High School

Project Title: Space Protection, Studying Water's Use as an Active Radiation Shielding Method

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

Leen Dabbous & Leen Mango

8th Grade

Islamic Academy of Alabama

Project Title: Can You Hear Me?

2nd Place

Adam Abu Qahouq, Maxwell Snow & David DeLaire

7th Grade

Tuscaloosa Magnet Schools - Middle

Project Title: How Does Color Affect Memory?

3rd Place

Gehad Khuzimy

8th Grade

Islamic Academy of Alabama

Project Title: Learn 2 Languages

Honorable Mention

Sarah Saleh & Entesar Albahlol

6th Grade

Islamic Academy of Alabama

Project Title: Pink Noise is Helpful

Honorable Mention

Ritaal Mango

6th Grade

Islamic Academy of Alabama

Project Title: Where is Waldo?

Honorable Mention

Beren Melouk, Elliott Jarrett & Jameson Cox

7th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: The Effect of Sports Drinks on Athletic Performance

BIOLOGY – Junior Division

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

1st Place

Harsha Bheemanathini

8th Grade

Alabama School of Fine Arts

Project Title: The Effect of Different Nutrient Types on Planarian Survival and Regeneration

2nd Place

Christine White & Charlee Loomis

8th Grade

Vincent Middle High School

Project Title: How Does Surface Temperature Affect Fingerprints?

3rd Place

Emmeline Moore

8th Grade

Alabama School of Fine Arts

Project Title: Analyzing the Effects of Added Vitamins on Fungi Populations

Honorable Mention

Neva Jane Reardon, Lottie Bryan & Harper Hart

6th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Grime vs. Shine

Forrest Fikes

7th Grade

Holy Spirit Catholic High School

Project Title: Sun vs. Bulbs

Anna Brak

6th Grade

Holy Spirit Catholic High School

Project Title: Preserving Persea Americans

CHEMISTRY – Junior Division

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

1st Place

Odalys Godina

8th Grade

Holy Spirit Catholic High School

Project Title: Oh No My Hair!!!

2nd Place

Khidr Kishan Budhwani

7th Grade

Alabama School of Fine Arts

Project Title: The Effect of Acidity on the Corrosion Rate

3rd Place

Gassar Muthana & Ibraheem Alsharey

6th Grade

Islamic Academy of Alabama

Project Title: Light it Up

Honorable Mention

Klara Marquez

6th Grade

Holy Spirit Catholic High School

Project Title: Fruit Dehydration

Justin Masterson

6th Grade

Holy Spirit Catholic High School

Project Title: Ice Ice Baby

Roya Jaber & Reetall Jaber

6th Grade

Islamic Academy of Alabama

Project Title: Iron Power

ENERGY AND TRANSPORTATION – Junior Division

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

1st Place

Darshith Paturi

7th Grade

Alabama School of Fine Arts

Project Title: Does the Number of Parachutes and its Material Affect the Speed an Object Falls at

2nd Place

Jace Powell

8th Grade

Duran North Junior High School

Project Title: Float Like A Cadillac, Sting Like A Beemer

3rd Place

Lincoln Wood, Benji Schwaeble & Francois Veillon

6th Grade

Tuscaloosa Academy

Project Title: Energy Showdown!

Honorable Mention

Myla Morris & Taraji Thornton

8th Grade

W.J. Christian K8 School

Project Title: A Dash of Color Energy

Jackson Harton

8th Grade

W.J. Christian K8 School

Project Title: Sound Materials

Joshua Henry

8th Grade

W.J. Christian K8 School

Project Title: Sunshine

ENGINEERING – Junior Division

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

1st Place

Maryam Rasheed

8th Grade

Islamic Academy of Alabama

Project Title: Power Impact

2nd Place

Diya Issa

8th Grade

Islamic Academy of Alabama

Project Title: 3D Pattern

3rd Place

Carlos-Iolo Coma

8th Grade

Holy Spirit Catholic High School

Project Title: Cooling Core

Honorable Mention

Callen Tierney

6th Grade

Holy Spirit Catholic High School

Project Title: Design Destroyers

Liam Patel, Luke Poole & Auggie Watkins

7th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Deafening Decibels

Rawan Alfakeen & Shahd Megdad

6th Grade

Islamic Academy of Alabama

Project Title: Earthquake vs. Popsicle Sticks

ENVIRONMENTAL AND EARTH SCIENCE – Junior Division

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

1st Place

Sofia Huebner, Jireh Gibson & Layla Waller

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Fire and Soil Hydrophobicity: Burning Leak Litter Cause Soil to Become Water Repellant?

2nd Place

William Cross

8th Grade

Holy Spirit Catholic High School

Project Title: Maximizing Solar Desalination

3rd Place

Ian Whitman

7th Grade

Holy Spirit Catholic High School

Project Title: Salty Crawfish

Honorable Mention

Yasmina Ghannoum & Chloe Khazma

8th Grade

Islamic Academy of Alabama

Project Title: Make it Clear

Emma Grace Kemmerer, Addison Large & Delina Manasse

8th Grade

Tuscaloosa Magnet Schools – Middle

Project Title: Water Filtration

Ella Townsend

7th Grade

Holy Spirit Catholic High School

Project Title: Lead Content in New vs. Old Houses

MATHEMATICS AND COMPUTER SCIENCE – Junior Division

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

1st Place

Anastasia Gleyzer

6th Grade

Northridge Middle School

Project Title: Machine Learning for Heart Attacks

2nd Place

Shlok Templin

7th Grade

Alabama School of Fine Arts

Project Title: The Effect of Varying Materials on Attenuation of Wi-Fi Signal Strength

3rd Place

Alvin Dong

8th Grade

Holy Spirit Catholic High School

Project Title: Got Cards?

Honorable Mention

Madison Berry Carlisle & Chloe Burney

8th Grade

W.J. Christian K8 School

Title: Can You Show Your Feelings?

MEDICINE AND HEALTH SCIENCE – Junior Division

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

1st Place

Winston Clifford

7th Grade

Hilltop Montessori School

Project Title: Nature's Pharmacy

2nd Place

Orlandria Stewart

7th Grade

Westlawn Middle School

Project Title: The Stroop Effect

3rd Place

Elizabeth Brak

8th Grade

Holy Spirit Catholic High School

Project Title: Should You Save Your Expired Sunscreen?

Honorable Mention

Xayden Lockett

8th Grade

Montevallo Middle School

Project Title: The Effect of Surface Area on the Rate of Chemical Reactions

Evie Bearden

7th Grade

Holy Spirit Catholic High School

Project Title: Drink Preference vs. Tooth Enamel

Durga Mamidi

7th Grade

Alabama School of Fine Arts

Project Title: Glucose and How to Measure it in Your Food?

PHYSICAL SCIENCE – Junior Division

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

1st Place

Tarek Alsabahi & Aws Alzuhaili

6th Grade

Islamic Academy of Alabama

Project Title: What Color Shades Block Your Eyes Best

2nd Place

Jonah Jeffreys

6th Grade

Holy Spirit Catholic High School

Project Title: My David

3rd Place

Sophie Davis

8th Grade

Helena Middle School

Project Title: Biodegradable Plastic vs. Water Bottles in Nature

Honorable Mention

Brahma Mubarak Budhwani

7th Grade

Alabama School of Fine Arts

Project Title: Building a Levitating Water Fountain with the Stroboscopic Effect

Hannah Reyes

8th Grade

Helena Middle School

Project Title: Vision of Color

Judy Zidan

6th Grade

Islamic Academy of Alabama

Project Title: Let's Bounce!

SPECIAL AWARD WINNERS

AMERICAN PSYCHOLOGICAL SOCIETY

"Best" in Research in Psychological Science

Ian Shen

12th Grade

Alabama School of Fine Arts

Project Title: Behavioral Effects of Acute Cocaine in *C. elegans*

ASSOCIATION FOR WOMEN GEOSCIENTISTS

"Best" Female Project in Geosciences

Margot Beukelman, Shelby Benoit & Leah Imbragulio

10th Grade

Hoover High School

Project Title: Base Line Data for Best Management Practices in Retention Ponds on Hoover High School's Campus near the Cahaba River

NASA EARTH SYSTEM SCIENCE AWARD

"Best" Insight into Earth's Interconnected System

Parker Dotson

12th Grade

Hewitt-Trussville High School

Project Title: Space Medical Packaging

NOAA'S TAKING PULSE OF PLANET AWARD

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

Aleezada Zoya

12th Grade

Alabama School of Fine Arts

Project Title: Utilizing Time Lapse Photography to Evaluate Predators on the Nesting Beach of the Endangered Kemp's Ridley Sea Turtle

REGENERON BIOMEDICAL SCIENCE AWARD

"Best" Biomedical Science

\$375 Award

Jeremy Kalphus

11th Grade

Indian Springs School

Project Title: Finding and Testing a Potential Novel Treatment for Alzheimer's Disease

RICOH

"Outstanding" Achievement in Environmental Challenges or Sustainability

Mason Creel

6th Grade

Holy Spirit Catholic High School

Project Title: Tomato Trials

Aniketh Kalyan & Fanuel Tsehay

9th Grade & 10th Grade

Northridge High School

Project Title: Tread Lightly: The Tire Wear Impact