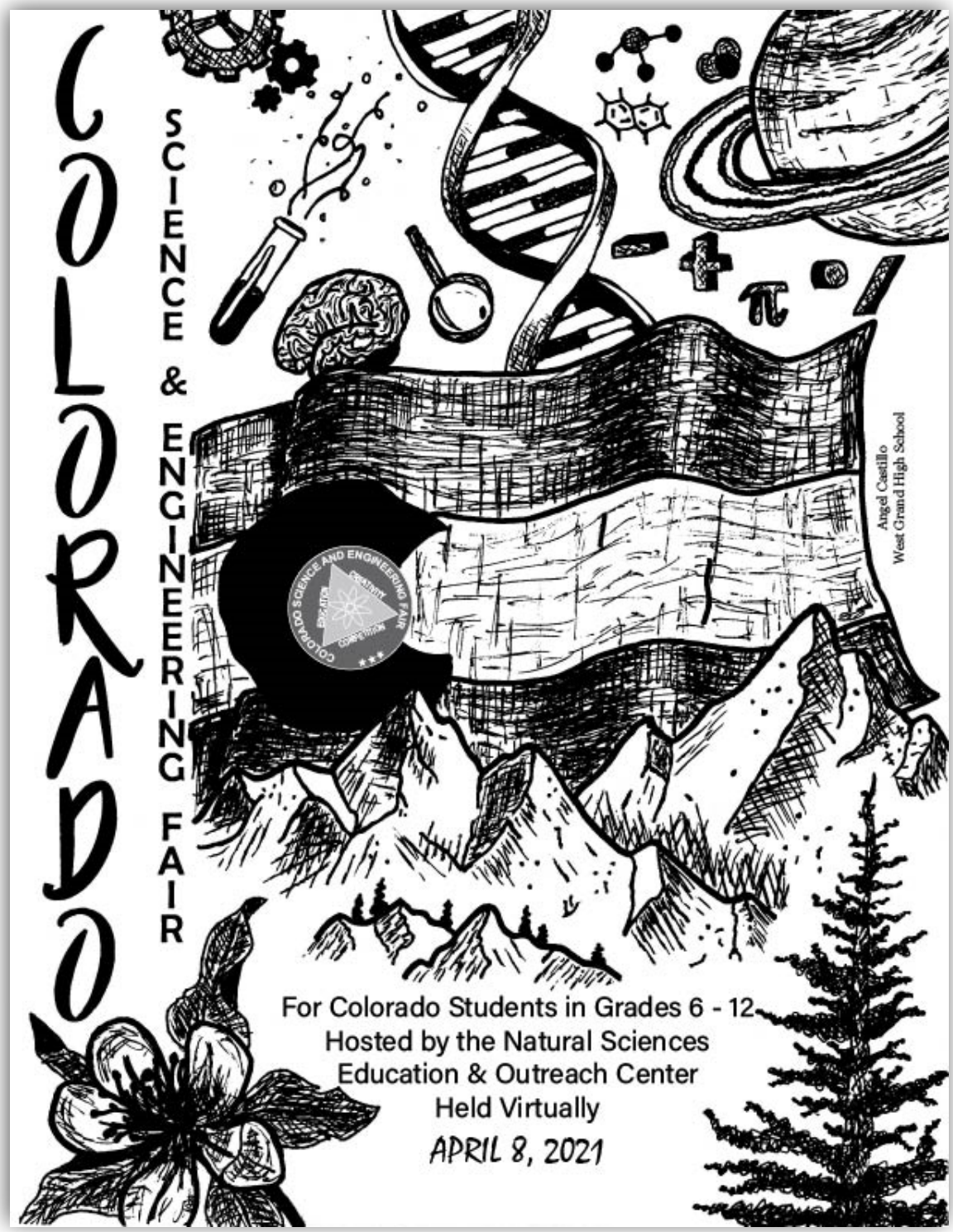

Colorado State Science Fair, Inc.

2021 Annual Report

The highly successful Colorado Science & Engineering Fair was enabled once again by the infrastructure, coordination, and management resources provided by the Natural Sciences Education & Outreach Center (NSEOC) of Colorado State University. The NSEOC is a center with the mission of improving teaching and enhancing learning for all students, K-16, by developing high quality programs, and dynamic partnerships with K-12 schools, higher education, government, and business. We are most grateful for the roles of the NSEOC for making both talented people and logistics available to the Colorado Science & Engineering Fair.

COLORADO STATE UNIVERSITY

The Board of Directors
CSSF, Inc.

August 31, 2021
Colorado State Science Fair, Inc.
Natural Sciences Education & Outreach Center
Colorado State University
Campus Delivery 1802
Fort Collins, CO 80523-1802
Tel (970) 498-4121
Fax (970) 491-2005
e-mail: csef@colostate.edu
http://www.csef.colostate.edu

Executive Director and Registered Agent:
Courtney Butler, (970) 491-7716

2021 Annual Report

The Colorado State Science Fair, Inc. was established in 1977 as a private, non-profit organization to run the Colorado Science & Engineering Fair (CSEF). The CSEF has actually been held annually since 1955 and is the state-level event in a year-long process of local and regional science fairs. Around five thousand students participate in science fair programs state-wide each year. The purpose of the CSEF is to stimulate student interest and encourage students in science and engineering through recognition of their research knowledge, ability and achievement.

Each year, a number of experiences are made available to the student finalists who participate in the CSEF. The CSEF invites a Guest Speaker to give a Keynote to the students, teachers and families and during a typical (non-virtual) year, the CSEF arranges tours of university and local corporate research facilities, providing opportunities for students and their families to see research in action. The CSEF projects are also open to the public for viewing on Friday and Saturday of the fair.

CSEF finalists compete for awards in the categories of Animal Sciences; Behavioral & Social Sciences; Chemistry & Biochemistry; Earth & Space Sciences; Energy; Engineering; Environmental Sciences; Mathematics & Computer Sciences; Medicine & Health; Microbiology & Molecular Biology; Physics; and Plant Sciences – either as an individual or as a team project. The CSEF also has a robust special awards program where around 75 organizations, businesses, and individuals present awards to students based on criteria that are important to them. The judges' interviews allow the finalists a chance to interact with professional scientists and engineers. Over the years, many students have said that having the chance to meet and speak with their peers about their science projects is the most beneficial aspect of the Colorado Science & Engineering Fair.

Recognition for outstanding research in each of the 12 categories as well as an award for technical writing are presented each year at the CSEF Awards Ceremony. The top 24 Junior Division projects are nominated for the Broadcom MASTERS national competition. The top five Senior Division projects are awarded trips to compete at the Regeneron International Science and Engineering Fair (Regeneron ISEF) each year.

***F**rom start to finish, and at all levels of participation, the science fair experience is one not only of competition, but also of camaraderie, creativity, cooperation, and education. This is the essence of the logo for the Colorado Science and Engineering Fair.*

2021 Colorado Science and Engineering Fair

Due to the continued presence of the COVID-19 virus in the spring of 2021 in the US and around the globe, the sixty-sixth Colorado Science & Engineering Fair was planned as a virtual event using zFairs as a platform for showcasing student projects, registering and doing judging interviews. In order to keep things fair around the state, the CSSF, Inc. Board of Directors agreed to cover the cost of using zFairs for all of the Regional Science Fairs who wanted to use it for their fairs.

CSEF was able to recruit over 130 grand awards judges, which allowed for at least two separate judging interviews with judges working in pairs to protect the students from being alone in the video interview room with a judge.

We reinstated our special awards program and most of our recurring organizations returned to offer their awards again in 2021 after not being able to in 2020. We had 47 organizations schedule over 250 individual interviews with students to give out over $15,000 in cash and prizes.

We were also able to award the Best-of-CSEF in both divisions, and the top five Senior Division projects were able to participate in the Virtual 2021 Regeneron International Science & Engineering Fair.

Paul Anderson from Lockheed Martin had been scheduled to be the Guest Speaker for the 2020 CSEF, but since we were only able to facilitate the grand awards judging last year, we invited him back this year and he gave a wonderful talk on Lockheed's space program (past, present and future) on April 10th via Zoom.

We also used Zoom to live announce the Grand Award winners on April 10th. The Special Award interviews were done during the week of April 12th, so we simply posted a slide show of that portion of the program once those were completed.

One thing that we will be continuing with into the future will be having students create a digital version of their project boards so that judges (both Grand and Special) can learn more about the project than is presented in the abstract prior to the interviews.

While it took a couple of months after the CSEF, we were able to send a package to ALL of the CSEF Finalists. Each package contained:

- 2021 CSEF t-shirt
- 2021 CSEF pin
- Participation certificate
- NOAA swag
- Any awards won by the student (checks, certificates, medal, ribbons, etc.)

The 2021 Colorado Science and Engineering Fair had 23 sponsors. Sponsors included 4 Diamond Sponsors (providing over $10,000), 1 Platinum Sponsor (providing between $5,000 - $9,999), 1 Gold Sponsors (providing between $2,500 - $4,999), 6 Silver Sponsors (providing between $1,000 - $2,499), 3 Bronze Sponsors (providing between $750 - $999) and 8 Copper Sponsors (providing between $500 - $749). In addition, there were 44 Individual Contributors (less than $500 each).

2021 CSEF Gender Ratios

With the 2010 Annual Report, the CSSF, Inc. began to report statistics from across the spectrum of participation in the CSEF. Through time, these numbers may show trends and allow for identification of areas in need of improvement. The goal is to ensure that the students who participate are a reflection of the student population from across Colorado. The CSSF, Inc. mission is to make the CSEF accessible to all of Colorado's students regardless of gender and ethnicity.

(Please note that team projects are identified by the gender & ethnicity of the Team Leader.)

% of Projects

Male – 41%
Female – 58%
Non-binary – 1%

% of Projects by Category

Animal Sciences
- Male – 17%
- Female – 83%

Behavioral & Social Sciences
- Male – 22%
- Female –78%

Chemistry & Biochemistry
- Male – 30%
- Female – 70%

Earth & Space Sciences
- Male – 47%
- Female – 53%

Energy
- Male – 46%
- Female – 54%

Engineering
- Male – 80%
- Female – 17%
- Non-binary – 3%

Environmental Sciences
- Male – 38%
- Female – 59%
- Non-binary – 3%

Mathematics & Computer Sciences
- Male – 72%
- Female –28%

Medicine & Health
- Male – 32%
- Female – 68%

Microbiology & Molecular Biology
- Male – 17%
- Female – 83%

Physics
- Male – 48%
- Female – 52%

Plant Sciences
- Male – 14%
- Female – 86%

% of Awards

Male – 39%
Female – 60%
Non-binary – 1%

% of Awards by Category

Animal Sciences
- Male – 5%
- Female –95%

Behavioral & Social Sciences
- Male – 11%
- Female – 88%

Chemistry & Biochemistry
- Male – 34%
- Female – 66%

Earth & Space Sciences
- Male – 41%
- Female – 59%

Energy
- Male – 53%
- Female – 46%

Engineering
- Male – 84%
- Female – 16%
- Non-binary – 0%

Environmental Sciences
- Male – 37%
- Female – 59%
- Non-binary – 4%

Mathematics & Computer Sciences
- Male – 50%
- Female – 50%

Medicine & Health
- Male – 35%
- Female – 65%

Microbiology & Molecular Biology
- Male –20%
- Female –80%

Physics
- Male – 47%
- Female – 53%

Plant Sciences
- Male – 9%
- Female – 91%

2021 CSEF Ethnicity Ratios

(Please note that team projects are identified by the ethnicity of the Team Leader.)

% of Projects

Caucasian – 60%
Hispanic – 8%
Asian –10%
African American – 1%
Native American – 0%
Multiracial/Other/Unknown – 21%

% of Awards

Caucasian – 59%
Hispanic – 9%
Asian – 9%
African American – 1%
Native American –0%
Multiracial/Other/Unknown – 22%

2021 CSEF Grade Level Ratios

(Please note that team projects are identified by the grade level of the Team Leader.)

% of Students

Junior Division – 52%
- 6th grade – 17%
- 7th grade – 16%
- 8th grade – 19%

Senior Division – 48%
- 9th grade – 8%
- 10th grade – 8%
- 11th grade – 11%
- 12th grade – 21%

% of Projects

Junior Division – 55%
- 6th grade – 18%
- 7th grade – 17%
- 8th grade – 20%

Senior Division – 45%
- 9th grade – 8%
- 10th grade – 8%
- 11th grade – 11%
- 12th grade – 18%

% of Grand Awards per Division

Junior Division
- 6th grade – 12/53 awards– 22.5%
- 7th grade – 12/53 awards – 22.5%
- 8th grade – 29/53 awards – 55%

Senior Division
- 9th grade – 7/55 awards – 13%
- 10th grade – 7/55 awards – 13%
- 11th grade – 17/55 awards – 31%
- 12th grade – 24/55 awards – 43%

% of Students Winning Grand Awards

Junior Division
- 6th grade – 13/50 students – 26%
- 7th grade- 12/46 students – 26%
- 8th grade – 28/53 students – 53%

Senior Division
- 9th grade – 7/21 students – 33%
- 10th grade – 7/24 students – 29%
- 11th grade – 15/31 students – 48%
- 12th grade – 26/60 students – 43%

% of Special Awards per Division

Junior Division – 51%
- 6th grade – 21/196 awards – 11%
- 7th grade – 23/196 awards – 12%
- 8th grade – 55/196 awards –28%

Senior Division – 49%
- 9th grade – 7/196 awards –4%
- 10th grade – 12/196 awards – 6%
- 11th grade – 34/196 awards – 17%
- 12th grade – 44/196 awards – 22%

% of Students Winning Special Awards

Junior Division
- 6th grade – 14/50 students – 28%
- 7th grade – 18/46 students – 39%
- 8th grade – 28/53 students – 53%

Senior Division
- 9th grade – 4/21 students – 19%
- 10th grade – 9/24 students – 37%
- 11th grade – 15/31 students – 48%
- 12th grade – 26/60 students – 43%

2021 Colorado Science and Engineering Fair Awards

The top five Senior Division project exhibitors won cash awards and were invited to participate in the Virtual Regeneron International Science & Engineering Fair in May 2021 and received cash awards. First place went to **Siddharth Bharthulwar**, Fairview High School, grade 12, for the project *XRCT-Net: Development of a Novel Sparse-View Deep Learning Framework for Safer, Cheaper, and More Accessible CT Imaging*. Second place went to **Emily Zhang**, Cherry Creek High School, grade 11, for the project *Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multi-dimensional Deep Neural Network Architectures*. Third place went to **Elizabeth Sundheim**, Berthoud High School, grade 12, for the project *Mapping Extent of Neutral Hydrogen Cloud Near Sagittarius A* at 1420 MHz*. Fourth place went to **Matthew Anderson**, Cherry Creek High School, grade 11, for the project *Early Diagnosis of Parkinsonism Via a Smartphone Application*. Fifth place went to **Reese Titensor**, Rock Canyon High School, grade 12, for the project *Effects of Cannabidiol Exposure on Cortisol Levels in Danio rerio Embryos with Heat Induced Strees*.

The top three Junior Division project exhibitors won cash awards as well. First Place went to **Naomi Kruse**, Home School, grade 7, for the project *Knock Out! Bacterial Microflora as a Defense Against Tobacco Mosaic Virus in Phaseolus*. Second Place went to **Rohan Mysore**, Flagstaff Charter Academy, grade 8, for the project *Structural Safety Monitor*. Third place went to **Kelly** Yang, Summit Middle Charter School, grade 8, for the project *ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Margaret Mattson** from Fairview High School, grade 12, for the project *Compartmentalization in Lepidopteran Development: Anterior Posterior Boundary Location and Interaction in Genus Morpho*. Receiving honorable mentions were **Maria Alder** & **Riley Carpenter,** from Monarch High School, grade 12, for the project *Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers* and **Charlotte Gorgemans**, Boulder High School grade 12, for the project *Modeling and Analysis of the Impact of Unhealthy Food on the Honeybee Colony Health*.

The winner of the Elemer Bernath Technical Writing Award was **Angelina Wang** from Summit Middle Charter School, grade 8, for the project *Identification and Characterization of the Natural Sweetener: Brazzein*. Receiving honorable mentions were **Alexander Zhang**, Summit Middle Charter School, grade 8, for the project *Carbon Capture: Refining the Process* and **Kelly Yang**, Summit Middle Charter School, grade 8, for the project *ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions*.

The winners of the Pioneers of Science Awards were **Dorothy Berger**, Webber Middle School, grade 6, for the project *Pet Stress Management with Music*; **Chloe Lubbers**, Alta Vista Charter School, grade 6, for the project *Bad Breath Bacteria*; **Kayla Etters**, Vail Mountain School, grade 7, for the project *Glow with the Flow*; **Rachel Tilton**, Casey Middle School, grade 7, for the project *Psychology of Covid-19 Vaccine*; **Ellie Bruckbauer**, Miller Middle School, grade 6, for the project *Plant Project Sitter*; **Durant Gilleland**, Centauri Middle School, grade 6, for the project *Does Practice Really Make Perfect*; **Micaela Ramirez**, Ignacio Middle School, grade 7, for the project *How Does Unnatural Light Pollution Affect the Visibility of Stars?*; and **Colten Vannest**, Mancos Middle School, grade 7, for the project *Rolling Rivers*.

2021 Regeneron International Science & Engineering Fair

The Regeneron International Science & Engineering Fair, the world's largest pre-college science fair, brings together more than 1,700 of the most curious and capable young science pioneers from about 80 countries to share ideas, showcase cutting-edge science and compete for over $3 million in awards and scholarships. The Regeneron ISEF is the world's only international science fair representing all sciences for students in grades 9 through 12. The Regeneron ISEF has been coordinated for over 65 years by Society for Science & the Public one of the most respected non-profit organizations advancing the cause of science.

Colorado students from around the state were among the award winners at the 69th Regeneron ISEF held virtually in May 2021.

Grand Awards

Alden Kruse, Home School, won $2,000 (2nd Place) in the Environmental Engineering category.

Kathryn Kummel, from Palmer High School, won $2,000 (2nd Place) in the Physics and Astronomy category.

Sean Brooks, from Pine Creek High School, won $1,000 (3rd Place) in the Environmental Engineering category.

Camille Rawinski, from Monte Vista High School, won $500 (4th Place) in the Earth & Environmental Sciences category.

Tyler Burt, from Wheat Ridge High School, won $500 (4th Place) in the Embedded Systems category.

Elizabeth Sundheim, from Berthoud High School, won $500 (4th Place) in the Physics and Astronomy category.

Julia Warnock, from PSD Global Academy, won $500 (4th Place) in the Energy: Sustainable Materials & Design category.

Special Awards

Annalie Haralson, **Lauren Egass**, and **Maddie Fox** from Monarch High School, won $2,000 (1st Place) from the American Meteorological Society.

Emily Zhang, from Cherry Creek High School, won $4,000 (1st Place) from the Association for Computing Machinery. She also won $3,000 (1st Place) from the Central Intelligence Agency.

Siddharth Bharthulwar, from Fairview High School, won an invitation to the On-line Mawhiba Universal Enrichment Program from King Abdul-Aziz & his Companions Foundation for Giftedness and Creativity. He also won $500 (2nd Place) from Serving Society Through Science.

Sean Brooks, from Pine Creek High School, was chosen as an alternate for the NC State Engineering Summer Camp by the NC State College of Engineering.

Aditi Avinash, from Rock Canyon High School, won a $10,000 renewable scholarship from the University of Arizona.

Organization

The success of the yearly Colorado Science and Engineering Fair is directly dependent upon the support of public and private organizations, government agencies, school districts and universities, as well as the efforts of hundreds of committed volunteers. It is no exaggeration to say that CSEF volunteers indeed make the event possible. At the state level, there is the Board of Directors (which is comprised of volunteers from the sponsoring organizations and oversees the operation of the CSEF and the non-profit organization); the Advisory Council (volunteers from around the state who are on the CSEF Working Committees to make sure everything operates smoothly at the event); judges (both for Grand and Special Awards who interview the finalists and choose the winners); and hundreds of on-site volunteers who do the actual work of the CSEF. Prior to the state event, thirteen regional science fairs and a large number of local school science fairs are conducted throughout the state, and each of these is supported and promoted by hardworking and dedicated educators. And before a student's project even makes it to a local science fair, it requires the encouragement and support from individual teachers, adult sponsors, and parents to help students see their projects through from inception to finished exhibit. The Colorado Science and Engineering Fair is a product of all of these people.

Mission Statement

Colorado State Science Fair, Inc. honors excellence in science, technology, engineering and mathematics; providing opportunities for students from all regions of the state to create and present their research in environments that nurture interests in science and technology; promoting professional skills, high ethical standards, diversity and continuing intellectual development.

Goals and Objectives

The Colorado State Science Fair, Inc. is an organization that:

- Organizes the infrastructure of the Colorado Science and Engineering Fair for students from all regions of the state of Colorado to present science projects to judges, representatives of scientific organizations, the public and their peers;
- Honors winners from Colorado regional science fairs at the annual Colorado Science and Engineering Fair;
- Sends finalists from the state of Colorado to the Regeneron International Science and Engineering Fair (Regeneron ISEF);
- Provides experiences for Colorado students to interact with their peers, Colorado science teachers and Colorado scientists and engineers in professional and social settings;
- Promotes science, engineering and technology as careers, inspiring excellence, high ethical standards and emphasizing the immense satisfaction that comes from confronting and solving intellectual problems that serve societal needs;
- Reinforces in students the wonder nature instills, wherever and however possible, empowering them to follow their questions and dreams; and
- Encourages a culture that values and nurtures diversity.

We support regional science fairs by:

- Acting as an alternative to the Science Service affiliation as a means of attending the Regeneron ISEF;
- Providing a forum where regional science fairs can influence policies, rules and by-laws for the state science fair;
- Providing rules and requirements for participation in the Colorado Science and Engineering Fair;
- Facilitating communication, where practical, between regional science fairs and their participants;
- Providing information and resources to the regional fair directors, teachers and students which will promote interest in science, engineering and technology, and excellence in scientific research;
- Increasing public awareness and appreciation of science, engineering and technology in the schools.

CSEF Sponsors

Diamond Sponsors
(Providing over $10,000 in support of CSEF)

Colorado State University
- Provost/Executive Vice President
- College of Natural Sciences
- Natural Sciences Education & Outreach Center

Broadcom Foundation

Verizon Foundation

Affiliate Fair Emergency COVID-19 Transition Fund

Platinum Sponsors
(Providing $5,000 - $9,999 in support of CSEF)

Lockheed Martin

Gold Sponsors
(Providing $2,500 - $4,999 in support of CSEF)

Society of Petroleum Engineers, Denver Section

Silver Sponsors
(Providing $1,000 - $2,499 in support of CSEF)

CableLabs

Colorado Springs Pediatric Dentistry

IEEE, Denver Section

National Renewable Energy Laboratory

Seagate Technology

Dr. Larry & Carol Sveum

Bronz Sponsors
(Providing $750 - $999 in support of CSEF)

Galvanic Engineering

Peter Laird

Sales Force

Copper Sponsors
(Providing $500 - $749 in support of CSEF)

Mike Bemski

Colorado Engineering Council

Lab Society

San Luis Valley Regional Science Fair, Inc

Scriber Family

Sundyne Corporation

The Princeton Review

US Department of Commerce/NOAA

Company Contributors
(Providing up to $500 in support of CSEF)

Colorado Chemistry Teachers Association

Colorado Rural Electric Association

Exponential Engineering Company

Kristi Mountain Sports

Langmack Medical Communications

Mountain Mesa, Inc.

Pro-Sports

Society of Women Engineers

INDIVIDUAL CONTRIBUTORS

(Providing up to $500 in support of CSEF)

Sam & Eileen Bartlett
Gregory Biesecker
Thomas Butts
Castendyk Family
Kevin & Ann Cooney
Karl & Frances Dise
Monica Williamson Engler
Michael Giallanza
Carol & Charles Haggans
Mala & TS Kalkur
Kevin & Gail Keirn
Daniel Kowal & Karen McCarthy
William Kucharski
Allen Lamb
Adam Lopez
Lale & Matt Lovell
James McNamee
Woody & Marjorie Moss
Jennifer & Matt Nehring
Christa Newton
Toni Patton
Judy Prester
Bill & Sandra Ray
Jennie Ridgley
James Rivers, Jr.
Mazier Sardashti
Brad Scriber
Scot & Rachel Sundheim
Jean Wagner
RedLion York

ENDOWMENT CONTRIBUTORS

Lucy Adams
Sam & Eileen Bartlett
David & Vonda Holm
Dan Kowal & Karen McCarthy
Ryan Patterson
Larry Sveum

Thank you so much to the incredible donors who make this event possible!

(See Appendix 2 – CSEF Income-Expense Report)

CSEF Advisory Council

The CSEF Advisory Council is comprised of the Board of Directors, the Regional Fair Directors and Assistant Directors, and many at-large members.

CSSF Board of Directors

Executive Committee:

President- Mrs. Lucy Adams

Vice President- Mr. Josh Redmore

Treasurer- Mr. Dan Kowal

Secretary- Ms. Kristen Rasmussen

Past President- Mrs. Dolly Morrow

Executive Director- Mrs. Courtney Butler

Mike Bemski
Mike Bemski

CableLabs
Josh Redmore
John Bahr

Colorado Springs Pediatric Dentistry
Dolly Morrow
Dr. Robert Morrow

Colorado Engineering Council
Sam Bartlett
Peter Teasdale

Galvanic Engineering
Ryan Patterson
Kristen Rasmussen

IEEE, Denver Section
Jim Sipes
Jim Harrer

Lockheed Martin
Adam Pender

National Renewable Energy Laboratory
Santosh Veda

San Luis Valley Regional Sciences Fair
Dr. David Holm
Jody Oaks

Scriber Family
Brian Scriber
Kerry Scriber

Society of Petroleum Engineers, Denver Section
Jennifer Miskimins
Deb Ryan

Dr. Larry & Carol Sveum
Dr. Larry Sveum
Lucy Adams

US Department of Commerce/NOAA
Dan Kowal

Associate/Alternative Members
Doug Everett - SRC Chair
Judy Prester - Dr. Larry Sveum

Regional Fair Directors

Arkansas Valley Regional Science Fair
Dol Nath Khanal

Boulder Valley Regional Science Fair
Kristen Donley

Denver Metro Regional Science Fair
Erin Golden, Kayla Ahr

East Central Regional Science Fair
William Mallory

Longs Peak Regional Science Fair
Lori Ball

Morgan/Washington Regional Science Fair
Darline Miner

Northeast Regional Science Fair
Sonya Shaw

Pikes Peak Regional Science Fair
Nancy Hampson

San Juan Basin Regional Science Fair
Sheila Weahkee

San Luis Valley Regional Science Fair
Lucy Adams

Southeast Regional Science Fair
Terri Lira

Southern Colorado Regional Science Fair
Christina Rodell

Western Regional Science Fair
Kevin Hoskin

Members at Large

Loree Harvey
Steve Hiebert
Steve Iona
Rod Simpson
Jim Sites
Laura Ussery
Tracy Webb
Lynne Williams

CSEF Directors

** Charles Bragaw*
1956 – 1967

**Calvin Fisher*
1968 – 1974

**Sam Shushan*
1975 – 1977

Gordon Moore
1978 – 1979

**Russell B. Stoner*
1979 – 1981

Virgil A. Sandborn
1982 – 1983

James R. Sites
1984 – 1985

Lloyd Walker
1986 – 1988

Connie Vader-Lindholm
1989 – 1990

Lynn Butler
1991 – 1992

Kate Taylor
1992 – 1994
1997 - 1998

Christal McDougall
1995 – 1996

Lucy Adams
1999

Courtney Butler
2000 – present

**Director Emeritus for outstanding contributions to CSEF and more than two years of service as CSEF Director.*

WORKING COMMITTEES

Alumni
The focus of this committee is to create ways in which CSEF Alumni can continue to be active in the fair each year (i.e.: recruiting them as judges, volunteers, and/or sponsors) by keeping in contact with graduated seniors.

Awards Ceremony
The focus of this committee is the smooth running of the Awards Ceremony and winner recognition.

Display & Safety
The focus of this committee is to oversee the volunteers who check Finalists' projects for display and safety rules compliance.

Grand Awards Judging
The focus of this committee is to coordinate the recruitment and category assignments of judges. The committee also oversees the work of the judges during the fair, collects and reports the results to the Awards Ceremony committee.

Photography
The focus of this committee is to coordinate the volunteers who take the official photo of Finalists at their projects and the photo of winners at the Awards Ceremony. This committee is also responsible for sending a copy of the official photo to the Finalist, their Regional Fair Director and the CSEF Director.

Publicity
The focus of this committee is to maintain a current list of media contacts around the state of Colorado and to send out press releases to these contacts as deemed appropriate to gain exposure for CSEF. This committee is also responsible for inviting VIPs and media contacts to CSEF for interaction with the Finalists.

Registration
The focus of this committee is to maintain and prepare Finalist registration materials for SRC review and check-in at CSEF.

Exhibit Hall Set-Up
The focus of this committee is to design the layout of the exhibit hall space, taking into account electrical, floor and table space requirements. This committee is also responsible for coordinating with the Lory Student Center for room and material needs and to coordinate the exhibit space set-up at CSEF.

Scholarships
This committee is comprised of representatives from the colleges, universities and organizations providing scholarship money to Finalists through CSEF. Members are responsible for updating the scholarship descriptions each year and advising their institutions of any changes made by CSEF that might affect the number or type of scholarships given.

Scientific Review
The focus of this committee is to review Finalist paperwork for compliance with the ISEF rules and guidelines for student scientific research. The SRC must be comprised of a biomedical scientist (Ph.D., MD, DVM, DDS or DO), an educator, and at least one other person.

Special Awards
The focus of this committee is to solicit organizations to give special awards to Finalists based on criteria that the organization sets. This committee is also responsible for overseeing the special award judging process during the fair and report the results to the Awards Ceremony committee.

Student Activities
The focus of this committee is to arrange for the pizza party on Saturday and the guest speaker on Friday.

Tours
The focus of this committee is to arrange for tours and/or presentations of local/university science labs for the Finalists.

Volunteer Coordination
The focus of this committee is to arrange for volunteers to help with photography, display & safety, registration, room set-up, door monitoring, and the awards ceremony. This committee is also responsible for directing volunteers at CSEF.

Appendix 1

2021 Colorado Science and Engineering Fair
Grand Awards Press Release

Junior Division — Best of CSEF Project

First Place
Naomi Kruse — 7th grade
Knock Out! Bacterial Microflora as a Defense Against Tobacco Mosaic Virus in Phaseolus
Schullandheim Home School — Colorado Springs

Second Place
Rohan Mysore — 8th grade
Structural Safety Monitor
Flagstaff Charter Academy — Longmont

Third Place
Kelly Yang — 8th grade
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions
Summit Middle Charter School — Boulder

Senior Division — Best of CSEF Project

First Place
Siddharth Bharthulwar — 12th grade
XRCT-Net: Development of a Novel Sparse-View Deep Learning Framework for Safer, Cheaper, and More Accessible CT Imaging
Fairview High School — Boulder

Second Place
Emily Zhang — 11th grade
Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures
Cherry Creek High School — Greenwood Village

Third Place
Elizabeth Sundheim — 12th grade
Mapping Extent of Neutral Hydrogen Cloud Near Sagittarius A at 1420 MHz*
Berthoud High School — Berthoud

Fourth Place
Matthew Anderson — 11th grade
Early Diagnosis of Parkinsonism Via a Smartphone Application
Cherry Creek High School — Greenwood Village

Fifth Place
Reese Titensor — 12th grade
Effects of Cannabidiol Exposure on Cortisol Levels in Danio rerio Embryos with Heat Induced Stress
Rock Canyon High School — Highlands Ranch

Junior Division — Animal Sciences

First Place
Dorothy Berger — 6th grade
Pet Stress Management with Music
Webber Middle School — Fort Collins

Second Place
Luci Bruchez — 8th grade
What Color Is Most Appealing to Horses?
West Grand Middle School — Kremmling

Third Place
Aleigha Sanchez — 7th grade
Searching for the Earthworms Home
Sierra Grande School — Blanca

Honorable Mention
Raeya Schrock — 8th grade
Infrared Thermography to Enhance Livestock Health
Arickaree School — Anton

Senior Division — Animal Sciences

First Place
Reese Titensor — 12th grade
Effects of Cannabidiol Exposure on Cortisol Levels in Danio rerio Embryos with Heat Induced Stress
Rock Canyon High School — Highlands Ranch

Second Place
Marissa Martinez — 10th grade
Traveling Trout: Viability of Trout Eggs Along the Mainstream of the Geothermally Altered Alamosa River Watershed
Monte Vista High School — Monte Vista

Third Place
Margaret Mattson — 12th grade
Compartmentalization in Lepidopteran Development: Anterior Posterior Boundary Location and Interaction in Genus Morpho
Fairview High School — Boulder

Honorable Mention
Lilly Figueroa — 10th grade
Investigation on High Twinning Rate in Cattle Using Sanger Sequencing
Mancos High School — Mancos

Honorable Mention
Alex Ramsey 10th grade
Determining If Common Waste Products, Coupled with a Simple Base, Provide Stable Nutritional Value for Mealworms
SkyView Academy Highlands Ranch

Junior Division — Behavioral & Social Sciences

First Place
Mahi Mehta & Shriya Sriram 8th grade
Testing the Effect of Age and Gender on Body Image Perception
Challenge School Denver

Second Place
Nora May 6th grade
Collective and Swarm Intelligence: Are Many People Really Smarter Than a Few?
St. Columba Catholic School Durango

Third Place
Phoebe Donovan & Lola Green 7th grade
The Cover Up: The Relationship Between Face Masks and the Perception of Facial Cues
Friends Middle School Boulder

Honorable Mention
Rachel Tilton 7th grade
Psychology of Covid-19 Vaccine
Casey Middle School Boulder

Honorable Mention
Aysia Mathews 7th grade
Teen Mental Health
Mancos Middle School Mancos

Senior Division — Behavioral & Social Sciences

First Place
Siena Negron 9th grade
Political Bias Assessment
SkyView Academy Highlands Ranch

Second Place
Emaan Khan 11th grade
Classifying Hate Speech Using Machine Learning Algorithms
Centaurus High School Lafayette

Third Place
Fatima Duran 11th grade
Binaural Beats and Their Influence on Task Productivity
Yuma High School Yuma

Honorable Mention
Gus Miller 9th grade
iPhone or MyPhone: Analyzing How Personality Traits Influence Application Organization.
Monte Vista High School Monte Vista

Junior Division — Chemistry & Biochemistry

First Place
Chloe Sebek 8th grade
The Effect of Essential Oil on Ascorbic Acid Decay in Citrus Juice
Sacred Heart of Jesus Catholic School Boulder

Second Place
Tenzing Matt 6th grade
Preventing Rust
St. Columba Catholic School Durango

Third Place
Emma Sewell 8th grade
Proteolytic Enzyme Power
Sargent Junior High School Monte Vista

Honorable Mention
Angelina Wang 8th grade
Identification and Characterization of the Natural Sweetener: Brazzein
Summit Middle Charter School Boulder

Honorable Mention
Izzy Adochio 7th grade
Popped Perfection
Vail Mountain School Vail

Senior Division — Chemistry & Biochemistry

First Place
Stephen Chen 11th grade
Illuminating the Folding Dynamics of Bacteriorhodopsin: A Model Membrane Protein
Fairview High School Boulder

Second Place
Arjun Batra 12th grade
Implementation of a Copper Catalyst for Methane Hydrate Formation
Cherry Creek High School Greenwood Village

Third Place
Maria Alder & Riley Carpenter 12th grade
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers
Monarch High School Louisville

Honorable Mention
Emma Peters 12th grade
Change in Onset Potential of CO2 Electroreduction Using Gold
Broomfield High School Broomfield

Honorable Mention
Kevin Collins & Sydney George 12th grade
Investigating the Impact of ALS-Associated Point Mutations on ErbB4's Proteolysis
Evergreen High School Evergreen

Junior Division — Earth & Space Sciences

First Place
Ronan Curnyn 8th grade
How the Size of Earthquakes Affects the Size of Tsunamis
Vail Mountain School Vail

Second Place
Berkley Ulibarri 6th grade
Earth's Layers Under Pressure
St. John the Evangelist Catholic School Loveland

Third Place
Gurman Goraya 7th grade
Stellar Endgame
Challenger Middle School Colorado Springs

Senior Division — Earth & Space Sciences

First Place
Maddie Fox, Annalie Haralson & Lauren Egaas 12th grade
Hidden Signals in Paleoclimate Records: Investigating the Importance of the Sun for Earth's Climate
Monarch High School Louisville

Second Place
Ibrahim Mohammed 12th grade
Understanding Wildfires for Better Prevention Using an Image Classification Neural Network
Cherry Creek High School Greenwood Village

Third Place
Maria Silver 12th grade
Quantifying Precipitation Undercatch in a Citizen Scientist Weather Observation Network
Broomfield High School Broomfield

Honorable Mention
Abigail Ross 10th grade
Detecting Flares (Part 3)
Lamar High School Lamar

Junior Division — Energy

First Place
Shrey Rohilla 8th grade
Battle of the Blades
The Classical Academy Colorado Springs

Second Place
Peyton Rhodes 8th grade
What's on Your Roof?
Firestone Charter Academy Firestone

Third Place
Hailey Mazzotta 8th grade
Wind Today, Green Tomorrow
Firestone Charter Academy Firestone

Honorable Mention
Cooper Thielemier 7th grade
Energy from Energy
Goodnight School Pueblo

Senior Division — Energy

First Place
Julia Warnock 11th grade
Experimenting with the Radiative Cooling Effect to Generate Electricity from the Night Sky
Poudre Global Academy Fort Collins

Second Place
Chandler Slowik 12th grade
Micro Hydroelectric Generator
Golden High School Golden

Third Place
Nikhila Narayana 11th grade
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency
Rock Canyon High School Highlands Ranch

Honorable Mention
Chinmay Jayanty 11th grade
Synthesizing Renewable Energy from Water Using Sunlight
Sargent High School Monte Vista

Honorable Mention
Bryan Williams 9th grade
Charging into the Future of Transportation: An In-Depth Comparison of Electric and Combustion Vehicles
Hoehne Schools Hoehne

Junior Division — Engineering

First Place
Rohan Mysore 8th grade
Structural Safety Monitor
Flagstaff Charter Academy Longmont

Second Place
Stefan Zehnacker 8th grade
Watch It Wash!
Good Shepherd Catholic School Denver

Third Place
Benjamin Sundheim 8th grade
And the Band Played On: Masks and Instrument Sound Quality
St John the Evangelist Catholic School Loveland

Honorable Mention
Liam Bois 6th grade
Not So Silent Sonar
St. Joseph Catholic School Fort Collins

Honorable Mention
Ersel Serdar 7th grade
Dust Begone: Using Arduinos to Clean Mars Rover Solar Panels
Challenge School Denver

Senior Division — Engineering

First Place
Siddharth Bharthulwar 12th grade
XRCT-Net: Development of a Novel Sparse-View Deep Learning Framework for Safer, Cheaper, and More Accessible CT Imaging
Fairview High School Boulder

Second Place
Tyler Burt 12th grade
A Novel Mask Insert to Reduce Habitual Particle Transmission
Wheat Ridge High School Wheat Ridge

Third Place
Rithvik Ijju 9th grade
A Human-Machine Interface That Helps Quadriplegic Patients Communicate by Translating Eye Blinks into Morse Code
Cherry Creek High School Greenwood Village

Honorable Mention
Tate Schrock 11th grade
Autonomous Surveillance UAV
Arickaree School Anton

Honorable Mention
Ayan Vaishnav 9th grade
Designing and Evaluating the Performance of Novel Airfoil Innovations Using SOLIDWORKS
Cherry Creek High School Greenwood Village

Junior Division — Environmental Sciences

First Place
Naomi Kruse 7th grade
Knock Out! Bacterial Microflora as a Defense Against Tobacco Mosaic Virus in Phaseolus
Schullandheim Home School Colorado Springs

Second Place
Alexander Zhang 8th grade
Carbon Capture: Refining the Process
Summit Middle Charter School Boulder

Third Place
Shrreya Sethuramalingam 8th grade
Chlorophyta and Lemnoideae Components Impacting the Contaminants of H20
Challenge School Denver

Senior Division — Environmental Sciences

First Place
Sean Brooks 11th grade
Separating Microplastics from Beach Sand Using a Fluidized Air Bed
Pine Creek High School Colorado Springs

Second Place
Gitanjali Rao 10th grade
Detection of C. parvum Transposons in Potable Water Using Genetically Engineered Bioelectric Sensors
STEM School Highlands Ranch

Third Place
Maya Hunter 12th grade
COVID-19 Shutdowns and Air Quality: A Demographic Analysis
Cherry Creek High School Greenwood Village

Honorable Mention
Camille Rawinski 11th grade
Analyzing the Effects of Spruce Beetles on Aquatic Ecosystems through Macroinvertebrate and Water Quality Sampling in Conejos County, Colorado
Monte Vista High School Monte Vista

Junior Division — Mathematics & Computer Sciences

First Place
Stella Laird 8th grade
Using Computer Vision Techniques to Count Jelly Beans
Southern Hills Middle School Boulder

Second Place
Tianyi Evans Gu 8th grade
Using Natural Language Processing to Analyze and Improve Communication Skills
Summit Middle Charter School Boulder

Third Place
Niram Nagafuji & Akhil Ayalur 6th grade
Does Benford's Law Match COVID-19 Data?
The Logan School for Creative Learning Denver

Honorable Mention
Logan Futrell 6th grade
The Probabilities of Diabetes: A Mathematical Study of Diabetes and Its Factors
Monte Vista Middle School Monte Vista

Honorable Mention
Alejandra Pena 7th grade
User Experience: Do Emotions Matter?
St. John the Evangelist Catholic School Loveland

Senior Division Mathematics & Computer Sciences

First Place
Emily Zhang 11th grade
Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures
Cherry Creek High School Greenwood Village

Second Place
Max Witwer 12th grade
Developing Computer Generated Glucose Transport One Inhibitor Lead Molecules for Oncological Metabolic Regulation
Caprock Academy Grand Junction

Third Place
Morgan Holien 11th grade
An Intuitive Approach to the Perimeter of an Ellipse
Monarch High School Louisville

Honorable Mention
Abbas Shaikh 11th grade
A Deep Learning Framework for Automated Brain Tumor Segmentation and Survival Prediction Using Multimodal MRI Scans
Cherry Creek High School Greenwood Village

Junior Division Medicine & Health

First Place
Julian Kramer 8th grade
Don't UV Burning Me: A Comparative Study of Synthetic Versus Mineral Sunscreens
Good Shepherd Catholic School Denver

Second Place
Mila Vigil 8th grade
Brain Waves and Parkinson's Disease: An Early Detection?
Challenge School Denver

Third Place
Makayla Brown 8th grade
The Mightiest Mask?
Sargent Junior High School Monte Vista

Honorable Mention
Diya Mehta 6th grade
Study of the Efficiency of Different Face Masks in Preventing and Controlling Transmission of Communicable Diseases Like Covid-19
Flagstaff Charter Academy Longmont

Honorable Mention
Elizabeth Vossler 8th grade
Blink-183 – The Effect of Projected versus Reflected Light on Blinking Rate
Skinner Middle School Denver

Senior Division Medicine & Health

First Place
Matthew Anderson 11th grade
Early Diagnosis of Parkinsonism Via a Smartphone Application
Cherry Creek High School Greenwood Village

Second Place
Cooper Hanley 12th grade
A Pharmacokinetic/Pharmacodynamic Analysis of CBD and THC
Monarch High School Louisville

Third Place
Aditi Avinash 9th grade
Breakdown of Gluten Proteins Using a Newly Identified Combination of Fruit Derived Enzymes to Alleviate Symptoms of Gluten Intolerance
Rock Canyon High School Highlands Ranch

Honorable Mention
Ria Jansun 12th grade
Designing an Internal Whippletree Mechanism in a Prosthetic Hand
Peak to Peak Charter School Lafayette

Honorable Mention
Ava Steger 10th grade
Connection ICU: A Novel Mobile Application to Prevent Delirium in the Intensive Care Unit
Rocky Mountain High School Fort Collins

Junior Division Microbiology & Molecular Biology

First Place
Armaan Gill 8th grade
Transformations of E. coli with Plasmid DNA, Calcium Chloride, Ampicillin, and Arabinose Sugar
Lamar Middle School Lamar

Second Place
Chloe Lubbers 6th grade
Bad Breath Bacteria
Alta Vista Charter School Lamar

Third Place
Aubrey Holmes 7th grade
Antibiotic Post Mortem: Take Two
Manzanola Jr/Sr High School Manzanola

Senior Division Microbiology & Molecular Biology

First Place
Tia Abraham 11th grade
Predictive Analysis of Transcription Factors to Directly Reprogram Human Cells
Rock Canyon High School Highlands Ranch

Second Place
Madison Hoffman 12th grade
The Effects of Common Antibiotics on Escherichia Coli
Limon Jr/Sr High School Limon

Third Place
Ashlyn Eisenman 9th grade
The Contaminated Classroom
West Grand High School Kremmling

Junior Division Physics

First Place
Lily Sobers 6th grade
The Science of Spin: Mass and Inertia
Bear Creek Elementary School Monument

Second Place
Ayush Vispute 6th grade
Stretch It!
Mountain Ridge Middle School Colorado Springs

Third Place
Cooper Manganaro 6th grade
Friction: Does Material Matter
St. Columba Catholic School Durango

Honorable Mention
Rut Trujillo-Abeyta 8th grade
How Is Water Attracted to Static Electricity?
Justice & Heritage Academy Antonito

Senior Division Physics

First Place
Elizabeth Sundheim 12th grade
Mapping Extent of Neutral Hydrogen Cloud Near Sagittarius A at 1420 MHz*
Berthoud High School Berthoud

Second Place
Kathryn Kummel 12th grade
Investigating Chaotic Convection Using a Lorenz Water Wheel and a Model of the Lorenz Attractors in R
Palmer High School Colorado Springs

Third Place
Santiago Castillo 12th grade
Influence of Mars's Gravity and Seismicity on Mining Waste Dumps Facilities
Cherry Creek High School Greenwood Village

Junior Division Plant Sciences

First Place
Kelly Yang 8th grade
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions
Summit Middle Charter School Boulder

Second Place
Kanshita Dam 8th grade
How Do Vibrations from Sound Waves Affect Plant Growth?
Challenge School Denver

Third Place
Ellaree Rockey 8th grade
Nitrogen and Density Levels in Quinoa
Sargent Junior High School Monte Vista

Honorable Mention
Riley Hunt 8th grade
How Does Caffeine Affect Plant Growth?
Wiggins Middle School Wiggins

Senior Division Plant Sciences

First Place
Cora Becker & Amanda Behmer 12th grade
A Peek into Plastic Pollution: The Effect of Irradiated PET Micro-plastic Leachate on Optical Culture Density of Chlamydomonas reinhardtii
Evergreen High School Evergreen

Second Place
Ashlyn Rockey 11th grade
Screening Quinoa Germplasm for Downy Mildew Resistance
Sargent High School Monte Vista

Third Place
Carlos Ochoa-Marquez 10th grade
Are Plants Airheads? A Study of the Effect Aeration Has on Solanum tuberosum and Cucurbita pepo Plants
Monte Vista High School Monte Vista

Appendix 1

2021 Colorado Science and Engineering Fair
Special Awards Press Release

CSEF Awards

Poster Art Contest

Dorothy Berger 6th grade
$100, certificate
Webber Middle School Fort Collins

Elemer Bernath Memorial Technical Writing Award

Alexander Zhang 8th grade
certificate
Summit Middle Charter School Boulder
Carbon Capture: Refining the Process

Kelly Yang 8th grade
certificate
Summit Middle Charter School Boulder
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions

Angelina Wang 8th grade
$100, certificate
Summit Middle Charter School Boulder
Identification and Characterization of the Natural Sweetener: Brazzein

Ralph Desch Memorial Technical Writing Award

Maria Alder & Riley Carpenter 12th grade
certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Charlotte Gorgemans 12th grade
certificate
Boulder High School Boulder
Modeling and Analysis of the Impact of Unhealthy Food on the Honeybee Colony Health

Margaret Mattson 12th grade
$100, certificate
Fairview High School Boulder
Compartmentalization in Lepidopteran Development: Anterior Posterior Boundary Location and Interaction in Genus Morpho

Pioneers of Science Awards

Dian Fossey Award

Dorothy Berger 6th grade
$50, certificate, poster of pioneer scientist
Webber Middle School Fort Collins
Pet Stress Management with Music

James Patrick Allison Award

Chloe Lubbers 6th grade
$50, certificate, poster of pioneer scientist
Alta Vista Charter School Lamar
Bad Breath Bacteria

John Bannister Goodenough Award

Kayla Etters 7th grade
$50, certificate, poster of pioneer scientist
Vail Mountain School Vail
Glow with the Flow

Leon Festinger Award

Rachel Tilton 7th grade
$50, certificate, poster of pioneer scientist
Casey Middle School Boulder
Psychology of Covid-19 Vaccine

Luther Burbank Award

Ellie Bruckbauer 6th grade
$50, certificate, poster of pioneer scientist
Miller Middle School Durango
Project Plant Sitter

Mary Ainsworth Award

Durant Gilleland 6th grade
$50, certificate, poster of pioneer scientist
Centauri Middle School La Jara
Does Practice Really Make Perfect

Phillip James Edwin Peebles Award

Micaela Ramirez 7th grade
$50, certificate, poster of pioneer scientist
Ignacio Middle School Ignacio
How Does Unnatural Light Pollution Affect the Visibility of Stars?

Steven Chu Award

Colten Vannest 7th grade
$50, certificate, poster of pioneer scientist
Mancos Middle School Mancos
Rolling Rivers

Military

United States Air Force

Air Force ROTC Award

Tate Schrock 11th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger
Arickaree School Anton
Autonomous Surveillance UAV

Ayan Vaishnav 9th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger
Cherry Creek High School Greenwood Village
Designing and Evaluating the Performance of Novel Airfoil Innovations Using SOLIDWORKS

Abby Klapp 11th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger
Lewis-Palmer High School Monument
Spatial Ability in Pilots

Abigail Ross 10th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger
Lamar High School Lamar
Detecting Flares (Part 3)

United States Navy & Marine Corps

Office of Naval Research Award

Mia Sholes 7th grade
letter of congratulations, certificate, ONR medallion
Miller Middle School Durango
Surviving in the Winter Slumber-Land

Kelly Yang 8th grade
letter of congratulations, certificate, ONR medallion
Summit Middle Charter School Boulder
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions

Stella Laird 8th grade
letter of congratulations, certificate, ONR medallion
Southern Hills Middle School Boulder
Using Computer Vision Techniques to Count Jelly Beans

Samuel Calkin 6th grade
letter of congratulations, certificate, ONR medallion
Skinner Middle School Denver
Biosourced Flame Retardant is a Viable Alternative to Toxic PFAS Retardant

Alden Kruse 12th grade
letter of congratulations, ONR medallion, certificate, ONR medallion, & $50 gift card (response required from winner to process payment)
Schullandheim Home School Colorado Springs
Something in the Water: Creating an Origami Microfluidic
Device for Developing Communities

Emily Zhang 11th grade
letter of congratulations, ONR medallion, certificate, ONR medallion, & $50 gift card (response required from winner to process payment)
Cherry Creek High School Greenwood Village
Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures

Hudson Kruse 10th grade
letter of congratulations, ONR medallion, certificate, ONR medallion, & $50 gift card (response required from winner to process payment)
Schullandheim Home School Colorado Springs
Simulating Atomic Dynamics Using a 3D Graphics Engine

Organizational Awards

Air & Waste Management Association, Rocky Mountain States Section

Air & Waste Management Award

Jai'Lee Keever-Espinoza 7th grade
$50 (being sent from organization), certificate
Pueblo Charter School for the Arts & Sciences Pueblo
Recycle Capsule

Alexander Zhang 8th grade
$100 (being sent from organization), certificate
Summit Middle Charter School Boulder
Carbon Capture: Refining the Process

Rachel Christensen 12th grade
$50 (being sent from organization), certificate
Evergreen High School Evergreen
The Environmental Effect on Aquatic Ecosystems of Run-Off from Wildfires Where Fire Retardant Slurry Was Used

Gitanjali Rao 10th grade
$100 (being sent from organization), certificate
STEM School Highlands Ranch
Detection of C. parvum Transposons in Potable Water Using Genetically Engineered Bioelectric Sensors

Algae Foundation

Excellence in Algae-Related Research Award

Shrreya Sethuramalingam 8th grade
$200, plaque (being sent from organization), certificate
Challenge School Denver
Chlorophyta and Lemnoideae Components Impacting the Contaminants of H20

Cora Becker & Amanda Behmer 12th grade
$200, plaque (being sent from organization), certificate
Evergreen High School Evergreen
A Peek into Plastic Pollution: The Effect of Irradiated PET Micro-plastic Leachate on Optical Culture Density of Chlamydomonas reinhardtii

American Association of University Women

AAUW CO Award for Women in STEM

Stella Laird 8th grade
$100, certificate
Southern Hills Middle School Boulder
Using Computer Vision Techniques to Count Jelly Beans

Emma Peters 12th grade
$100, certificate
Broomfield High School Broomfield
Change in Onset Potential of CO2 Electroreduction Using Gold

American Chemical Society, Colorado Section

ACS Awards

Haydan Drullinger 7th grade
$50, certificate
Liberty School Joes
Keeping the Dust Out: Designing a Sealant

Alycia Martinez-Chavez 7th grade
$50, certificate
Sargent Junior High School Monte Vista
How Does Pain Medication Affect Your Stomach?

Angelina Wang 8th grade
$150, certificate
Summit Middle Charter School Boulder
Identification and Characterization of the Natural Sweetener: Brazzein

Maria Alder & Riley Carpenter 12th grade
$50, certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Stephen Chen 11th grade
$50, certificate
Fairview High School Boulder
Illuminating the Folding Dynamics of Bacteriorhodopsin: A Model Membrane Protein

Kevin Collins & Sydney George 12th grade
$150, certificate
Evergreen High School Evergreen
Investigating the Impact of ALS-Associated Point Mutations on ErbB4's Proteolysis

American Institute of Aeronautics and Astronautics, Rocky Mountain Section

AIAA Prize

Lily Sobers 6th grade
certificate, Arduino Kit & 1-year AIAA student membership
Bear Creek Elementary School Monument
The Science of Spin: Mass and Inertia

Angelina Wang 8th grade
certificate, Arduino Kit & 1-year AIAA student membership
Summit Middle Charter School Boulder
Identification and Characterization of the Natural Sweetener: Brazzein

Abigail Ross 10th grade
certificate, Arduino Kit & 1-year AIAA student membership
Lamar High School Lamar
Detecting Flares (Part 3)

Connor Sehnert 11th grade
certificate, Arduino Kit & 1-year AIAA student membership
Mancos High School Mancos
Replicating Conditions of Asteroidal Water to Understand How It Affects Water Quality

American Institute of Chemical Engineers Rocky Mountain Section

Excellence in Chemical Engineering Award

Presley Wilson & William Wilson 8th grade
$75, certificate
Sangre de Cristo School Mosca
Wildfire Debris Mitigation and Feasibility for Use in Emergency Water Filtration Systems

Angelina Wang 8th grade
$100, certificate
Summit Middle Charter School Boulder
Identification and Characterization of the Natural Sweetener: Brazzein

Arjun Batra 12th grade
$75, certificate
Cherry Creek High School Greenwood Village
Implementation of a Copper Catalyst for Methane Hydrate Formation

Sean Brooks 11th grade
$100, certificate
Pine Creek High School Colorado Springs
Separating Microplastics from Beach Sand Using a Fluidized Air Bed

American Institute of Professional Geologists Colorado Section

AIPG Certificate of Excellence in the Geosciences

Eva Norton 8th grade
$75, certificate
West Grand Middle School Kremmling
Sediment Movement

Keane Hammond 7th grade
$150, certificate
Miller Middle School Durango
The Drowning Machine: The Danger of Low Head Dams

Alden Kruse 12th grade
$75, certificate
Schullandheim Home School Colorado Springs
Something in the Water: Creating an Origami Microfluidic Device for Developing Communities

Maria Alder & Riley Carpenter 12th grade
$150 (each), certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

American Meteorological Society Denver/Boulder Chapter

Award for Excellence in Atmospheric Science Research

Garret Drullinger 8th grade
$50 gift card, certificate
Liberty School Joes
The Effects of Wildfires on Photosynthetic Rate

Maya Hunter 12th grade
$50 gift card, certificate
Cherry Creek High School Greenwood Village
COVID-19 Shutdowns and Air Quality: A Demographic Analysis

American Statistical Association, Colorado/Wyoming Chapter

David Young Memorial Award

Kelly Yang 8th grade
$200 (being sent from organization), certificate, student membership in the American Statistical Association, acknowledgement at chapter spring meeting and on chapter website
Summit Middle Charter School Boulder
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions

Patrick Flores 11th grade
$200 (being sent from organization), certificate, student membership in the American Statistical Association, acknowledgement at chapter spring meeting and on chapter website
Hoehne Schools Hoehne
A Comparison of Neodymium and Ferrite Maglev Train Properties

American Vacuum Society Rocky Mountain Chapter

Excellence in Physical Sciences & Engineering Award

Jesse James 7th grade
$50; $50 matching award to teacher/sponsor, certificate
Manzanola Jr/Sr High School Manzanola
The Wright Wings

Keane Hammond 7th grade
$100, $100 matching award to teacher/sponsor, certificate
Miller Middle School Durango
The Drowning Machine: The Danger of Low Head Dams

Sean Brooks 11th grade
$50; $50 matching award to teacher/sponsor, certificate
Pine Creek High School Colorado Springs
Separating Microplastics from Beach Sand Using a Fluidized Air Bed

Nikhila Narayana 11th grade
$100, $100 matching award to teacher/sponsor, certificate
Rock Canyon High School Highlands Ranch
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

ASM International

ASM Materials Education Foundation Award

Tenzing Matt 6th grade
$100, certificate
St. Columba Catholic School Durango
Preventing Rust

Maria Alder & Riley Carpenter 12th grade
$150, certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Broadcom Foundation

Broadcom Coding with Commitment Award

Stella Laird 8th grade
$250 gift certificate; Raspberry Pi Foundation Official RP 400 Personal Computer Kit; (response required from winner to process payment), certificate
Southern Hills Middle School Boulder
Using Computer Vision Techniques to Count Jelly Beans

Colorado Association of Science Teachers

CAST Award

Emma Sewell 8th grade
$100, certificate
Sargent Junior High School Monte Vista
Proteolytic Enzyme Power

Ellaree Rockey 8th grade
$100, certificate
Sargent Junior High School Monte Vista
Nitrogen and Density Levels in Quinoa

Maria Alder & Riley Carpenter 12th grade
$100, certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Aditi Avinash 9th grade
$100, certificate
Rock Canyon High School Highlands Ranch
Breakdown of Gluten Proteins Using a Newly Identified Combination of Fruit Derived Enzymes to Alleviate Symptoms of Gluten Intolerance

Colorado BioScience Institute

BioGENEius Challenge

Madison Hoffman 12th grade
certificate, invitation to participate in virtual National & International BioGENEius Challenge during the BIO Digital Conference in June 2021 with the opportunity to win scholarships and other prizes
Limon Jr/Sr High School Limon
The Effects of Common Antibiotics on Escherichia Coli

Colorado Chemistry Teachers Association

CCTA Chemistry Awards

Angelina Wang 8th grade
$150, certificate
Summit Middle Charter School Boulder
Identification and Characterization of the Natural Sweetener: Brazzein

Maria Alder & Riley Carpenter 12th grade
$150, certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Colorado State University
College of Agricultural Sciences

Innovations in the Science of Agriculture Award

Luci Bruchez 8th grade
$500, certificate
West Grand Middle School Kremmling
What Color Is Most Appealing to Horses?

Ashlyn Rockey 11th grade
$500, certificate
Sargent High School Monte Vista
Screening Quinoa Germplasm for Downy Mildew Resistance

Colorado State University
Colorado Natural Heritage Program

Colorado Natural Heritage Program Conservation Award

Madison Miller 10th grade
pint glass, hand lens, Wetlands of Colorado Guidebook, certificate
Monte Vista High School Monte Vista
The Grass Is Always Greener: The Effectiveness of Exclosures on Ungulate Browsing in Riparian Areas

Camille Rawinski 11th grade
pint glass, handles, Wetlands of Colorado Guidebook, certificate
Monte Vista High School Monte Vista
Analyzing the Effects of Spruce Beetles on Aquatic Ecosystems through Macroinvertebrate and Water Quality Sampling in Conejos County, Colorado

Colorado State University
Department of Chemistry
Excellence in Chemistry Award

Izzy Adochio 7th grade
$100 (response required from winner to process payment), certificate
Vail Mountain School Vail
Popped Perfection

Maria Alder & Riley Carpenter 12th grade
$100 (response required from winner to process payment), certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Colorado State University
Dept. of Horticulture & Landscape Architecture
Excellence in Horticulture Award

Mia Bennett 8th grade
$100 (response required from winner to process payment), certificate
Firestone Charter Academy Firestone
Which Poo Is for You?

Kelly Yang 8th grade
$100 (response required from winner to process payment), certificate
Summit Middle Charter School Boulder
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions

Cora Becker & Amanda Behmer 12th grade
$100 (response required from winner to process payment), certificate
Evergreen High School Evergreen
A Peek into Plastic Pollution: The Effect of Irradiated PET Micro-plastic Leachate on Optical Culture Density of Chlamydomonas reinhardtii

Paige Beedy 12th grade
$100 (response required from winner to process payment), certificate
Limon Jr/Sr High School Limon
Effectiveness of Different Rooting Stimulants on Thaumatophyllum bipinnatifidum, Zamioculcas zamiifolia, and Saintpaulia spp

Colorado State University, Energy Institute
Excellence in Energy Achievement Award

Bryan Williams 9th grade
$250, certificate
Hoehne Schools Hoehne
Charging into the Future of Transportation: An In-Depth Comparison of Electric and Combustion Vehicles

Colorado-Wyoming Society of American Foresters
Excellence in Forestry Research Award

Presley Wilson & William Wilson 8th grade
$200, certificate
Sangre de Cristo School Mosca
Wildfire Debris Mitigation and Feasibility for Use in Emergency Water Filtration Systems

Rachel Christensen 12th grade
$200, certificate
Evergreen High School Evergreen
The Environmental Effect on Aquatic Ecosystems of Run-Off from Wildfires Where Fire Retardant Slurry Was Used

United States Department of Commerce
Award for Excellence in Science and Engineering

Maria Silver 12th grade
plaque (being sent from organization), alternate for summer internship, certificate
Broomfield High School Broomfield
Quantifying Precipitation Undercatch in a Citizen Scientist Weather Observation Network

Maya Hunter 12th grade
plaque (being sent from organization), offer of summer internship, certificate
Cherry Creek High School Greenwood Village
COVID-19 Shutdowns and Air Quality: A Demographic Analysis

Geological Society of America
GSA Awards in Environmental Geology

Aidan Baar 7th grade
$75 gift card, plaque, certificate
Liberty School Joes
Will Different Soil Types Effect Fertilizers?

Abigail Ross 10th grade
$100 gift card, plaque, certificate
Lamar High School Lamar
Detecting Flares (Part 3)

Maddie Fox, Annalie Haralson & Lauren Egaas 12th grade
$200 gift card (each), plaque, certificate
Monarch High School Louisville
Hidden Signals in Paleoclimate Records: Investigating the Importance of the Sun for Earth's Climate

Gromko Family
Gerald Gromko Memorial Award

Alden Kruse 12th grade
$150, certificate
Schullandheim Home School Colorado Springs
Something in the Water: Creating an Origami Microfluidic Device for Developing Communities

Institute of Electrical and Electronics Engineers High Plains Section
IEEE Award

Rohan Mysore 8th grade
$100 cash card, certificate
Flagstaff Charter Academy Longmont
Structural Safety Monitor

Siddharth Bharthulwar 12th grade
$150 cash card, certificate
Fairview High School Boulder
XRCT-Net: Development of a Novel Sparse-View Deep Learning Framework for Safer, Cheaper, and More Accessible CT Imaging

Little Shop of Physics
Matthew McCausland Memorial Award

Stefan Zehnacker 8th grade
science equipment/instruments, certificate
Good Shepherd Catholic School Denver
Watch It Wash!

Daniel Joshua 6th grade
science equipment/instruments, certificate
Southern Hills Middle School Boulder
Mini Wind Tunnel

Bryan Williams 9th grade
science equipment/instruments, certificate
Hoehne Schools Hoehne
Charging into the Future of Transportation: An In-Depth Comparison of Electric and Combustion Vehicles

Chandler Slowik 12th grade
science equipment/instruments, certificate
Golden High School Golden
Micro Hydroelectric Generator

Lockheed Martin
Lockheed Martin Aerospace Award

Ersel Serdar 7th grade
$150, certificate
Challenge School Denver
Dust Begone: Using Arduinos to Clean Mars Rover Solar Panels

Tate Schrock 11th grade
$350, certificate
Arickaree School Anton
Autonomous Surveillance UAV

National Centers for Environmental Information
NCEI Award of Scientific Achievement

Naomi Kruse 7th grade
cash award from anonymous donor, certificate
Schullandheim Home School Colorado Springs
Knock Out! Bacterial Microflora as a Defense Against Tobacco Mosaic Virus in Phaseolus

National Renewable Energy Laboratory
NREL Energy Award

Nikhila Narayana 11th grade
$100, certificate
Rock Canyon High School Highlands Ranch
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

Platte River Power Authority
PRPA Special Award for Energy Efficiency and Innovation

Shrey Rohilla 8th grade
$100, certificate
The Classical Academy Colorado Springs
Battle of the Blades

Bryan Williams 9th grade
$150, certificate
Hoehne Schools Hoehne
Charging into the Future of Transportation: An In-Depth Comparison of Electric and Combustion Vehicles

PRPA Special Award for Environmental Responsibility

Peyton Rhodes 8th grade
$100, certificate
Firestone Charter Academy Firestone
What's on Your Roof?

Nikhila Narayana 11th grade
$150, certificate
Rock Canyon High School Highlands Ranch
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

Regeneron
Regeneron Biomedical Science Award

Stephen Chen 11th grade
$500 (response required from winner to process payment), certificate
Fairview High School Boulder
Illuminating the Folding Dynamics of Bacteriorhodopsin: AModel Membrane Protein

Rocky Mountain Association of Geologists
Excellence in Earth Science Award

Ronan Curnyn 8th grade
$200, certificate
Vail Mountain School Vail
How the Size of Earthquakes Affects the Size of Tsunamis

Shrey Rohilla 8th grade
$300, certificate
The Classical Academy Colorado Springs
Battle of the Blades

Alyson Gardner 11th grade
$200, certificate
Yuma High School Yuma
Plug into Ponds: Roof Ponds and Their Effectiveness on a Home

Maddie Fox, Annalie Haralson & Lauren Egaas 12th grade
$300, certificate
Monarch High School Louisville
Hidden Signals in Paleoclimate Records: Investigating the Importance of the Sun for Earth's Climate

Rocky Mountain Water Environment Association
Water Research Award

Presley Wilson & William Wilson 8th grade
$200, certificate
Sangre de Cristo School Mosca
Wildfire Debris Mitigation and Feasibility for Use in Emergency Water Filtration Systems

Louis Calkin 8th grade
$400, certificate
Skinner Middle School Denver
Extended Use of Oil Phylic Hydrophobic Sponges in Stormwater Remediation Prove Effective and Economical

Maria Alder & Riley Carpenter 12th grade
$200, certificate
Monarch High School Louisville
Water Desalination: Crystallization of CaCO3 Out of Saline Solution onto Plastic Polymers

Chandler Slowik 12th grade
$400, certificate
Golden High School Golden
Micro Hydroelectric Generator

SACNAS, Colorado State University Chapter
SACNAS CSU Rising Young Scientist Award

Shrreya Sethuramalingam 8th grade
$50, certificate
Challenge School Denver
Chlorophyta and Lemnoideae Components Impacting the Contaminants of H20

Kanshita Dam 8th grade
$50, certificate
Challenge School Denver
How Do Vibrations from Sound Waves Affect Plant Growth?

Marissa Martinez 10th grade
$50, certificate
Monte Vista High School Monte Vista
Traveling Trout: Viability of Trout Eggs Along the Mainstream of the Geothermally Altered Alamosa River Watershed

Amrita Saini 9th grade
$50, certificate
Peak to Peak Charter School Lafayette
Analyzing the Most Effective Cotton Species for More Sustainable Absorbent Products and Textiles

Society for Mining, Metallurgy, and Exploration Colorado Section
Excellence in Mineral Science & Engineering Award

Aidan Baar 7th grade
$100, certificate
Liberty School Joes
Will Different Soil Types Effect Fertilizers?

Shrreya Sethuramalingam 8th grade
$300, certificate
Challenge School Denver
Chlorophyta and Lemnoideae Components Impacting the Contaminants of H20

Sean Brooks 11th grade
$200, certificate
Pine Creek High School Colorado Springs
Separating Microplastics from Beach Sand Using a Fluidized Air Bed

Alden Kruse 12th grade
$400, certificate
Schullandheim Home School Colorado Springs
Something in the Water: Creating an Origami Microfluidic Device for Developing Communities

Society of Women Engineers
Rocky Mountain Section
SWE Award

Teagan Archer 8th grade
$75, certificate
Mancos Middle School Mancos
Alternative Hearing Aid

Presley Wilson & William Wilson 8th grade
$100, certificate
Sangre de Cristo School Mosca
Wildfire Debris Mitigation and Feasibility for Use in Emergency Water Filtration Systems

Emily Lai & Bryne Knowles 12th grade
$75, certificate
Cherry Creek High School Greenwood Village
Dam Break Modeling on the Cherry Creek Reservoir to Predict Potential Flood Impacts

Urianna Acosta 10th grade
$100, certificate
Monte Vista High School Monte Vista
Bionic Bytes . . . A Voice-Activated Robotic Device Designed to Assist Physically Challenged People with Mealtime

SPIE-the international society for optics and photonics
SPIE Optics and Photonics Award

Owen Cruz-Abrams 7th grade
$50, certificate
Vail Mountain School Vail
A Stem Over the Rainbow

Julian Kramer 8th grade
$100, certificate
Good Shepherd Catholic School Denver
Don't UV Burning Me: A Comparative Study of Synthetic Versus Mineral Sunscreens

Chloe Beers & Leilani Devine-Miller 10th grade
$150, certificate
Compass Community Collaborative School Fort Collins
Biomimicry and Bioluminescence

Arcadia Haskell 12th grade
$100, certificate
Broomfield High School Broomfield
Effect of Phase Angle on Reflectance of Lunar Pyroclastic Domes

Emily Zhang 11th grade
$150, certificate
Cherry Creek High School Greenwood Village
Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures

Nikhila Narayana 11th grade
$250, certificate
Rock Canyon High School Highlands Ranch
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

Soil & Water Conservation Society
Colorado Chapter
Natural Resource Conservation Award

Julian Lochte Bono 6th grade
$100, certificate
St. Columba Catholic School Durango
What Type of Soil Will Prevent Erosion from Happening?

Madison Miller 10th grade
$100, certificate
Monte Vista High School Monte Vista
The Grass Is Always Greener: The Effectiveness of Exclosures on Ungulate Browsing in Riparian Areas

State of Colorado Division of Reclamation, Mining & Safety
DRMS Outstanding Science Exhibit

Aidan Baar 7th grade
$75, certificate
Liberty School Joes
Will Different Soil Types Effect Fertilizers?

Santiago Castillo 12th grade
$75, certificate
Cherry Creek High School Greenwood Village
Influence of Mars's Gravity and Seismicity on Mining Waste Dumps Facilities

Trout Unlimited

Trout Unlimited River Conservation Award

Rachel Christensen 12th grade
$75, certificate
Evergreen High School Evergreen
The Environmental Effect on Aquatic Ecosystems of Run-Off from Wildfires Where Fire Retardant Slurry Was Used

Marissa Martinez 10th grade
$125, certificate
Monte Vista High School Monte Vista
Traveling Trout: Viability of Trout Eggs Along the Mainstream of the Geothermally Altered Alamosa River Watershed

Camille Rawinski 11th grade
$200, certificate
Monte Vista High School Monte Vista
Analyzing the Effects of Spruce Beetles on Aquatic Ecosystems through Macroinvertebrate and Water Quality Sampling in Conejos County, Colorado

Wilkins Family

Young Entrepreneur's Award

Liam Bois 6th grade
$500, certificate
St. Joseph Catholic School Fort Collins
Not So Silent Sonar

Tyler Burt 12th grade
$500, certificate
Wheat Ridge High School Wheat Ridge
A Novel Mask Insert to Reduce Habitual Particle Transmision

Wojtaszek Family

Paul Wotjaszak Memorial Award

Rohini Kompella 10th grade
$200, certificate (the winning student(s) are asked to send a letter of appreciation to Mary Wojtaszek, Paul's mother)
Cherry Creek High School Greenwood Village
Quantitative Methods for Anti-glaucoma Drug Concentration-Response Relationships in the Human Eye: Single Bimatoprost Slow-Release System for Six-month Glaucoma Therapy

Zonta Club of Boulder County

Amelia Earhart Award

Stella Laird 8th grade
$100, certificate
Southern Hills Middle School Boulder
Using Computer Vision Techniques to Count Jelly Beans

Scholarships

Adams State University

Adams State University Porter Scholarships

Zoe Wallerstedt 12th grade
ASU Porter Scholarships valued at $5,000
Miami-Yoder School Rush
Cartoon Classics for Stress Reduction

Camille Rawinski 11th grade
ASU Porter Scholarships valued at $5,000
Monte Vista High School Monte Vista
Analyzing the Effects of Spruce Beetles on Aquatic Ecosystems through Macroinvertebrate and Water Quality Sampling in Conejos County, Colorado

Chinmay Jayanty 11th grade
ASU Porter Scholarships valued at $5,000
Sargent High School Monte Vista
Synthesizing Renewable Energy from Water Using Sunlight

Morgan Holien 11th grade
ASU Porter Scholarships valued at $5,000
Monarch High School Louisville
An Intuitive Approach to the Perimeter of an Ellipse

Ria Jansun 12th grade
ASU Porter Scholarships valued at $5,000
Peak to Peak Charter School Lafayette
Designing an Internal Whippletree Mechanism in a Prosthetic Hand

Colorado School of Mines

Colorado School of Mines CSEF Scholarships

Stephen Chen 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Fairview High School Boulder
Illuminating the Folding Dynamics of Bacteriorhodopsin: A Model Membrane Protein

Connor Sehnert 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Mancos High School Mancos
Replicating Conditions of Asteroidal Water to Understand How It Affects Water Quality

Chinmay Jayanty 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Sargent High School Monte Vista
Synthesizing Renewable Energy from Water Using Sunlight

Nikhila Narayana 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Rock Canyon High School Highlands Ranch
Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

Sean Brooks 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Pine Creek High School Colorado Springs
Separating Microplastics from Beach Sand Using a Fluidized Air Bed

Morgan Holien 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Monarch High School Louisville
An Intuitive Approach to the Perimeter of an Ellipse

Julia Warnock 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Poudre Global Academy Fort Collins
Experimenting with the Radiative Cooling Effect to Generate Electricity from the Night Sky

Abbas Shaikh 11th grade
$1,000 Mines scholarship, renewable for up to 3 additional years for use towards an undergraduate degree at CSM
Cherry Creek High School Greenwood Village
A Deep Learning Framework for Automated Brain Tumor Segmentation and Survival Prediction Using Multimodal MRI Scans

SSP

American Psychological Association

Outstanding Achievement in Psychological Sciences Award

Aysia Mathews 7th grade
certificate
Mancos Middle School Mancos
Teen Mental Health

Fatima Duran 11th grade
certificate
Yuma High School Yuma
Binaural Beats and Their Influence on Task Productivity

Association for Women Geoscientists

Outstanding Achievement in Geosciences Award

Berkley Ulibarri 6th grade
certificate
St. John the Evangelist Catholic School Loveland
Earth's Layers Under Pressure

Shae Withington 12th grade
certificate
Genoa-Hugo School Hugo
Ocean Acidification

Broadcom

Broadcom MASTERS Nomination

Dorothy Berger 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Webber Middle School Fort Collins
Pet Stress Management with Music

Mahi Mehta & Shriya Sriram 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Challenge School Denver
Testing the Effect of Age and Gender on Body Image Perception

Chloe Sebek 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Sacred Heart of Jesus Catholic School Boulder
The Effect of Essential Oil on Ascorbic Acid Decay in Citrus Juice

Ronan Curnyn 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Vail Mountain School Vail
How the Size of Earthquakes Affects the Size of Tsunamis

Shrey Rohilla 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
The Classical Academy Colorado Springs
Battle of the Blades

Rohan Mysore 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Flagstaff Charter Academy Longmont
Structural Safety Monitor

Naomi Kruse 7th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Schullandheim Home School Colorado Springs
Knock Out! Bacterial Microflora as a Defense Against Tobacco Mosaic Virus in Phaseolus

Stella Laird 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Southern Hills Middle School Boulder
Using Computer Vision Techniques to Count Jelly Beans

Julian Kramer 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Good Shepherd Catholic School Denver
Don't UV Burning Me: A Comparative Study of Synthetic Versus Mineral Sunscreens

Armaan Gill 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Lamar Middle School Lamar
Transformations of E. coli with Plasmid DNA, Calcium Chloride, Ampicillin, and Arabinose Sugar

Lily Sobers 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Bear Creek Elementary School Monument
The Science of Spin: Mass and Inertia

Kelly Yang 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Summit Middle Charter School Boulder
ABA-lanced Response: The Effect of External Abscisic Acid on Plant Stress Conditions

Luci Bruchez 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
West Grand Middle School Kremmling
What Color Is Most Appealing to Horses?

Nora May 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
St. Columba Catholic School Durango
Collective and Swarm Intelligence: Are Many People Really Smarter Than a Few?

Tenzing Matt 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
St. Columba Catholic School Durango
Preventing Rust

Berkley Ulibarri 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
St. John the Evangelist Catholic School Loveland
Earth's Layers Under Pressure

Peyton Rhodes 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Firestone Charter Academy Firestone
What's on Your Roof?

Stefan Zehnacker 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Good Shepherd Catholic School Denver
Watch It Wash!

Alexander Zhang 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Summit Middle Charter School Boulder
Carbon Capture: Refining the Process

Tianyi Evans Gu 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Summit Middle Charter School Boulder
Using Natural Language Processing to Analyze and Improve Communication Skills

Mila Vigil 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Challenge School Denver
Brain Waves and Parkinson's Disease: An Early Detection?

Chloe Lubbers 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Alta Vista Charter School Lamar
Bad Breath Bacteria

Ayush Vispute 6th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Mountain Ridge Middle School Colorado Springs
Stretch It!

Kanshita Dam 8th grade
nomination to enter the 2021 Broadcom MASTERS competition for middle school students
Challenge School Denver
How Do Vibrations from Sound Waves Affect Plant Growth?

Lemelson Foundation
The Lemelson Early Inventor Prize

Jai'Lee Keever-Espinoza 7th grade
$100 (response required from winner to process payment), certificate
Pueblo Charter School for the Arts & Sciences Pueblo
Recycle Capsule

Mu Alpha Theta
Outstanding Achievement in Mathematics

Roshan Klein-Seetharaman & Jacob Ellis 12th grade
certificate
Golden High School Golden
Evolution of Multi-Step Traits in Different Social Structures

Morgan Holien 11th grade
certificate
Monarch High School Louisville
An Intuitive Approach to the Perimeter of an Ellipse

NASA
NASA Earth System Science Award

Ronan Curnyn 8th grade
certificate
Vail Mountain School Vail
How the Size of Earthquakes Affects the Size of Tsunamis

Maddie Fox, Annalie Haralson & Lauren Egaas 12th grade
certificate
Monarch High School Louisville
Hidden Signals in Paleoclimate Records: Investigating the Importance of the Sun for Earth's Climate

National Oceanic and Atmospheric Administration
Taking the Pulse of the Planet Award

Chloe Pennington 7th grade
certificate
Friends Middle School Boulder
Would You Drink That?! The Relationship Between the Type of Batch Test and the Amount of PFAS Parts Per Trillion

Maya Hunter 12th grade
certificate
Cherry Creek High School Greenwood Village
COVID-19 Shutdowns and Air Quality: A Demographic Analysis

Ricoh USA
Ricoh Sustainability Development Award

Kabir Srivastava 7th grade
certificate
Challenge School Denver
No More Royal Oil

Amrita Saini 9th grade
certificate
Peak to Peak Charter School Lafayette
Analyzing the Most Effective Cotton Species for More Sustainable Absorbent Products and Textiles

United States Agency for International Development
USAID Science Champion Award

Lakshmi Thanikasalam 6th grade
certificate
Flagstaff Charter Academy Longmont
Single and Multi-Layer Water Filtering Apparatus with Commonly Available Materials

Alden Kruse 12th grade
certificate
Schullandheim Home School Colorado Springs
Something in the Water: Creating an Origami Microfluidic Device for Developing Communities

United States Metric Association
Outstanding Achievement in the Use of the International System Award

Lily Sobers 6th grade
certificate
Bear Creek Elementary School Monument
The Science of Spin: Mass and Inertia

Arjun Batra 12th grade
certificate
Cherry Creek High School Greenwood Village
Implementation of a Copper Catalyst for Methane Hydrate Formation

Yale Science & Engineering Association

Outstanding Achievement in Science & Engineering Award

Emily Zhang 11th grade
certificate, medallion (response required from winner to process)
Cherry Creek High School Greenwood Village
Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures

Teacher

Colorado Science & Engineering Fair

Doug Steward Memorial Teaching Award

Katharine Ellis
certificate, $75
Monarch High School Louisville

Emmylou Harmon
certificate, $75
West Grand High School Kremmling

Tami Kruse
certificate, $75
Schullandheim Home School Colorado Springs

Kevin Nugent
certificate, $75
Friends School Boulder

John Wiley
certificate, $75
Challenge School Denver

Lockheed Martin

CSEF Teacher of the Year Award

Emmylou Harmon
$3,000 grant, certificate, plaque
West Grand High School Kremmling

Appendix 2

2020/2021 Expense Report

Category Descriptions	Budget	Actual	Difference
INCOME			
Sponsorships	$52,450.00	$37,010.20	($15,439.80)
Contributions	$7,350.00	$5,790.62	($1,559.38)
General Income			
Interest	$100.00	$9.85	($40.15)
Matching Gifts	$250.00	$1,594.71	$1,344.71
Sales	$1,000.00	$760.00	($240.00)
Scholarships/Special Awards	$8,000.00	$17,525.00	$9,525.00
TOTAL General Income	$9,300.00	$19,889.56	$10,589.56
Grants	$0.00	$25,000.00	$25,000.00
In-Kind	$1,500.00	$2,515.72	$1,015.72
Registrations	$15,640.00	$11,580.00	($4,060.00)
TOTAL INCOME	**$86,240.00**	**$101,786.10**	**$15,546.10**
EXPENSES			
Awards			
Grand Awards	$11,325.00	$11,325.00	$0.00
CSEF Special Awards	$1,100.00	$700.00	$400.00
Other Special Awards	$8,000.00	$16,375.00	($8,375.00)
Non-Cash Awards	$1,450.00	$1,604.62	($154.62)
TOTAL Awards	$21,875.00	$30,004.62	($8,129.62)
Board Expenses			
Communications	$825.00	$932.65	($107.62)
Meetings	$0.00	$186.26	($186.26)
Operations	$10,835.00	$10,639.37	$195.63
TOTAL Board Expenses	$11,660.00	$11,758.28	($98.28)
ISEF			
Affiliation	$725.00	$725.00	$0.00
Travel	$525.00	$361.00	$164.00
TOTAL ISEF	$1,259.00	$1086.00	$164.00
Outreach	$27,040.00	$16,200.00	$20,840.00
CSEF Expenses			
Adult Sponsors	$0.00	$0.00	$0.00
Advisory Council	$0.00	$0.00	$0.00
Finalist Activities	$0.00	$1,815.61	($1,815.61)
Finalist Registration	$9,330.00	$5,627.24	$3,702.76
Fund Raising	$1,000.00	$760.09	$239.91
Judging	$1,370.00	$607.56	$762.44
Personnel	$12,000.00	$12,000.00	$0.00
Publications	$0.00	$0.00	$0.00
Regional Fair Directors	$0.00	$0.00	$0.00
Scientific Review Committee	$0.00	$0.00	$0.00
Supplies	$500.00	$250.00	$250.00
Volunteers	$0.00	$0.00	$0.00
TOTAL CSEF Expenses	$24,200.00	$21,060.50	$3,139.50
TOTAL EXPENSES	**$86,025.00**	**$80,109.40**	**$5,915.60**
OVERALL TOTAL	**$215.00**	**$21,676,70**	**$21,461.70**