



Colorado State Science Fair, Inc.

2018 ANNUAL REPORT

The highly successful Colorado Science and Engineering Fair was enabled once again by the infrastructure, coordination, and management resources provided by the College of Natural Sciences Education & Outreach Center (EOC) of Colorado State University. The EOC 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 EOC for making both talented people and logistics available to the Colorado Science and Engineering Fair.

The Board of Directors
Colorado State Science Fair, Inc.

August 31, 2018
Colorado State Science Fair, Inc.
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Courtney Butler, (970) 491-7716

2018 ANNUAL REPORT

The Colorado State Science Fair, Inc. was established in 1977 as a private, non-profit organization to run the Colorado Science and 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. More than five thousand students participate in science fair programs state-wide. 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. Tours of university and local corporate research facilities provide opportunities for students and their families to see research in action. Additionally, 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 and Engineering Fair.

In addition to getting the opportunity to interact with working scientists, 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. Recognition for outstanding research in each of these categories as well as an award for technical writing are presented each year at the CSEF Awards Ceremony. The top five Senior Division projects are awarded trips to compete at the Intel International Science and Engineering Fair (Intel ISEF) each year.



From 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.

2018 COLORADO SCIENCE AND ENGINEERING FAIR

The sixty-third Colorado Science and Engineering Fair was held at the Lory Student Center of the Colorado State University campus in Fort Collins from Thursday, April 5, 2018 to Saturday, April 7, 2018.

This year, CSEF winners were chosen from among 326 projects represented by 374 finalists from 129 schools and 13 regions. More than 200 professional scientists, engineers and mathematicians interviewed the students and evaluated their projects before selecting the Grand Award winners. In addition, over 75 businesses, professional societies, government agencies and individuals provided more than 250 of their own representatives to judge exhibits based on their own criteria. They judged the student finalists and conferred Special Awards which represented an aspect of the bestowing organization. These included college scholarships, offers of summer employment, field trips, cash, savings bonds, and scientific equipment. Over 1,000 people attended the Awards Ceremony this year.

The 2018 Colorado Science and Engineering Fair had 26 sponsors. Sponsors included 5 Diamond Sponsors (providing over \$10,000), 1 Platinum Sponsor (providing between \$5,000 - \$9,999), 2 Gold Sponsors (providing between \$2,500 - \$4,999), 7 Silver Sponsors (providing between \$1,000 - \$2,499), 1 Bronze Sponsors (providing between \$750 - \$999) and 10 Copper Sponsors (providing between \$500 - \$749). In addition, there were 41 Contributors (less than \$500 each).

Scholarships from several Colorado universities were also presented. Adams State University awarded seven conditional scholarships valued at \$5,000. Colorado State University awarded thirteen \$1,000 renewable tuition scholarships to each of the 1st place senior division category winners who were eligible. Colorado State University-Pueblo awarded one \$1,000 renewable tuition

scholarship. The Colorado School of Mines awarded eight \$1,000 renewable tuition scholarships. And the CSEF awarded a \$2,000 scholarship to a 12th grader in the name of Ryan Patterson (Intel ISEF top winner in 2001) for use at the college or university of their choice.

This year, the CSEF was honored to have Dr. Janet McAllister from the Center for Disease Control as the guest speaker. Dr. McAllister spoke on what a mosquito control response looked like in Miami, Florida during a Zika virus outbreak and how knowledge from different scientific disciplines helped in making decisions.



(See Appendix 1 – 2018 CSEF Schedule)

2018 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. Also, all statistics include both Junior and Senior Divisions together.)

Percentage of Projects

Male – 43%

Female – 57%

Percentage of Awards

Male – 44%

Female – 56%

Percentage of Projects by Category

Animal Sciences

Male – 19%

Female – 81%

Behavioral & Social Sciences

Male – 19%

Female – 81%

Chemistry & Biochemistry

Male – 42%

Female – 58%

Earth & Space Sciences

Male – 22%

Female – 78%

Energy

Male – 87%

Female – 13%

Engineering

Male – 70%

Female – 30%

Environmental Sciences

Male – 46%

Female – 54%

Mathematics & Computer Sciences

Male – 95%

Female – 5%

Medicine & Health

Male – 21%

Female – 79%

Microbiology & Molecular Biology

Male – 29%

Female – 71%

Physics

Male – 56%

Female – 44%

Plant Sciences

Male – 43%

Female – 57%

Percentage of Awards by Category

Animal Sciences

Male – 23%

Female – 77%

Behavioral & Social Sciences

Male – 16%

Female – 84%

Chemistry & Biochemistry

Male – 35%

Female – 65%

Earth & Space Sciences

Male – 22%

Female – 78%

Energy

Male – 73%

Female – 27%

Engineering

Male – 68%

Female – 32%

Environmental Sciences

Male – 32%

Female – 68%

Mathematics & Computer Sciences

Male – 94%

Female – 6%

Medicine & Health

Male – 32%

Female – 68%

Microbiology & Molecular Biology

Male – 36%

Female – 64%

Physics

Male – 50%

Female – 50%

Plant Sciences

Male – 26%

Female – 74%

2018 CSEF ETHNICITY RATIOS

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

Percentage of Projects

Caucasian – 59%
Hispanic – 10%
Asian – 9%
African American – 1%
Native American – 1%
Other/Unknown – 20%

Percentage of Awards

Caucasian – 59%
Hispanic – 10%
Asian – 10%
African American – 1%
Native American – 1%
Other/Unknown – 19%

2018 CSEF GRADE LEVEL RATIOS

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

Percentage of Students

Junior Division – 58%
6th grade – 10%
7th grade – 20%
8th grade – 28%
Senior Division – 42%
9th grade – 10%
10th grade – 10%
11th grade – 11%
12th grade – 11%

Percentage of Projects

Junior Division – 61%
6th grade – 9%
7th grade – 22%
8th grade – 30%
Senior Division – 39%
9th grade – 10%
10th grade – 10%
11th grade – 11%
12th grade – 8%

Percentage of Grand Awards per Division

Junior Division – 58%
6th grade – 7/83 awards – 8%
7th grade – 28/83 awards – 34%
8th grade – 48/83 awards – 58%
Senior Division – 42%
9th grade – 8/67 awards – 12%
10th grade – 19/67 awards – 29%
11th grade – 23/67 awards – 34%
12th grade – 17/67 awards – 25%

Percentage of Students Winning Grand Awards

Junior Division – 61%
6th grade – 8/36 students – 22%
7th grade – 28/77 students – 36%
8th grade – 51/105 students – 48%
Senior Division – 39%
9th grade – 9/35 students – 26%
10th grade – 21/36 students – 58%
11th grade – 24/43 students – 56%
12th grade – 23/42 students – 55%

Percentage of Special Awards per Division

Junior Division – 51%
6th grade – 17/297 awards – 6%
7th grade – 50/297 awards – 17%
8th grade – 84/297 awards – 28%
Senior Division – 49%
9th grade – 15/297 awards – 5%
10th grade – 37/297 awards – 12%
11th grade – 60/297 awards – 20%
12th grade – 34/297 awards – 12%

Percentage of Students Winning Special Awards

Junior Division – 51%
6th grade – 14/36 students – 39%
7th grade – 26/77 students – 34%
8th grade – 46/105 students – 44%
Senior Division – 49%
9th grade – 8/35 students – 23%
10th grade – 21/36 students – 58%
11th grade – 27/43 students – 63%
12th grade – 18/42 students – 43%

2018 COLORADO SCIENCE AND ENGINEERING FAIR AWARDS

The top five Senior Division project exhibitors won a trip to compete in the Intel International Science and Engineering Fair held in Pittsburg, PA May 13 - 18, 2018. First place went to **Isaac Jordan**, Southwest Colorado eSchool, grade 12, for the project *Applications of Graphene Nano Flake Composites*. Second place went to **Edwin Bodoni**, Cherry Creek High School, grade 11, for the project *A Novel Diagnostic Approach*. Third place went to **Anand Chundi**, SkyView Academy, grade 10, for the project *Identifying Downstream Targets of HCFI: A Gene Linked to Severe Neurological Disease*. Fourth place went to **Alyssa Rawinski**, Monte Vista High School, grade 11, for the project *Mealworms . . . A Potential Solution to the Global Plastic Problem*. Fifth place went to **Casey Shaw**, Liberty School, grade 12, for the project *An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Stephanie Zhang**, from Fairview High School, grade 12, for the project *Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger*.

The winner of the Elemer Bernath Technical Writing Award was **Matthew Anderson** from Challenge School, grade 8, for the project *Redesigning Ventilation to Minimize Airborne Pathogen Transmission in Multiple- Bed Hospital Wards*

The winner of the Senior Division Student Choice Award was **Stephanie Zhang** from Fairview High School, grade 12, for the project *Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger*. The Junior Division Student Choice winner was **Kelly Clingan** from Walt Clark Middle School, grade 8, for the project *Can We Prevent Concussion in Sports and Chronic Traumatic Encephalopathy in Later Life?*

The winner of the Poster Art Contest was **Angel Castillo**, from West Grand High School.

The winners of the Pioneers of Science Awards were **Chance Hill**, Walt Clark Middle School, grade 7, for the project *Combating Pick Pockets of the Future*; **Caleb Siegling**, Fort Morgan Middle School, grade 7, for the project *Antibubbles and Surface Tension*; **Joshua Vu**, The Classical Academy, grade 7, for the project *Maximizing Efficiency When Generating Clean Energy*; **Serenity Foutz**, Bayfield Middle School, grade 7, for the project *Plants vs. Water: A Battle of Soil Erosion*; **Georgia Hartley**, Challenge School, grade 8, for the project *Mind the Gape: The Effect of Tension on the Gaping of Sutures*; **Amber Gilmore**, Lamar High School, grade 8, for the project *Purifying the Arkansas*; **Barrett Aronson**, St. Columbia Catholic School, grade 6, for the project *What Is Wrong with My WiFi Signal??*; **Braden Wedel**, Stratton Schools, grade 8, for the project *The Effect of Sand/Gravel Ratio on the Strength of Concrete*; **Madison Tajchman**, Imagine Charter School, grade 8, for the project *Water U Drinkin'?!*; **Lucian Grinnan**, Sacred Heart Academy, grade 8, for the project *Best Thing Since Sliced Bread!*; **Victoria Arellano**, Heaton Middle School, grade 6, for the project *It's Lit*; **Grace Farrell**, Good Shepard Catholic School, grade 6, for the project *Bare Your Teeth!*; **Josie Gundrey**, St. Columba Catholic School, grade 8, for the project *Back Up Dude*; **Cash Walker**, Orchard Mesa Middle School, grade 7, for the project *Suffocating Shrimp?*

2018 COLORADO SCIENCE AND ENGINEERING FAIR

SCHOLARSHIP AWARDS

ADAMS STATE UNIVERSITY

Katelynn Salmon, Palmer Ridge High School, grade 11, for the project *Synthesis of Acetylene- Perfluorinatedpyridine Monomer and Click- Mediated Polymerization*

Adrienne Jones, Trinidad High School, grade 12, for the project *Varies Crystals Responding to Environmental Audio Variables*

Adam Vasquez, Eagle Valley High School, grade 11, for the project *Dye Sensitized Solar Cell*

Amber Michel, Monte Vista High School, grade 11, for the project *The Alamosa River Watershed: A Proving Ground for Natural Selection*

Tyson Lichty, Liberty School, grade 11, for the project, *To Add or Not to Add: Possible Relations Between Nitrogen Fixing Bacteria and Nitrogen Fertilizer*

Stephen McDonald, Central High School, grade 11, for the project *Does Sample Size Affect Studies Done on Populations with Various Communities of Different Sizes?*

Kit Bellefeuille, Limon School, grade 11, for the project *Effectiveness of Cereal Rye as a Cover Crop to Alfalfa*

COLORADO SCHOOL OF MINES

Katelynn Salmon, Palmer Ridge High School, grade 11, for the project *Synthesis of Acetylene- Perfluorinatedpyridine Monomer and Click- Mediated Polymerization*

MaryAnn Ho, Fairview High School, grade 11, for the project *The Evaluation of the Re-suspension of Cyanobacterial Toxins into the Water Column in Eight Lakes*

Sohpia Markuson DiPrince, Central High School, grade 11, for the project *Anaerobic Digestion of Food Waste Part 3: Comparing Different Conductors in the Production of Food Waste Generated Electricity*

Jenna Salvat, Coronado High School, grade 11, for the project *Synthesis and Characterization of a NiO-ZnO Semiconductor Junction for an Electromechanical Effect*

Amber Michel, Monte Vista High School, grade 11, for the project *The Alamosa River Watershed: A Proving Ground for Natural Selection*

Elia Gorokhovskiy, Fairview High School, grade 11, for the project *Assimilating Time-Uncertain Measurements in Ensemble Kalman Filtering*

Edwin Bodoni, Cherry Creek High School, grade 11, for the project *Bruxism: A Novel Diagnostic Approach*

Jasmine DeMeyer, Greeley West High School, grade 11, for the project *Totally Tubular: Calculating the End Correction to Find the Wavelength of a Wave in an Open Tube*

COLORADO STATE UNIVERSITY

Aylin Kahraman, Cherry Creek High School, grade 10, for the project *The Impact of Education on Student Athletes Regarding Concussions*

Stephanie Zhang, Fairview High School, grade 12, for the project *Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger*

Casey Shaw, Liberty School, grade 12, for the project *An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities*

Kevin Yang, Fairview High School, grade 10, for the project *Design of a Novel Energy-Saving Radiative Cooling Bilayer Paint for PSace Cooling*

Isaac Jordan, Southwest Colorado eSchool, grade 12, for the project *A Novel Approach for Sensing Seismic Radiative Cooling Bilayer Paint for Space Cooling*

Delaney Yehle, Dana Coe, & Loren Rylander, Rock Canyon High School, grade 11,12,11, for the project *Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts*

Austen Mazenko, Cherry Creek High School, grade 10, for the project *Characterization of Certain Non- Homogenous Meta- Fibonacci Sequences*

Edwin Bodoni, Cherry Creek High School, grade 11, for the project *Bruxism: A Novel Diagnostic Approach*

Anand Chundi, SkyView Academy, grade 10, for the project *Identifying Downstream Target of HCFC1: A Gene Linked to Severe Neurological Disease*

Kyra Slovacek, Monarch High School, grade 12, for the project *Diurnal Variation and Duration of Meteors Usable for Radio Communications*

Vanessa Haggans, Fairview High School, grade 11, for the project *The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra*

COLORADO STATE UNIVERSITY - PUEBLO

Isaac Jordan, Southwest Colorado eSchool, grade 12, for the project *A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites*

RYAN PATTERSON SCHOLARSHIP

The Ryan Patterson Scholarship is named in honor of the Intel ISEF top winner of 2001. This year's winner was **Kyra Slovacek**, Monarch High School, grade 12, for the project *Diurnal Variation and Duration of Meteors Usable for Radio Communications*.

(See Appendix 2 – CSEF Press Release)



2018 INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR

The Intel International Science and Engineering Fair, the world's largest pre-college science fair, brings together more than 1,800 of the most curious and capable young science pioneers from about 75 countries to share ideas, showcase cutting-edge science and compete for over \$3 million in awards and scholarships. The Intel ISEF is the world's only international science fair representing all sciences for students in grades 9 through 12. The Intel ISEF has been coordinated for over 60 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 68th Intel ISEF held in Los Angeles, CA May 13 – 18, 2018.

GRAND AWARDS

Edwin Bodoni from Denver, CO won \$5,000 (Top of Category) and \$3,000 (1st Place) in Translation Medical Sciences category.

Krithik Ramesh from Denver, CO won \$3,000 (1st Place) in Engineering Mechanics category.

Alyssa Keirn from Fort Collins, CO won \$1,500 (2nd Place) in Biomedical Engineering category.

Peyton Leyendecker from Highlands Ranch, CO won \$1,500 (2nd Place) in Microbiology category.

Evelyn Bodoni & Nicole Hankovszky from Denver, CO won \$500 (4th Place) in the Bio-medical & Health Sciences category.

Kathryn Kummel & Michelle Kummel from Colorado Springs, CO won \$500 (4th Place) in Environmental Sciences category.

SPECIAL AND GOVERNMENT AWARDS

Kathryn Kummel & Michelle Kummel from Colorado Springs, CO won \$1,000 (2nd Place) from the American Geosciences Institute.

Jenna Salvat from Colorado Springs, CO received an Honorable Mention the American Chemical Society.



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 Intel International Science and Engineering Fair (Intel 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 Intel 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/Senior Vice President
College of Natural Sciences
CNS Education & Outreach Center

Intel Foundation

Verizon Foundation

PLATINUM SPONSORS

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

Lockheed Martin

US Department of Commerce/NOAA

GOLD SPONSORS

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

Colorado Dental Association

Society of Petroleum Engineers,
Denver Section

SILVER SPONSORS

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

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Colorado Medical Society
Education Foundation

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National Renewable Energy Laboratory

Seagate Technology

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(Providing \$750 - \$999 in support of CSEF)

Dr. Larry & Carol Sveum

COPPER SPONSORS

(Providing \$500 - \$749 in support of CSEF)

Mike Bemski

Colorado Association of Science Teachers

Colorado BioScience Institute

Colorado Engineering Council

Colorado Rural Electric Association

Galvanic Engineering

Optimal Schedule

San Luis Valley Regional Science Fair, Inc.

Vaughan Web Works

COMPANY CONTRIBUTORS

(Providing up to \$500 in support of CSEF)

Hahn Water Resources

Kaiser Permanente

Kristi Mountain Sports

Langmack Medical Communications

Pro-Sports

Sundyne Corporation

Walsh Haunted House

INDIVIDUAL CONTRIBUTORS

(Providing up to \$500 in support of CSEF)

Maya Acharya
Ed & Lucy Adams
Tamra Banks
Sam & Eileen Bartlett
Norse Bear
Alfred Bedard, Jr
Lindsey Bethel
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Joanne & Patrick San Nicolas
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The RedLion York

DOOR PRIZE CONTRIBUTORS

Colorado Geological Survey
Colorado State University Bookstore
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Durango/Silverton Narrow Gauge Railroad
Intermountain Natural History Association
Pueblo Zoo
Rio Grande Scenic Railroad
Texas Instruments
UCAR Center for Science Education
US Department of Commerce/NOAA
Wings Over the Rockies

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

(See Appendix 3 – 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. Dolly Morrow

Vice President- Mrs. Lucy Adams

Treasurer- Mr. Dan Kowal

Secretary- Mr. Ed Scholz

Past President- Mr. Brian Scriber

Executive Director- Ms. Courtney Butler

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*Galvanic Engineering
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Katlin Hornig*

*IEEE, Denver Section
Jackie Adams
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National Renewable Energy Laboratory

*Linda Lung
Santosh Veda*

Optimal Schedule

*Brian Scriber
Kerry Scriber*

San Luis Valley Regional Sciences Fair

*Dr. David Holm
Jody Oaks*

Dr. Larry & Carol Sveum

*Dr. Larry Sveum
Lucy Adams*

US Department of Commerce/NOAA

*Dr. Russell Chadwick
Dan Kowal*

Vaughan Web Works

*Nancy Vaughan
Peter Teasdale*

Associate/Alternative Members

Elemer Bernath - Historian

Dr. Alfred Bedard- NOAA

Doug Everett - SRC Chair

Judy Prester - Dr. Larry Sveum

Susan Storm – SLV Regional Science Fair

REGIONAL FAIR DIRECTORS

Arkansas Valley Regional Science Fair
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Boulder Valley Regional Science Fair
Marlys Lietz & Sennen Knauer

Denver Metro Regional Science Fair
Jennifer Hellier

East Central Regional Science Fair
William Mallory & Marguerite Yowell

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
Valerie Reifschneider

Southern Colorado Regional Science Fair
Morganlee Kempf & Lori Leyh

Western Regional Science Fair
Kevin Hoskin

MEMBERS AT LARGE

Loree Harvey	Steve Hiebert
Steve Iona	Ron Kollars
Kim Melville-Smith	Clark Mikkelsen
Candus Muir	Kristen Rasmussen
Daniel Sandmeier	Rod Simpson
Jim Sites	Laura Ussery
Tracy Webb	

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

63rd Annual Colorado Science & Engineering Fair
Thursday, April 5, 2018

Finalist Schedule

8:30 – 11:30 a.m.	SRC Interviews – <i>Interviews must be done BEFORE a project may be set up.</i>	Room 308/310
9:00 – 11:00 a.m.	Junior and Senior Division Finalist Check-In	3 rd Floor Foyer

Finalists MUST stay with their exhibit until Display & Safety Inspection has been done and an Official Photo has been taken. Finalists must be out of the exhibit areas by 11:30 a.m.

9:00 – 11:00 a.m.	Tour Ticket Pick-Up & Sales	Room 322
1:30 – 5:00 p.m.	Judging – <i>Students must be at their exhibits for interviews.</i>	Grand Ballroom

Adult Schedule

2:00 – 2:30 p.m.	CSEF Scientific Review Committee Debrief & Discussion	Room 312
2:30 – 4:30 p.m.	Professional Development for Teachers	Room 312

Judging Schedule

9:15 – 9:45 a.m.	Grand Awards Judge Captains' Briefing	LSC Theater
10:00 – 11:00 a.m.	Grand Awards Judges' Briefing	LSC Theater
11:15 a.m. – 12:00 noon	Grand Awards Judges' Luncheon	LSC Theater Lobby
12:15 p.m. – 12:30 p.m.	Special Awards Judges' Briefing	North Ballroom
12:00 noon – 5:00 p.m.	Judging	Grand Ballroom
11:30 – 12:30 p.m.	Grand Award Judges <u>only</u> may enter the exhibit area. <u>Judges only</u> in the exhibit area.	
12:30 – 1:30 p.m.	Special Award Judges may enter the exhibit area. <u>Judges only</u> in the exhibit area.	
1:30 – 5:00 p.m.	Students will be at their exhibits for interviews.	
5:30 p.m.	Exhibit area is locked. Final judging continues. <i>Only Judging Captains and SRC Members are permitted in the exhibit area at this time.</i>	

Friday, April 6, 2018

10:30 a.m. – 5:00 p.m.	CSEF Finalist Exhibits Open to the Public and the Media	Grand Ballroom
9:00 – 10:00 a.m.	Guest Speaker – Dr. Janet McAllister, Center for Disease Control	LSC Theater
11:00 a.m. – 3:00 p.m.	Tours – <i>Registration is required.</i>	
2:00 p.m.	Finalist Ballots for Student Choice and Poster Contest are due.	Registration Booth
6:00 p.m.	CSEF Awards Ceremony	Timberline Church

Saturday, April 7, 2018

9:00 – 11:00 a.m.	CSEF Finalist Exhibits Open to the Public and the Media <i>Finalists MUST be at their projects for interaction with the public.</i>	Grand Ballroom
9:00 – 11:00 a.m.	Advisory Council & Regional Fair Directors Meeting – <i>open to all</i>	Room 322
11:00 a.m. – 12:00 noon	Pizza Party - <i>Finalists, adult sponsors, & family members are invited.</i> <i>Finalists must be present to win door prizes!</i>	Grand Ballroom
11:00 a.m. – 1:00 p.m.	Exhibit Dismantling - <i>Everything must be removed by 1:00 p.m.</i>	Grand Ballroom
12:00 – 2:00 p.m.	Board of Directors Meeting – <i>open to all</i>	Room 322

2018 Colorado Science and Engineering Fair Grand Awards Press Release

Junior Division Best CSEF Project

First Place

Gitanjali Rao 7th grade
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors
 STEM School Highlands Ranch Highlands Ranch

Second Place

Chloe Haerr 8th grade
Stress Test
 The Classical Academy Colorado Springs

Third Place

Julia Warnock 8th grade
Structural Geology of the Fountain Formation in Lory State Park
 Poudre Global Academy Fort Collins

Senior Division Best CSEF Project

First Place

Isaac Jordan 12th grade
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites
 Southwest Colorado eSchool Durango

Second Place

Edwin Bodoni 11th grade
Bruxism: A Novel Diagnostic Approach
 Cherry Creek High School Greenwood Village

Third Place

Anand Chundi 10th grade
Identifying Downstream Targets of HCFC1: A Gene Linked to Severe Neurological Disease
 SkyView Academy Highlands Ranch

Fourth Place

Alyssa Rawinski 11th grade
Mealworms . . . A Potential Solution to the Global Plastic Problem
 Monte Vista High School Monte Vista

Fifth Place

Casey Shaw 12th grade
An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities
 Liberty School Joes

Junior Division Animal Sciences

First Place

Natalie Aerni 7th grade
The Uses of Darkling Mealworms in Plastic Degradation
 Frontier Academy Secondary School Greeley

Second Place

Camille Rawinski 8th grade
I'm Sensing Bias: Does Poor Conformation in Quarter Horses Affect Certain Senses?
 Monte Vista Middle School Monte Vista

Third Place

Madison Cabot 8th grade
Beyond the Boots
 Imagine Charter School Firestone

Fourth Place

Lilly Figueroa 7th grade
He? She? Is It a Matter of Degree?
 Mancos Middle School Mancos

Honorable Mention

Marley Eisman 8th grade
Put One Paw in Front of the Other
 Coal Creek Canyon K-8 School Golden

Honorable Mention

Cash Walker 7th grade
Suffocating Shrimps?
 Orchard Mesa Middle School Grand Junction

Senior Division Animal Sciences

First Place

Alyssa Rawinski 11th grade
Mealworms . . . A Potential Solution to the Global Plastic Problem
 Monte Vista High School Monte Vista

Second Place

Olivia Fross 11th grade
Analysis of Demographic Variation Reflected by Colony Size in Cliff Swallows
 Fairview High School Boulder

Third Place

Emma Perkins 11th grade
*Identifying Causes of Ectoparasite Presence on the American Pika (*Octotona princeps*)*
 Boulder High School Boulder

Fourth Place

Matthew Buckman & Dylan Drew 10th grade
*The Effects of Substrate Architecture on *L. vannamei**
 SkyView Academy Highlands Ranch

Honorable Mention

Kylie Kay Franklin 12th grade
Walk It Out
 Campo Schools Campo

Junior Division Behavioral & Social Sciences

First Place

Chloe Haerr 7th grade
Stress Test
 The Classical Academy Springfield

Second Place

Brakelle Westphal 7th grade
Cell Phones and Anxiety
 Springfield Jr/Sr High School Colorado Springs

Appendix 2

Third Place	
Kaleigh Schanker <i>Have You Been Persuaded?</i> Turner Middle School	8th grade Berthoud
Fourth Place	
Anna Dery <i>Middle School in Middle Age</i> Holy Family Catholic School	8th grade Grand Junction
Honorable Mention	
Elizabeth Koenck & Avaline Hwang <i>2 + 8 ≠ 10</i> Challenge School	8th grade Denver
Honorable Mention	
Lana Kitchen <i>How Does Social Media Affect the grades of Students?</i> Roncalli STEM Academy	8th grade Pueblo
Honorable Mention	
Marissa Martinez <i>Can I Go to the Bathroom?</i> Monte Vista Middle School	7th grade Monte Vista
Honorable Mention	
Kate Kaczmarek <i>The Effect of Classical Music Tempo on Competitive Run Times</i> The Classical Academy	8th grade Colorado Springs
Honorable Mention	
Negha Sethuramanalingman <i>How Do Others Expressing Emotions Affect How You Feel?</i> Challenge School	8th grade Denver

Senior Division Behavioral & Social Sciences

First Place	
Aylin Kahraman <i>The Impact of Education on Student Athletes Regarding Concussions</i> Cherry Creek High School	10th grade Greenwood Village
Second Place	
Theo Bayard de Volo Luke Barnocky <i>Examining Whether Agency and Anthropomorphism Interact in an Environmental Risk Setting</i> Monarch High School	12th grade 12th grade Louisville
Third Place	
Dylan Cantrell <i>The Role of Economic Variable in Election Outcomes: A Global Analysis</i> Nederland Middle/Senior High School	12th grade Nederland
Fourth Place	
Andres Villa <i>Virtual Illness: Can Virtual Reality Cause Motion Sickness?</i> Monte Vista High School	9th grade Monte Vista
Honorable Mention	
Iliana Castillo <i>Remember Me?</i> West Grand High School	9th grade Kremmling

Junior Division	Chemistry & Biochemistry
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First Place	
Gitanjali Rao <i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i> STEM School Highlands Ranch	7th grade Highlands Ranch
Second Place	
Ethan Wurman <i>Electrolysis of Salt Water Solutions</i> Summit Charter Middle School	8th grade Boulder
Third Place	
Radhika Gupta <i>Analyzing the Effectiveness of Various Whiteboard Cleaners</i> The Classical Academy	7th grade Colorado Springs
Fourth Place	
Levi Tichi <i>Fluorocarbon to Eco-Friendly</i> St. Columba Catholic School	8th grade Durango
Honorable Mention	
James Mars & Tyler Barnes <i>Let's Get Fired Up!</i> Ignacio Middle School	8th grade Ignacio
Honorable Mention	
Maddisun Ellithorpe & Josh Sawyer <i>Hemp . . . A Hot Topic</i> Sargent Jr/Sr High School	8th grade Monte Vista
Honorable Mention	
Hailey Green <i>The Effect of Salt on the Rate of Ice Melting</i> Stanley British Primary School	6th grade Denver

Senior Division Chemistry & Biochemistry

First Place	
Stephanie Zhang <i>Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger</i> Fairview High School	12th grade Boulder
Second Place	
Katelynn Salmon <i>Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click-Mediated Polymerization</i> Palmer Ridge High School	11th grade Monument
Third Place	
Max Warnock <i>UV-Vis Analysis of Silver Nanoparticles Released from Odor Control Clothing, Part II</i> Poudre Global Academy	10th grade Fort Collins
Fourth Place	
Jan Gradon <i>The Chemiluminescence of Bleaches Induced by Luminol: A Study of Glows Over Periods Time</i> Fairview High School	11th grade Boulder

Appendix 2

Honorable Mention

Rollin Leavitt 12th grade
Investigation of Transcription Factor Preferences of Bacterial Receptors
 Animas High School Durango

Junior Division Earth & Space Sciences

First Place

Julia Warnock 8th grade
Structural Geology of the Fountain Formation in Lory State Park
 Poudre Global Academy Fort Collins

Second Place

Ashlyn Rockey 8th grade
Flow or No: Will You Grow? Water Deficit of Quinoa
 Sargent Jr/Sr High School Monte Vista

Third Place

Haiyan Wang 8th grade
Plant Growth in Varied Soil Type and Air Pressure
 Summit Charter Middle School Boulder

Fourth Place

Serenity Foutz 7th grade
Plants vs. Water: A Battle of Soil Erosion
 Bayfield Middle School Bayfield

Senior Division Earth & Space Sciences

First Place

Casey Shaw 12th grade
An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities
 Liberty School Joes

Second Place

Sarah Tang 10th grade
Measuring Exoplanetary Radii Using Transit Photometry
 Fairview High School Boulder

Third Place

Kathryn Kummel 9th grade
 Michelle Kummel 12th grade
Using 3D Drone-based Digital Models to Investigate the Fluvial Geomorphology of an Eroding Arroyo
 Palmer High School Colorado Springs

Fourth Place

Natalie Keller & Melanie Gong 10th grade
The Reduction of Perchlorate in Mars Regolith Using Hydrogen Gas to Produce Chloride and Water
 Cherry Creek High School Greenwood Village

Junior Division Energy

First Place

Mohamed Ibrahim 8th grade
Influencing Electricity Output of MFCs Using Electron Acceptors
 Wiggins Middle/High School Wiggins

Second Place

Nikhila Narayana 8th grade
Let It Shine: Altering the Wavelength of Bioluminescent Light to Power a Photovoltaic Cell
 Rocky Heights Middle School Highlands Ranch

Third Place

Maxwell Benedict 6th grade
The Effect of Vane Pitch on Turbine Efficiency
 Grant Beacon Middle School Denver

Fourth Place

Jared Ingmire 7th grade
3D Solar
 Imagine Charter School Firestone

Honorable Mention

Joshua Vu 7th grade
Maximizing Efficiency When Generating Clean Energy
 The Classical Academy Colorado Springs

Honorable Mention

Liliana Petrecca 6th grade
Help for Hurricane Victims: Creating Fresh Water Using Solar Power
 Webber Middle School Fort Collins

Senior Division Energy

First Place

Kevin Yang 10th grade
Design of a Novel Energy-Saving Radiative Cooling Bilayer Paint for Space Cooling
 Fairview High School Boulder

Second Place

Sophia Markuson DiPrince 11th grade
Anaerobic Digestion of Food Waste Part 3: Comparing Different Conductors in the Production of Food Waste Generated Electricity
 Central High School Pueblo

Third Place

Rithwik Mylavaram 10th grade
Leveraging Satellite Imagery to Map Road Surface Conditions
 Fairview High School Boulder

Fourth Place

Mark Bloomfield 10th grade
Heating Up: Using Phase Change Materials as a Thermal Battery
 Coronado High School Colorado Springs

Junior Division Engineering

First Place

Dylan Sellers 8th grade
A Boat Built for Kicks: Using the Flutter Kick for Propulsion
 Walt Clark Middle School Loveland

Second Place

Neil Sury 7th grade
Enhancing Gecko Adhesive Technology Using Micro Filter Nano Moulding and Carbon Nano-tubes
 Challenge School Denver

Third Place

Tate Schrock 8th grade
Electronic Automated Product Dispensing
 Arickaree School Anton

Appendix 2

Fourth Place			
Nicholas Huber	8th grade		
<i>Stirling Engines: Harnessing and Utilizing Heat Energy</i>			
St. Columba Catholic School	Durango		
Honorable Mention			
Gregory Mackintosh	8th grade		
<i>BioLine: The Biodegradable Fishing Line</i>			
Good Shepherd Catholic School	Denver		
Honorable Mention			
Anna Sundheim	7th grade		
<i>Use It or Lose It: Using Human Waste in Adobe Construction</i>			
St. John the Evangelist Catholic School	Loveland		
Honorable Mention			
Gabriel Wu	8th grade		
<i>Magnificent Mounted Magnetic Bearings</i>			
The Classical Academy	Colorado Springs		
Honorable Mention			
Austin Cantor	7th grade		
<i>It's All in the Movement</i>			
The Classical Academy	Colorado Springs		
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Senior Division	Engineering		
First Place			
Isaac Jordan	12th grade		
<i>A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites</i>			
Southwest Colorado eSchool	Durango		
Second Place			
Krithik Ramesh	10th grade		
<i>Suppression of Aeroelastic Instabilities in HR Wing Structures Using Principal Component Analysis</i>			
Cherry Creek High School	Greenwood Village		
Third Place			
Alyssa Keirn	10th grade		
<i>Solar Powered Decontaminator Design and Testing</i>			
Rocky Mountain High School	Fort Collins		
Fourth Place			
Jenna Salvat	11th grade		
<i>Synthesis and Characterization of a NiO-ZnO Semiconductor Junction for an Electromechanical Effect</i>			
Coronado High School	Colorado Springs		
Honorable Mention			
Chase Cromwell	10th grade		
<i>Stampede Arm II</i>			
Lamar High School	Lamar		
Honorable Mention			
John Quinn	11th grade		
<i>Restoration of Manipulated Serial Numbers Using Electron Backscatter Diffraction</i>			
Fairview High School	Boulder		
Honorable Mention			
Marissa Jordan	9th grade		
<i>A Helping Hand: A Softer Side of Robots, Part II</i>			
Southwest Colorado eSchool	Durango		
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Honorable Mention			
Maximilian Shen	11th grade		
<i>Harvesting Water from Air with Solar Power for Underdeveloped Areas</i>			
Fairview High School	Boulder		
Honorable Mention			
Jayden Edson	11th grade		
Jonathan Belcher	11th grade		
James Rindt	12th grade		
<i>Underwater Invaders</i>			
West Grand High School	Kremmling		
Honorable Mention			
Will Brown	12th grade		
<i>Supporting the Future: Design and Creation of an Air-Evacuated Maglev Tunnel</i>			
Fairview High School	Boulder		
<hr/>			
Junior Division	Environmental Sciences		
First Place			
Ethan Gavin	7th grade		
<i>A Bug's Death: A Study of Diatomaceous Earth and Pesticides</i>			
The Classical Academy	Colorado Springs		
Second Place			
Alexander Pabst Krammer	8th grade		
<i>Lawnmower for Plastic: Removing Plastic from Sand on Beaches</i>			
Summit Charter Middle School	Boulder		
Third Place			
Sirinya Frankel	8th grade		
<i>The Effect of Impermeable Surfaces on Soil Biodiversity</i>			
Challenge School	Denver		
Fourth Place			
Raymos Castillo	7th grade		
<i>What Eco Friendly Insulation Is the Best?</i>			
Frontier Academy Secondary School	Greeley		
Honorable Mention			
Mikailah Feinman	8th grade		
<i>Produced Gas Well Water: Can It Be Repurposed for Agricultural Use? Year 2</i>			
Primero Jr/Sr High School	Weston		
Honorable Mention			
Juno Gregg	8th grade		
<i>The Effect of Salt on the Translucent Quality of Water</i>			
Skinner Middle School	Denver		
Honorable Mention			
Alex Huerta	8th grade		
<i>To Aerate or Not to Aerate. That Is the Question?</i>			
The Classical Academy	Colorado Springs		
<hr/>			
Senior Division	Environmental Sciences		
First Place			
Delaney Yehle	11th grade		
Dana Coe	12th grade		
Loren Rylander	11th grade		
<i>Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts</i>			
Rock Canyon High School	Highlands Ranch		

Appendix 2

Second Place

Amber Michel 11th grade
The Alamosa River Watershed: A Proving Ground for Natural Selection
 Monte Vista High School Monte Vista

Third Place

MaryAnn Ho 11th grade
The Evaluation of the Resuspension of Cyanobacterial Toxins into the Water Column in Eight Lakes
 Fairview High School Boulder

Fourth Place

Isabelle Rusk & Emika Brown 11th grade
Distinguishing Microbial Communities in Low Elevation Ponderosa Pine Forests After Prescribed and Natural Burns
 Fairview High School Boulder

Honorable Mention

Emma Stone & Reiley Leake 9th grade
Roots for the Road
 Brush High School Brush

Junior Division Math & Computer Sciences

First Place

Edward Wawrzynek 8th grade
A Novel Approach to Authorship Attribution Using Word Vectors and Stylistic Features
 Summit Charter Middle School Boulder

Second Place

Peter Wilson 8th grade
Postal Pods
 The Classical Academy Colorado Springs

Third Place

Shreyas Sriram 8th grade
Using Artificial Intelligence and Raspberry Pi to Monitor and Conserve Household Water Usage
 Challenge School Denver

Fourth Place

Gryphon Patlin 8th grade
Drop Notice
 The Classical Academy Colorado Springs

Honorable Mention

Ethan Chapman 8th grade
NASA HUNCH: ISS Location App
 Challenge School Denver

Senior Division Math & Computer Sciences

First Place

Austen Mazonko 10th grade
Characterization of Certain Non-Homogeneous Meta-Fibonacci Sequences
 Cherry Creek High School Greenwood Village

Second Place

Siddarth Ijju 10th grade
Autonomous Anomaly Detection and Classification Using Neural Networks
 Cherry Creek High School Greenwood Village

Third Place

Sara Nehring 9th grade
Small World Networks: I Know Someone You Know, But You Don't Know It and Neither Do I
 Monte Vista High School Monte Vista

Fourth Place

Bill Ray 12th grade
Learning to Play Hamurabi
 Peak to Peak Charter School Lafayette

Junior Division Medicine & Health

First Place

Maya Monks & Ella Sharp 8th grade
Medical Cushioning Using Slime
 Stanley British Primary School Denver

Second Place

Georgia Hartley 8th grade
Mind the Gape: The Effect of Tension on the Gaping of Sutures
 Challenge School Denver

Third Place

Kelly Clingan 8th grade
Can We Prevent Concussions in Sports and Chronic Traumatic Encephalopathy in Later Life?
 Walt Clark Middle School Loveland

Fourth Place

Trista Barnett 7th grade
Now You See Me . . . Now You Don't
 Dove Creek Middle School Dove Creek

Honorable Mention

Nathaniel Vercammen 6th grade
How Flatworms Are Affected by Magnetic Fields
 Flagstaff Charter Academy Longmont

Honorable Mention

Ava Connelly 6th grade
Warmth without the Womb
 Monument Charter Academy Monument

Honorable Mention

Marin Masters 8th grade
Back Off Bacteria
 The Classical Academy Colorado Springs

Honorable Mention

Parker Steckel 7th grade
How Fresh Is That Egg?
 Eaton Middle School Eaton

Senior Division Medicine & Health

First Place

Edwin Bodoni 11th grade
Bruxism: A Novel Diagnostic Approach
 Cherry Creek High School Greenwood Village

Second Place

Isani Singh 12th grade
Investigating the Developmental Requirements of Sex Chromosome Genes Affected in Turner Syndrome
 Cherry Creek High School Greenwood Village

Appendix 2

Third Place
 Spoorthy Reddy 11th grade
Determining the Role of Ferroptosis in Parthenolide and Its Analog Mediated Cell Death in AML
 Fairview High School Boulder

Fourth Place
 Cody Robinson 11th grade
The Effect of Ketoacidosis on the Breath: A Cost-Efficient Way to Monitor Ketones
 Yuma High School Yuma

Junior Division Microbiology & Molecular Biology

First Place
 W. Hall Matthews 8th grade
Algistatic Effects of Retail Barley Products on the Cyanobacteria, Anabaena, in Freshwater
 Homeschool Bellvue

Second Place
 Esha Sury 8th grade
Synergizing Antibiotics with Phage K and Prophylactic Nanosilver: Manipulating Resistance
 Challenge School Denver

Third Place
 Faith Roberts 7th grade
Mold Massacre
 The Classical Academy Colorado Springs

Fourth Place
 Gracey Hening 6th grade
Antibiotic Resistance: The World's Most Dangerous Threat to Effective Healthcare
 St. Columba Catholic School Durango

Honorable Mention
 Aryan Gandhi & Peyton Streu 7th grade
Blooming Algae
 Aspen Ridge Prep School Eric

Honorable Mention
 Ellinor Davenport 7th grade
Persistent & Resistant
 Miller Middle School Durango

Senior Division Microbiology & Molecular Biology

First Place
 Anand Chundi 10th grade
Identifying Downstream Targets of HCFC1: A Gene Linked to Severe Neurological Disease
 SkyView Academy Highlands Ranch

Second Place
 Isla Anderson 10th grade
Anthropogenic Induction of Antibiotic Resistance by Sulfamethoxazole
 Denver North High School Denver

Third Place
 Peyton Leyendecker 10th grade
Optimizing the Ratios of Manuka Honey to Adhesive in an Antibacterial Surgical Adhesive
 SkyView Academy Highlands Ranch

Fourth Place
 Navami Manangi 12th grade
Calcite Production in Cyanobacteria
 Peak to Peak Charter School Lafayette

Honorable Mention
 Evelyn Bodoni & Nicole Hankovsky 10th grade
Novel Strategies for Detecting and Treating Podocyte Injury in Diabetic Nephropathy
 Cherry Creek High School Greenwood Village

Junior Division Physics

First Place
 Matthew Anderson 8th grade
Redesigning Ventilation to Minimize Airborne Pathogen Transmission in Multiple-Bed Hospital Wards
 Challenge School Denver

Second Place
 Parker Stone Myer Wickham 7th grade
Why No WiFi
 Brush Middle School Brush

Third Place
 Joshua Snyder 7th grade
Ready, Aim, Fire!
 The Classical Academy Colorado Springs

Fourth Place
 Connor Provencher 8th grade
Field of Dreams
 Vail Mountain School Vail

Honorable Mention
 James Tindle & Zoe Wagner 6th grade
Under Pressure
 Boulder Country Day School Boulder

Honorable Mention
 Zachary Isley 8th grade
*Quantum Entanglement of Photons Via Spontaneous Parametric Down Conversion in a KD*P Crystal*
 Turner Middle School Berthoud

Honorable Mention
 Kjersti Moritz 7th grade
Up Up and Away
 Vail Mountain School Vail

Honorable Mention
 Kooper Grinstead 8th grade
Veggie Tales
 Rocky Ford Jr/Sr High School Rocky Ford

Senior Division Physics

First Place
 Kyra Slovacek 12th grade
Diurnal Variation and Duration of Meteors Usable for Radio Communications
 Monarch High School Louisville

Appendix 2

Second Place

Molly Nehring 11th grade
Far Out! Analyzing NASA's Kepler Space Telescope Data Using the Transit-Timing Variation Method to Discover Additional Exoplanets in Planetary Systems
 Monte Vista High School Monte Vista

Third Place

Jasmine DeMeyer 11th grade
Totally Tubular: Calculating the End Correction to Find the Wavelength of a Wave in an Open Tube
 Greeley West High School Greeley

Fourth Place

Fionna Kopp 12th grade
Voltage-Potential Profiles of Glow Discharges Using an Emissive Probe
 Boulder High School Boulder

Honorable Mention

Cameron Eldridge, Patrick James & Tyler Woodbrey 12th grade
Inductive Power Transfer
 Roosevelt High School Johnstown

Honorable Mention

Drake Ludgate & Nathaniel Miner 11th grade
Analysis of Various Wing Structures for Hovering Capacity
 Brush High School Brush

Junior Division Plant Sciences

First Place

Blake Bowshot 7th grade
Nature's Magnificent Medicine: Aloe Vera
 The Classical Academy Colorado Springs

Second Place

Ainsley Crist 8th grade
How Acidic Mine Drainage Affects Plant Growth
 Peak to Peak Charter School Lafayette

Third Place

Kamryn Holland 8th grade
All of a Spudden . . .
 Sargent Jr/Sr High School Monte Vista

Fourth Place

Chance Jurkiewicz 8th grade
To Pot or Not
 The Classical Academy Colorado Springs

Honorable Mention

Christopher Custer 8th grade
Roots of Steel: Nutrient Absorption in Soil vs. Hydroponic Plants
 Challenge School Denver

Honorable Mention

Chloe Rojas 7th grade
How Do Different Nutrients in Water Affect the Growth Rate of a Pea Plant?
 Walt Clark Middle School Loveland

Senior Division Plant Sciences

First Place

Vanessa Haggans 11th grade
The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra
 Fairview High School Boulder

Second Place

Jaret Lichty 9th grade
Leaching of Nitrates in Different Soils
 Liberty School Joes

Third Place

Paige Beedy 9th grade
Fungicidal and Nutrient Application Impact on Wheat Germination
 Limon Schools Limon

Fourth Place

Calyn Ashe 10th grade
Heredity of Plant Albinism
 Hoehne Jr/Sr High School Hoehne

Honorable Mention

Emily Soder & Swami Velamala 12th grade
Plant-Powered Homeostatic Habitat
 Centaurus High School Lafayette

2018 Colorado Science and Engineering Fair Special Awards Press Release

CSEF Awards

Poster Art Contest

Angel Castillo 10th grade
\$100, certificate
West Grand High School Kremmling

Elemer Bernath Technical Writing Award

Matthew Anderson 8th grade
\$100, certificate
Challenge School Denver
*Redesigning Ventilation to Minimize Airborne Pathogen
Transmission in Multiple-Bed Hospital Wards*

Ralph Desch Memorial Technical Writing Award

Stephanie Zhang 12th grade
\$100, certificate
Fairview High School Boulder
Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger

Student Choice Award

Kelly Clingan 8th grade
\$100, trophy, certificate
Walt Clark Middle School Loveland
Can We Prevent Concussions in Sports and Chronic Traumatic Encephalopathy in Later Life?
Stephanie Zhang 12th grade
\$100, trophy, certificate
Fairview High School Boulder
Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger

Pioneers of Science Awards

Temple Grandin Award

Cash Walker 7th grade
\$50, certificate, poster of pioneer scientist
Orchard Mesa Middle School Grand Junction
Suffocating Shrimps?

Sigmund Freud Award

Josie Gundrey 8th grade
\$50, certificate, poster of pioneer scientist
St. Columba Catholic School Durango
Back Up Dude

Margaret Mead Award

Grace Farrell 6th grade
\$50, certificate, poster of pioneer scientist
Good Shepherd Catholic School Denver
Bare Your Teeth!

John Dalton Award

Pearl Soundron 8th grade
\$50, certificate, poster of pioneer scientist
Classical Conversations Monument
Ions Can't Fly

Edwin Hubble Award

Serenity Foutz 7th grade
\$50, certificate, poster of pioneer scientist
Bayfield Middle School Bayfield
Plants vs. Water: A Battle of Soil Erosion

Christa McAuliffe Award

Joshua Vu 7th grade
\$50, certificate, poster of pioneer scientist
The Classical Academy Colorado Springs
Maximizing Efficiency When Generating Clean Energy

Hedy Lamarr Award

Braden Wedel 8th grade
\$50, certificate, poster of pioneer scientist
Stratton Schools Stratton
The Effect of Sand/Gravel Ratio on the Strength of Concrete

Alan Turing Award

Chance Hill 7th grade
\$50, certificate, poster of pioneer scientist
Walt Clark Middle School Loveland
Combating Pick Pockets of the Future

Chien-Shiung Wu Award

Caleb Siegling 7th grade
\$50, certificate, poster of pioneer scientist
Fort Morgan Middle School Fort Morgan
Antibubbles and Surface Tension

Gifford Pinchot Award

Amber Gilmore 8th grade
\$50, certificate, poster of pioneer scientist
Lamar Middle School Lamar
Purifying the Arkansas

Lise Meitner Award

Madison Tajchman 8th grade
\$50, certificate, poster of pioneer scientist
Imagine Charter School Firestone
Water U Drinkin' ?!

Grace Hopper

Barrett Aronson 6th grade
\$50, certificate, poster of pioneer scientist
St. Columba Catholic School Durango
What Is Wrong with My WiFi Signal??

G. V. Black Award

Georgia Hartley 8th grade
\$50, certificate, poster of pioneer scientist
Challenge School Denver
Mind the Gape: The Effect of Tension on the Gaping of Structures

Appendix 2

Louis Pasteur Award

Lucian Grinnan 8th grade
 \$50, certificate, poster of pioneer scientist
 Sacred Heart Academy Burlington
Best Thing Since Sliced Bread!

Luther Burbank Award

Victoria Arellano 6th grade
 \$50, certificate, poster of pioneer scientist
 Heaton Middle School Pueblo
It's Lit

Organizational Awards

Air & Waste Management Association

Rocky Mountain Section

Air & Waste Management Award

Madison Miller 7th grade
 \$50
 Monte Vista Middle School Monte Vista
Well, Well, Well, What Do We Have Here?

Alexander Pabst Krammer 8th grade
 \$100
 Summit Charter Middle School Boulder
Lawnmower for Plastic: Removing Plastic from Sand on Beaches

Matyson Jones 9th grade
 \$50
 Monte Vista High School Monte Vista
Global Storming? Is Climate Change Intensifying the Number and Duration of Tropical Storms and Hurricanes?

Robert Vanderschaaff & Brei-Lynne Nelson 12th grade
 \$100
 Roosevelt High School Johnstown
The Effects of Ice Melts on Water pH

American Association of University Women

AAUW Award for Women in STEM

Gitanjali Rao 7th grade
 \$100
 STEM School Highlands Ranch Highlands Ranch
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors

Katelynn Salmon 11th grade
 \$100
 Palmer Ridge High School Monument
Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click-Mediated Polymerization

American Chemical Society

Colorado Local Section

ACS's Excellence in Chemistry Award

Radhika Gupta 7th grade
 \$50, certificate
 The Classical Academy Colorado Springs
Analyzing the Effectiveness of Various Whiteboard Cleaners

Levi Tichi 8th grade
 \$50, certificate
 St. Columba Catholic School Durango
Fluorocarbon to Eco-Friendly

Ethan Wurman 8th grade
 \$50, certificate
 Summit Charter Middle School Boulder
Electrolysis of Salt Water Solutions

Isabella Garcia 7th grade
 \$50, certificate
 The Classical Academy Colorado Springs
Certified Cookie Monster Approved

Gitanjali Rao 7th grade
 \$150, certificate
 STEM School Highlands Ranch Highlands Ranch
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors

Katelynn Salmon 11th grade
 \$50, certificate
 Palmer Ridge High School Monument
Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click-Mediated Polymerization

Jan Gradon 11th grade
 \$50, certificate
 Fairview High School Boulder
The Chemiluminescence of Bleaches Induced by Luminol: A Study of Glows Over Periods Time

Logan Klein 11th grade
 \$50, certificate
 Yuma High School Yuma
How Magnesium Almost Lost World War Two: Environmental Effects on Magnesium

Max Warnock 10th grade
 \$50, certificate
 Poudre Global Academy Fort Collins
UV-Vis Analysis of Silver Nanoparticles Released from Odor Control Clothing, Part II

Rollin Leavitt 12th grade
 \$150, certificate
 Animas High School Durango
Investigation of Transcription Factor Preferences of Bacterial Receptors

American Industrial Hygiene Association

Rocky Mountain Section

Excellence in Protection of Occupational Health and Safety Award

Gitanjali Rao 7th grade
 \$50
 STEM School Highlands Ranch Highlands Ranch
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors

Matthew Anderson 8th grade
 \$50
 Challenge School Denver
Redesigning Ventilation to Minimize Airborne Pathogen Transmission in Multiple-Bed Hospital Wards

Appendix 2

Nicholas Foster 7th grade
 \$50
 The Classical Academy Colorado Springs
Robotic Exoskeleton
 James Mars & Tyler Barnes 8th grade
 \$50
 Ignacio Middle School Ignacio
Let's Get Fired Up!
 Aaliyah Garcia 11th grade
 \$50
 Center High School Center
Wildland Firefighter Defense System: Phase III

American Institute of Aeronautics & Astro- nautics Rocky Mountain Section AIAA Prize

Morgan Cragin 6th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Liberty Middle School Aurora
Starring Materials
 Kjersti Moritz 7th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Vail Mountain School Vail
Up Up and Away
 Krithik Ramesh 10th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Cherry Creek High School Greenwood Village
*Suppression of Aeroelastic Instabilities in HR Wing Structures
 Using Principal Component Analysis*
 Chase Cromwell 10th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Lamar High School Lamar
Stampede Arm II

American Institute of Chemical Engineers Rocky Mountain Section Excellence in Chemical Engineering Award

Kooper Grinstead 8th grade
 \$75
 Rocky Ford Jr/Sr High School Rocky Ford
Veggie Tales
 Liliana Petrecca 6th grade
 \$100
 Webber Middle School Fort Collins
*Help for Hurricane Victims: Creating Fresh Water Using So-
 lar Power*
 Emma Stone & Reiley Leake 9th grade
 \$75
 Brush High School Brush
Roots for the Road
 Logan Klein 11th grade
 \$100
 Yuma High School Yuma
*How Magnesium Almost Lost World War Two: Environmental
 Effects on Magnesium*

American Institute of Professional Geologists Colorado Section

AIPG Certificate of Excellence in the Geosciences

Haiyan Wang 8th grade
 \$50
 Summit Charter Middle School Boulder
Plant Growth in Varied Soil Type and Air Pressure
 Gitanjali Rao 7th grade
 \$100
 STEM School Highlands Ranch Highlands Ranch
*Detection of Chemical Contaminants in Water Using Carbon
 Nanotube Sensors*
 Casey Shaw 12th grade
 \$50
 Liberty School Joes
*An Analysis of Compositional Characteristics of Two Distinct
 Fossil Butte Member Localities*
 Isaac Jordan 12th grade
 \$100
 Southwest Colorado eSchool Durango
*A Novel Approach for Sensing Seismic Events: Applications of
 Graphene Nano Flake Powder Composites*

American Meteorological Society Denver/Boulder Chapter

Award for Excellence in Atmospheric Science Research

Alexander Pabst Krammer 8th grade
 gift certificate, certificate
 Summit Charter Middle School Boulder
*Lawnmower for Plastic: Removing Plastic from Sand on
 Beaches*
 Amber Michel 11th grade
 gift certificate, certificate
 Monte Vista High School Monte Vista
*The Alamosa River Watershed: A Proving Ground for Natural
 Selection*

American Statistical Association Colorado/Wyoming Chapter David Young Memorial Award

Abby Klapp 8th grade
 \$200, student membership in the ASA, acknowledgement at
 chapter spring meeting and on chapter web site
 Monument Charter Academy Monument
Surviving a Drought
 Vanessa Haggans 11th grade
 \$200, student membership in the ASA, acknowledgement at
 chapter spring meeting and on chapter web site
 Fairview High School Boulder
*The Effect of Nutrient Availability on Plant Communities in
 the Alpine Tundra*

Appendix 2

American Vacuum Society Rocky Mountain Chapter

Excellence in Physical Sciences & Engineering Award

Gregory Mackintosh	8th grade
\$50, \$50 matching award to teacher/sponsor	
Good Shepherd Catholic School	Denver
<i>BioLine: The Biodegradable Fishing Line</i>	
Gitanjali Rao	7th grade
\$100, \$100 matching award to teacher/sponsor	
STEM School Highlands Ranch	Highlands Ranch
<i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i>	
Isaac Jordan	12th grade
\$50, \$50 matching award to teacher/sponsor	
Southwest Colorado eSchool	Durango
<i>A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites</i>	
Fionna Kopp	12th grade
\$100, \$100 matching award to teacher/sponsor	
Boulder High School	Boulder
<i>Voltage-Potential Profiles of Glow Discharges Using an Emissive Probe</i>	

ASM International

ASM Materials Education Foundation Award

John Quinn	11th grade
\$100	
Fairview High School	Boulder
<i>Restoration of Manipulated Serial Numbers Using Electron Backscatter Diffraction</i>	
Adrienne Jones	12th grade
\$150	
Trinidad High School	Trinidad
<i>Varies Crystals Responding to Environmental Audio Variables</i>	

Biomedical Engineering Society, Colorado State University Chapter

Excellence in Biomedical Engineering Award

Ellie Clark	8th grade
bluetooth speaker, formal invitation to a BMES event, bumper sticker, CSU School of Biomedical Engineering gift bag	
St. Columba Catholic School	Durango
<i>Smart Fabric- Microelectronic Properties of Textiles Coated with Carbon Nanotubes</i>	
Maya Monks & Ella Sharp	8th grade
bluetooth speaker, formal invitation to a BMES event, bumper sticker, CSU School of Biomedical Engineering gift bag	
Stanley British Primary School	Denver
<i>Medical Cushioning Using Slime</i>	
Luke Nielsen	7th grade
bluetooth speaker, formal invitation to a BMES event, bumper sticker, CSU School of Biomedical Engineering gift bag	
The Classical Academy	Colorado Springs
<i>Still Sitting?</i>	

Colorado Association of Meat Processors

Excellence in Meat Science & Food Safety Award

Tristin Niccoli	9th grade
\$80, certificate	
Arickaree School	Anton
<i>Will They Survive?</i>	

Colorado Association of Science Teachers

CAST Award

Analisa Vega	6th grade
\$100	
Dolores Elementary School	Dolores
<i>Over the Counter Medications vs. Herbal Remedies: Which Is More Potent?</i>	
Radhika Gupta	7th grade
\$100	
The Classical Academy	Colorado Springs
<i>Analyzing the Effectiveness of Various Whiteboard Cleaners</i>	
Dylan Cantrell	12th grade
\$100	
Nederland Middle/Senior High	Nederland
<i>The Role of Economic Variable in Election Outcomes: A Global Analysis</i>	
Logan Klein	11th grade
\$100	
Yuma High School	Yuma
<i>How Magnesium Almost Lost World War Two: Environmental Effects on Magnesium</i>	

Colorado Biology Teachers' Association

CBTA Best Biology Project Award

Kamryn Holland	8th grade
certificate, \$50	
Sargent Jr/Sr High School	Monte Vista
<i>All of a Spudden . . .</i>	
Esha Sury	8th grade
certificate, \$100	
Challenge School	Denver
<i>Synergizing Antibiotics with Phage K and Prophylactic Nanosilver: Manipulating Resistance</i>	
Vanessa Haggans	11th grade
certificate, \$50	
Fairview High School	Boulder
<i>The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra</i>	
Delaney Yehle	11th grade
Dana Coe	12th grade
Loren Rylander	11th grade
certificate, \$100	
Rock Canyon High School	Highlands Ranch
<i>Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts</i>	

Appendix 2

Colorado BioScience Institute

BioGENEius Challenge

Isani Singh 12th grade
all expense paid trip to compete at the international competition held in Boston, MA June 2018 during the International BIO Convention
Cherry Creek High School Greenwood Village
Investigating the Developmental Requirements of Sex Chromosome Genes Affected in Turner Syndrome

Colorado Chemistry Teachers' Association

CCTA Chemistry Award

Maddisun Ellithorpe & Josh Sawyer 8th grade
\$100
Sargent Jr/Sr High School Monte Vista
Hemp . . . A Hot Topic
Tyson Schneider 10th grade
\$100
Arickaree School Anton
Acidtastic

Colorado Dental Association

CDA Excellence in Oral Health Award

Edwin Bodoni 11th grade
\$100
Cherry Creek High School Greenwood Village
Bruxism: A Novel Diagnostic Approach

Colorado Division of Reclamation, Mining & Safety

Outstanding Earth Science Award

Julia Warnock 8th grade
\$75
Poudre Global Academy Fort Collins
Structural Geology of the Fountain Formation in Lory State Park
Vanessa Haggans 11th grade
\$75
Fairview High School Boulder
The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra

Colorado Environmental Health Association

Environmental Health Award

Natalie Aerni 7th grade
\$75, framed certificate
Frontier Academy Secondary School Greeley
The Uses of Darkling Mealworms in Plastic Degradation
Max Warnock 10th grade
\$150, framed certificate, invitation to exhibit at the CEHA Annual Education Conference (valued at \$400)
Poudre Global Academy Fort Collins
UV-Vis Analysis of Silver Nanoparticles Released from Odor Control Clothing, Part II

Colorado Foundation for Agriculture

Jack Fenwick Award for Agricultural Science

Madison Cabot 8th grade
certificate, \$50
Imagine Charter School Firestone
Beyond the Boots
Kamryn Holland 8th grade
certificate, \$50
Sargent Jr/Sr High School Monte Vista
All of a Spudden . . .
Sydnee Roth 11th grade
certificate, \$50
Liberty School Joes
Pack on the Protein
Jaret Lichty 9th grade
certificate, \$50
Liberty School Joes
Leaching of Nitrates in Different Soils

Colorado Geographic Alliance

Application of Geography Award

Madison Miller 7th grade
\$100
Monte Vista Middle School Monte Vista
Well, Well, Well, What Do We Have Here?
Rithwik Mylavarapu 10th grade
\$100
Fairview High School Boulder
Leveraging Satellite Imagery to Map Road Surface Conditions

Colorado Medical Society

CMS Education Foundation Award

Trista Barnett 7th grade
\$100, invitation to the winners and their parents to exhibit at the Colorado Medical Society Annual Meeting and attendance at the Presidential Inaugural Dinner with a paid overnight stay
Dove Creek Middle School Dove Creek
Now You See Me . . . Now You Don't
Jayendra Chauhan 10th grade
Grace Nunnelee 12th grade
\$100, invitation to the winners and their parents to exhibit at the Colorado Medical Society Annual Meeting and attendance at the Presidential Inaugural Dinner with a paid overnight stay
Rock Canyon High School Lone Tree
Ridgeview Classical Schools Fort Collins
Characterization and In Vitro Differentiation of Myeloid Derived Suppressor Cells

Colorado Mineral Society

Best Earth Science Award

Madison Miller 7th grade
certificate, \$35, mineral specimen, book
Monte Vista Middle School Monte Vista
Well, Well, Well, What Do We Have Here?

Appendix 2

Julia Warnock certificate, \$50, mineral specimen, book Poudre Global Academy <i>Structural Geology of the Fountain Formation in Lory State Park</i>	8th grade Fort Collins
Casey Shaw certificate, \$35, mineral specimen, book Liberty School <i>An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities</i>	12th grade Joes
Isaac Jordan certificate, \$50, mineral specimen, book Southwest Colorado eSchool <i>A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites</i>	12th grade Durango

Colorado Mycological Society

Excellence in Mycological Research Award

Faith Roberts \$100, CMS membership for 2018, certificate, signed copy of Vera Evenson's "Rocky Mountain Mushrooms" The Classical Academy <i>Mold Massacre</i>	7th grade Colorado Springs
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Colorado Native Plant Society

Native Plants Award

Sophie Scholl \$50 Skinner Middle School <i>The Oleophilic Ability of Botanicals in Cleaning Oil from Water</i>	8th grade Denver
Emma Stone & Reiley Leake \$50 Brush High School <i>Roots for the Road</i>	9th grade Brush

Colorado Scientific Society

Excellence in Geology Award

Serenity Foutz \$50 Bayfield Middle School <i>Plants vs. Water: A Battle of Soil Erosion</i>	7th grade Bayfield
Julia Warnock \$75 Poudre Global Academy <i>Structural Geology of the Fountain Formation in Lory State Park</i>	8th grade Fort Collins
Casey Shaw \$75 Liberty School <i>An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities</i>	12th grade Joes
Rain Orsi \$100 Rocky Mountain High School <i>Shaken: A Statistical Analysis on Induced Seismicity</i>	10th grade Fort Collins

Colorado State University College of Agricultural Sciences

Innovations in the Science of Agriculture Award

Joslyn King \$500 Arickaree School <i>Cornstalk Feed Value: Triple Stacked vs. Single Stacked</i>	8th grade Anton
Matthew Buckman & Dylan Drew \$500 Sky View Academy <i>The Effects of Substrate Architecture on L. vannamei</i>	10th grade Highlands Ranch

Colorado State University

Dept. of Biochemistry & Molecular Biology

Excellence in Biochemistry & Molecular Biology Award

Stephanie Zhang \$100, certificate Fairview High School <i>Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger</i>	12th grade Boulder
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Colorado State University, Department of Chemistry

Excellence in Chemistry Award

Gitanjali Rao certificate, \$100 STEM School Highlands Ranch <i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i>	7th grade Highlands Ranch
Jan Gradon certificate, \$100 Fairview High School <i>The Chemiluminescence of Bleaches Induced by Luminol: A Study of Glows Over Periods Time</i>	11th grade Boulder

Colorado State University,

Dept. of Horticulture & Landscape Architecture

Excellence in Horticulture Award

Kamryn Holland \$100 Sargent Jr/Sr High School <i>All of a Spudden . . .</i>	8th grade Monte Vista
Ainsley Crist \$100 Peak to Peak Charter School <i>How Acidic Mine Drainage Affects Plant Growth</i>	8th grade Lafayette
Vanessa Haggans \$100 Fairview High School <i>The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra</i>	11th grade Boulder
Andrew Tokar & Maya Hegde \$100 Cherry Creek High School <i>Assessing the Viability of Household Food Scraps as an Alternative to Traditional Fertilizer</i>	11th grade Greenwood Village

Appendix 2

Colorado State University Energy Institute *Energy Achievement Award*

Mark Bloomfield 10th grade
\$250, certificate
Coronado High School Colorado Springs
Heating Up: Using Phase Change Materials as a Thermal Battery

Colorado Veterinary Medical Association *Veterinary Science Award*

Lilly Figueroa 7th grade
\$100, certificate
Mancos Middle School Mancos
He? She? Is It a Matter of Degree?
Tristin Niccoli 9th grade
\$100, certificate
Arickaree School Anton
Will They Survive?

Colorado's Touchstone Energy Cooperatives *The Colorado EnergyWise Award*

Nikhila Narayana 8th grade
\$250
Rocky Heights Middle School Highlands Ranch
Let It Shine: Altering the Wavelength of Bioluminescent Light to Power a Photovoltaic Cell
Kevin Yang 10th grade
\$250
Fairview High School Boulder
Design of a Novel Energy-Saving Radiative Cooling Bilayer Paint for Space Cooling

Colorado-Wyoming Society of American Foresters

Excellence in Forestry Research Award

Owen Doherty 6th grade
\$200
Branson School Branson
Burn Baby Burn: The Effect of Wood Type on Heat Produced in a Wood Burning Stove
Isabelle Rusk & Emika Brown 11th grade
\$200
Fairview High School Boulder
Distinguishing Microbial Communities in Low Elevation Ponderosa Pine Forests After Prescribed and Natural Burns

Comstock Family

Heather Comstock Memorial Award

Gracey Hening 6th grade
\$200, certificate
St. Columba Catholic School Durango
Antibiotic Resistance: The World's Most Dangerous Threat to Effective Healthcare

Eppler Family *Eppler Family Award*

Elizabeth Petersen 7th grade
microprocessor kit & digital multimeter (valued at \$100)
Flagstaff Charter Academy Longmont
Electricity from Heat
Nicholas Foster 7th grade
microprocessor kit & digital multimeter (valued at \$100)
The Classical Academy Colorado Springs
Robotic Exoskeleton
Tate Schrock 8th grade
\$100
Arickaree School Anton
Electronic Automated Product Dispensing

Fort Collins Conservation District *Conservation District Award*

Abby Klapp 8th grade
\$50, plaque
Monument Charter Academy Monument
Surviving a Drought
Delaney Yehle 11th grade
Dana Coe 12th grade
Loren Rylander 11th grade
\$100, plaque
Rock Canyon High School Highlands Ranch
Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts

Frank Armbruster Foundation *Armbruster Memorial Award*

Peter Wilson 8th grade
\$100
The Classical Academy Colorado Springs
Postal Pods

Geological Society of America

GSA Awards in Environmental Geology

Amber Michel 11th grade
plaque, certificate, \$50 gift card, various GSA memorabilia
Monte Vista High School Monte Vista
The Alamosa River Watershed: A Proving Ground for Natural Selection
Kathryn Kummel 9th grade
Michelle Kummel 12th grade
plaque, certificate, \$75 gift card, various GSA memorabilia
Palmer High School Colorado Springs
Using 3D Drone-based Digital Models to Investigate the Fluvial Geomorphology of an Eroding Arroyo
Gitanjali Rao 7th grade
plaque, certificate, \$100 gift card, various GSA memorabilia
STEM School Highlands Ranch Highlands Ranch
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors

Appendix 2

Gromko Family

Gerald Gromko Memorial Award

Krithik Ramesh 10th grade
\$150
Cherry Creek High School Greenwood Village
Suppression of Aeroelastic Instabilities in HR Wing Structures Using Principal Component Analysis

Human Factors and Ergonomics Society

Rocky Mountain Chapter

Excellence in Human Factors & Ergonomics Award
Allison Rose 8th grade
\$100
The Classical Academy Colorado Springs
Maxime Lingura

Institute of Electrical & Electronics Engineers

High Plains Section

IEEE Award

Tate Schrock 8th grade
\$100 cash card
Arickaree School Anton
Electronic Automated Product Dispensing
Alyssa Keirn 10th grade
\$150 cash card
Rocky Mountain High School Fort Collins
Solar Powered Decontaminator Design and Testing

Koppa Research, LLC

Koppa Research's Einstein Award for Achievements in Modern Physics

Zachary Isley 8th grade
certificate, \$100
Turner Middle School Berthoud
*Quantum Entanglement of Photons Via Spontaneous Parametric Down Conversion in a KD*P Crystal*
Kyra Slovacek 12th grade
certificate, \$100
Monarch High School Louisville
Diurnal Variation and Duration of Meteors Usable for Radio Communications

Little Shop of Physics

Matthew McCausland Memorial Award

Liliana Petrecca 6th grade
science equipment/instruments
Webber Middle School Fort Collins
Help for Hurricane Victims: Creating Fresh Water Using Solar Power
Gregory Mackintosh 8th grade
science equipment/instruments
Good Shepherd Catholic School Denver
BioLine: The Biodegradable Fishing Line
Emma Schmit 9th grade
science equipment/instruments
SkyView Academy Highlands Ranch
The Effects of Magnetism and Algae on Voltage on Tin Oxide Plates

Laila Buchler & Rachel Fasbender 12th grade
science equipment/instruments
Centaurus High School Lafayette
Altered Halter

Lockheed Martin

Lockheed Martin Aerospace Award

Ethan Chapman 8th grade
\$50
Challenge School Denver
NASA HUNCH: ISS Location App
Krithik Ramesh 10th grade
\$150
Cherry Creek High School Greenwood Village
Suppression of Aeroelastic Instabilities in HR Wing Structures Using Principal Component Analysis

National Centers for Environmental Information

NCEI Award for Scientific Achievement

Julia Warnock 8th grade
certificate, \$100 from an anonymous donor
Poudre Global Academy Fort Collins
Structural Geology of the Fountain Formation in Lory State Park

National Renewable Energy Laboratory

NREL Energy Award

Max Markuson DiPrince 12th grade
\$100
Central High School Pueblo
Windmill Efficiency Part 3: Testing the Magnetic Flux of Magnetostrictive Solenoids to Optimize Oscillatory Energy Production

Platte River Power Authority

Platte River Power Authority Special Award for Energy Innovation and Efficiency

Joshua Vu 7th grade
\$100
The Classical Academy Colorado Springs
Maximizing Efficiency When Generating Clean Energy
Scott Clousing & Daniel Orbidan 11th grade
\$150
SkyView Academy Highlands Ranch
Use of Monte Carlo Methods to Evaluate the Viability of Hydroelectric Dams

Platte River Power Authority Special Award for Environmental Responsibility

Mikailah Feinman 8th grade
\$100
Primero Jr/Sr High School Weston
Produced Gas Well Water: Can It Be Repurposed for Agricultural Use? Year 2
Alyssa Keirn 10th grade
\$150
Rocky Mountain High School Fort Collins
Solar Powered Decontaminator Design and Testing

Appendix 2

Rocky Mountain Association of Geologists

Excellence in Earth Science Award

Stella Addis \$125	8th grade
Vail Mountain School <i>Salty Studies</i>	Vail
Julia Warnock \$250	8th grade
Poudre Global Academy <i>Structural Geology of the Fountain Formation in Lory State Park</i>	Fort Collins
Casey Shaw \$125	12th grade
Liberty School <i>An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities</i>	Joes
Kathryn Kummel Michelle Kummel \$250 each	9th grade 12th grade
Palmer High School <i>Using 3D Drone-based Digital Models to Investigate the Fluvial Geomorphology of an Eroding Arroyo</i>	Colorado Springs

Rocky Mountain Water Environment Association

Water Research Award

Norah Quirk \$200, certificate	7th grade
The Classical Academy <i>Energy Down the Drain!</i>	Colorado Springs
Gitanjali Rao \$400, certificate	7th grade
STEM School Highlands Ranch <i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i>	Highlands Ranch
Amber Michel \$200, certificate	11th grade
Monte Vista High School <i>The Alamosa River Watershed: A Proving Ground for Natural Selection</i>	Monte Vista
Isla Anderson \$400, certificate	10th grade
Denver North High School <i>Anthropogenic Induction of Antibiotic Resistance by Sulfamethoxazole</i>	Denver

SACNAS, Colorado State University Chapter

SACNAS CSU Rising Young Scientist Award

Arushi Munjal \$50	8th grade
Challenge School <i>How Changes in Temperature Affect D. Melagonaster's Reproduction, Survival, and Life Cycle</i>	Denver
Carlos Rayos \$50	6th grade
Silverton Schools <i>Fruity Controller</i>	Silverton

Vicente Trevino \$50	12th grade
Delta High School <i>Healing Air Pollution with Hydrogen</i>	Delta
Spoorthy Reddy \$50	11th grade
Fairview High School <i>Determining the Role of Ferroptosis in Parthenolide and Its Analog Mediated Cell Death in AML</i>	Boulder

Science Toy Magic, LLC

Physics Classroom Demonstration Award

Carlos Rayos \$50	6th grade
Silverton Schools <i>Fruity Controller</i>	Silverton
Elizabeth Petersen \$100	7th grade
Flagstaff Charter Academy <i>Electricity from Heat</i>	Longmont
Chase Cromwell \$50	10th grade
Lamar High School <i>Stampede Arm II</i>	Lamar
Max Markuson DiPrince \$100	12th grade
Central High School <i>Windmill Efficiency Part 3: Testing the Magnetic Flux of Magnetostrictive Solenoids to Optimize Oscillatory Energy Production</i>	Pueblo

Society for Mining, Metallurgy and Exploration Colorado Section

Excellence in Mineral Science & Engineering Award

Miles Johnston \$100, plaque	8th grade
The Classical Academy <i>Don't Let Charging Up Run You Down: A Study on Portable Power</i>	Colorado Springs
Gitanjali Rao \$250, plaque	7th grade
STEM School Highlands Ranch <i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i>	Highlands Ranch
Ainsley Crist \$250, plaque	8th grade
Peak to Peak Charter School <i>How Acidic Mine Drainage Affects Plant Growth</i>	Lafayette
Sarah Bian \$300, plaque	9th grade
Cherry Creek High School <i>CO2 Sequestration by Mineral Carbonation in Ambient Air: Wollastonite Ratio</i>	Greenwood Village

Appendix 2

Society of Manufacturing Engineers Colorado Chapter 354

Andy Keller Memorial Award

Chase Cromwell	9th grade
\$100, recognition by the local chapter	
Lamar High School	Lamar
<i>Stampede Arm</i>	
Henry Foisie	7th grade
\$150, recognition by local chapter	
The Classical Academy	Colorado Springs
<i>Easy Peazy Piezo Power</i>	
Marissa Jordan	8th grade
\$200, recognition by local chapter	
Home School	Ignacio
<i>A Softer Side of Robots: Using Grippers Made From Soft Materials</i>	

Society of Women Engineers Rocky Mountain Section

SWE Award

Allison Rose	8th grade
\$75, certificate	
The Classical Academy	Colorado Springs
<i>Maxime Lingura</i>	
Gitanjali Rao	7th grade
\$100, certificate	
STEM School Highlands Ranch	Highlands Ranch
<i>Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors</i>	
Emma Stone & Reiler Leake	9th grade
\$75, certificate	
Brush High School	Brush
<i>Roots for the Road</i>	
Jenna Salvat	11th grade
\$100, certificate	
Coronado High School	Colorado Springs
<i>Synthesis and Characterization of a NiO-ZnO Semiconductor Junction for an Electromechanical Effect</i>	

Soil & Water Conservation Society Colorado Chapter

Natural Resource Conservation Award

Kit Bellefeuille	11th grade
\$100, certificate	
Limon Schools	Limon
<i>Effectiveness of Cereal Rye as a Cover Crop to Alfalfa</i>	
Kamryn Holland	8th grade
\$100, certificate	
Sargent Jr/Sr High School	Monte Vista
<i>All of a Spudden . . .</i>	

The Inventors' Roundtable

Inventors' Roundtable Award

Laila Buchler & Rachel Fasbender	12th grade
\$100, free patent search (valued at \$499)	
Centaurus High School	Lafayette
<i>Altered Halter</i>	

Trout Unlimited

Trout Unlimited River Conservation Award

Ainsley Crist	8th grade
\$75	
Peak to Peak Charter School	Lafayette
<i>How Acidic Mine Drainage Affects Plant Growth</i>	
Keaton Fischer	10th grade
\$125	
Sierra Grande Jr/Sr High School	Blanca
<i>Understanding the Rio Grande Cutthroat Trout Resiliency in the Trinchera and Ute Creek Watersheds</i>	
Amber Michel	11th grade
\$200	
Monte Vista High School	Monte Vista
<i>The Alamosa River Watershed: A Proving Ground for Natural Selection</i>	

United States Department of Commerce

Award for Excellence in Science and Engineering

Kyra Slovacek	12th grade
plaque, \$200 from an anonymous donor	
Monarch High School	Louisville
<i>Diurnal Variation and Duration of Meteors Usable for Radio Communications</i>	

United States Geological Survey

USGS Excellence in Research Award

Ainsley Crist	8th grade
reference book, mineral specimen	
Peak to Peak Charter School	Lafayette
<i>How Acidic Mine Drainage Affects Plant Growth</i>	
Rain Orsi	10th grade
reference book, mineral specimen	
Rocky Mountain High School	Fort Collins
<i>Shaken: A Statistical Analysis on Induced Seismicity</i>	

University of Colorado, Denver

Medical Scientist Training Program Award

Nathaniel Vercammen	6th grade
\$50	
Flagstaff Charter Academy	Longmont
<i>How Flatworms Are Affected by Magnetic Fields</i>	
Rollin Leavitt	12th grade
\$50	
Animas High School	Durango
<i>Investigation of Transcription Factor Preferences of Bacterial Receptors</i>	

Van Gorp Family

Dan Van Gorp Memorial Award

Owen Beute	9th grade
certificate, \$200	
The Vanguard School	Colorado Springs
<i>Coliform Bacteria in Front Range Water</i>	

Appendix 2

Vaughan Web Works

Software Program Use Award

Ethan Chapman	8th grade
\$50	
Challenge School	Denver
<i>NASA HUNCH: ISS Location App</i>	
Scott Clousing & Daniel Orbidan	11th grade
\$100	
SkyView Academy	Highlands Ranch
<i>Use of Monte Carlo Methods to Evaluate the Viability of Hydroelectric Dams</i>	

Wilkins Family

Young Entrepreneur's Award

Alyssa Keirn	10th grade
\$500	
Rocky Mountain High School	Fort Collins
<i>Solar Powered Decontaminator Design and Testing</i>	

Wojtaszek Family

Paul Wojtaszek Memorial Award

Spoorthy Reddy	11th grade
certificate, \$200	
Fairview High School	Boulder
<i>Determining the Role of Ferroptosis in Parthenolide and Its Analog Mediated Cell Death in AML</i>	

Women in Physics, Colorado State University

Promising Young Woman in Science Award

Kiersten Super-Hill	8th grade
certificate, science gift bag	
Notre Dame Parish School	Denver
<i>Refraction Action</i>	

Zonta Club of Boulder County

Amelia Earhart Award

LilyRae Martinez	6th grade
letter, \$100	
Heaton Middle School	Pueblo
<i>Rocketology: Lift Off</i>	
Kjersti Moritz	7th grade
letter, \$100	
Vail Mountain School	Vail
<i>Up Up and Away</i>	

Scholarships

Adams State University

Adams State University Porter Scholarships

Katelynn Salmon	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Palmer Ridge High School	Monument
<i>Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click-Mediated Polymerization</i>	

Adrienne Jones	12th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Trinidad High School	Trinidad
<i>Varies Crystals Responding to Environmental Audio Variables</i>	
Adam Vasquez	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Eagle Valley High School	Gypsum
<i>Dye Sensitized Solar Cell</i>	
Amber Michel	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Monte Vista High School	Monte Vista
<i>The Alamosa River Watershed: A Proving Ground for Natural Selection</i>	
Tyson Lichty	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Liberty School	Joes
<i>To Add or Not to Add: Possible Relations Between Nitrogen Fixing Bacteria and Nitrogen Fertilizers</i>	
Stephen McDonald	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Central High School	Pueblo
<i>Does Sample Size Affect Studies Done on Populations with Various Communities of Different Sizes?</i>	
Kit Bellefeuille	11th grade
conditional scholarship to Adams State University valued at \$5,000, with potential of renewal	
Limon Schools	Limon
<i>Effectiveness of Cereal Rye as a Cover Crop to Alfalfa</i>	

Colorado School of Mines

Colorado School of Mines Scholarships

Katelynn Salmon	11th grade
\$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree	
Palmer Ridge High School	Monument
<i>Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click-Mediated Polymerization</i>	
MaryAnn Ho	11th grade
\$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree	
Fairview High School	Boulder
<i>The Evaluation of the Resuspension of Cyanobacterial Toxins into the Water Column in Eight Lakes</i>	
Sophia Markuson DiPrince	11th grade
\$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree	
Central High School	Pueblo
<i>Anaerobic Digestion of Food Waste Part 3: Comparing Different Conductors in the Production of Food Waste Generated Electricity</i>	
Jenna Salvat	11th grade
\$1,000 CSM scholarship, renewable for up to 3 additional	

Appendix 2

years for use toward undergraduate degree
 Coronado High School Colorado Springs
Synthesis and Characterization of a NiO-ZnO Semiconductor Junction for an Electromechanical Effect
 Amber Michel 11th grade
 \$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree
 Monte Vista High School Monte Vista High School
The Alamosa River Watershed: A Proving Ground for Natural Selection
 Elia Gorokhovskiy 11th grade
 \$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree
 Fairview High School Boulder
Assimilating Time-Uncertain Measurements in Ensemble Kalman Filtering
 Edwin Bodoni 11th grade
 \$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree
 Cherry Creek High School Greenwood Village
Bruxism: A Novel Diagnostic Approach
 Jasmine DeMeyer 11th grade
 \$1,000 CSM scholarship, renewable for up to 3 additional years for use toward undergraduate degree
 Greeley West High School Greeley
Totally Tubular: Calculating the End Correction to Find the Wavelength of a Wave in an Open Tube

Colorado State University, Fort Collins Colorado State University, Fort Collins Scholarships

Aylin Kahraman 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Cherry Creek High School Greenwood Village
The Impact of Education on Student Athletes Regarding Concussions
 Stephanie Zhang 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Fairview High School Boulder
Developing a Novel Inhibitor for Cdc14 in the Fungus Aspergillus niger
 Casey Shaw 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Liberty School Joes
An Analysis of Compositional Characteristics of Two Distinct Fossil Butte Member Localities
 Kevin Yang 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Fairview High School Boulder
Design of a Novel Energy-Saving Radiative Cooling Bilayer Paint for Space Cooling
 Isaac Jordan 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 addi-

tional years
 Southwest Colorado eSchool Durango
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites
 Delaney Yehle 11th grade
 Dana Coe 12th grade
 Loren Rylander 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Rock Canyon High School Highlands Ranch
Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts
 Austen Mazenko 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Cherry Creek High School Greenwood Village
Characterization of Certain Non-Homogeneous Meta-Fibonacci Sequences
 Edwin Bodoni 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Cherry Creek High School Greenwood Village
Bruxism: A Novel Diagnostic Approach
 Anand Chundi 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 SkyView Academy Highlands Ranch
Identifying Downstream Targets of HCFCl: A Gene Linked to Severe Neurological Disease
 Kyra Slovacek 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Monarch High School Louisville
Diurnal Variation and Duration of Meteors Usable for Radio Communications
 Vanessa Haggans 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional years
 Fairview High School Boulder
The Effect of Nutrient Availability on Plant Communities in the Alpine Tundra

Colorado State University, Pueblo

Colorado State University, Pueblo Scholarship

Isaac Jordan 12th grade
 \$1,000 renewable scholarship to attend Colorado State University, Pueblo
 Southwest Colorado eSchool Durango
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano Flake Powder Composites

Intel

Ryan Patterson Scholarship

Kyra Slovacek 12th grade
 \$2,000 non-renewable scholarship
 Monarch High School Louisville
Diurnal Variation and Duration of Meteors Usable for Radio Communications

SSP

American Meteorological Society

Outstanding Achievement in Atmospheric Sciences Award

Alexander Pabst Krammer 8th grade certificate
Summit Charter Middle School Boulder
Lawnmower for Plastic: Removing Plastic from Sand on Beaches
Amber Michel 11th grade certificate
Monte Vista High School Monte Vista
The Alamosa River Watershed: A Proving Ground for Natural Selection

American Psychological Association

Outstanding Achievement in Psychological Sciences Award

Chloe Haerr 7th grade certificate
The Classical Academy Colorado Springs
Stress Test
Aylin Kahraman 10th grade certificate
Cherry Creek High School Greenwood Village
The Impact of Education on Student Athletes Regarding Concussions

Arizona State University

Rob & Melani Walton Sustainability Solutions Initiative Award

Delaney Yehle 11th grade
Dana Coe 12th grade
Loren Rylander 11th grade certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2018 Sustainability Solutions Festival)
Rock Canyon High School Highlands Ranch
Assessing Goat Browsing as a Form of Wildfire Mitigation and Its Environmental Impacts
Kathryn Kummel 9th grade
Michelle Kummel 12th grade certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2018 Sustainability Solutions Festival)
Palmer High School Colorado Springs
Using 3D Drone-based Digital Models to Investigate the Fluvial Geomorphology of an Eroding Arroyo
Emily Soder 12th grade
Swami Velamala 12th grade certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2018 Sustainability Solutions Festival)
Centaurus High School Lafayette
Plant-Powered Homeostatic Habitat

Broadcom

Broadcom MASTERS Nomination

Natalie Aerni 7th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Frontier Academy Secondary School Greeley
The Uses of Darkling Mealworms in Plastic Degradation
Chloe Haerr 7th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
The Classical Academy Colorado Springs
Stress Test
Gitanjali Rao 7th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
STEM School Highlands Ranch Highlands Ranch
Detection of Chemical Contaminants in Water Using Carbon Nanotube Sensors
Julia Warnock 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Poudre Global Academy Fort Collins
Structural Geology of the Fountain Formation in Lory State Park
Mohamed Ibrahim 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Wiggins Middle/High School Wiggins
Influencing Electricity Output of MFCs Using Electron Acceptors
Dylan Sellers 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Walt Clark Middle School Loveland
A Boat Built for Kicks: Using the Flutter Kick for Propulsion
Ethan Gavin 7th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
The Classical Academy Colorado Springs
A Bug's Death: A Study of Diatomaceous Earth and Pesticides
Edward Wawrzynek 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Summit Charter Middle School Boulder
A Novel Approach to Authorship Attribution Using Word Vectors and Stylistic Features
Maya Monks & Ella Sharp 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Stanley British Primary School Denver
Medical Cushioning Using Slime
Matthew Anderson 8th grade nomination to enter the 2018 Broadcom MASTERS competition for middle school students
Challenge School Denver
Redesigning Ventilation to Minimize Airborne Pathogen Transmission in Multiple-Bed Hospital Wards

Appendix 2

Blake Bowshot 7th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
The Classical Academy Colorado Springs
Nature's Magnificent Medicine: Aloe Vera

Camille Rawinski 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Monte Vista Middle School Monte Vista
*I'm Sensing Bias: Does Poor Conformation in Quarter Horses
Affect Certain Senses?*

Brakelle Westphal 7th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Springfield Jr/Sr High School Springfield
Cell Phones and Anxiety

Ethan Wurman 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Summit Charter Middle School Boulder
Electrolysis of Salt Water Solutions

Ashlyn Rockey 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Sargent Jr/Sr High School Monte Vista
Flow or No: Will You Grow? Water Deficit of Quinoa

Nikhila Narayana 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Rocky Heights Middle School Highlands Ranch
*Let It Shine: Altering the Wavelength of Bioluminescent Light
to Power a Photovoltaic Cell*

Neil Sury 7th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Challenge School Denver
*Enhancing Gecko Adhesive Technology Using Micro Filter
Nano Moulding and Carbon Nano-tubes*

Alexander Pabst Krammer 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Summit Charter Middle School Boulder
*Lawnmower for Plastic: Removing Plastic from Sand on
Beaches*

Peter Wilson 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
The Classical Academy Colorado Springs
Postal Pods

Georgia Hartley 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Challenge School Denver
*Mind the Gape: The Effect of Tension on the Gaping of Su-
tures*

Esha Sury 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Challenge School Denver
*Synergizing Antibiotics with Phage K and Prophylactic Na-
nosilver: Manipulating Resistance*

Parker Stone & Myer Wickham 7th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Brush Middle School Brush
Why No WiFi

Ainsley Crist 8th grade
nomination to enter the 2018 Broadcom MASTERS competi-
tion for middle school students
Peak to Peak Charter School Lafayette
How Acidic Mine Drainage Affects Plant Growth

Intel Corporation

Intel Excellence in Computer Science Award

Bill Ray 12th grade
\$200 (to be mailed), certificate
Peak to Peak Charter School Lafayette
Learning to Player Hammurabi

Siddarth Ijju 10th grade
\$200 (to be mailed), certificate
Cherry Creek High School Greenwood Village
*Autonomous Anomaly Detection and Classification Using
Neural Networks*

Mu Alpha Theta

Outstanding Achievement in Mathematics

Elia Gorokhovskiy 11th grade
certificate
Fairview High School Boulder
*Assimilating Time-Uncertain Measurements in Ensemble
Kalman Filtering*

Austen Mazenko 10th grade
certificate
Cherry Creek High School Greenwood Village
*Characterization of Certain Non-Homogeneous Meta-
Fibonacci Sequences*

NASA

NASA Earth System Science Award

Julia Warnock 8th grade
certificate
Poudre Global Academy Fort Collins
*Structural Geology of the Fountain Formation in Lory State
Park*

Natalie Keller & Melanie Gong 10th grade
certificate
Cherry Creek High School Greenwood Village
*The Reduction of Perchlorate in Mars Regolith Using Hydro-
gen Gas to Produce Chloride and Water*

Appendix 2

National Oceanic & Atmospheric Administration

Taking the Pulse of the Planet Award

Nickita Alexeyev 7th grade
certificate, medal
Crown Pointe Academy Westminster
Is CO2 Making Earth Greener?

Matyson Jones 9th grade
certificate, medal
Monte Vista High School Monte Vista
Global Storming? Is Climate Change Intensifying the Number and Duration of Tropical Storms and Hurricanes?

Ricoh

Ricoh Sustainability Development Award

Ethan Gavin 7th grade
certificate
The Classical Academy Colorado Springs
A Bug's Death: A Study of Diatomaceous Earth and Pesticides

Emily Soder 12th grade
Swami Velamala 12th grade
certificate
Centaurus High School Lafayette
Plant-Powered Homeostatic Habitat

Society for In Vitro Biology

Outstanding Achievement in In Vitro Biology Award

Isabelle Rusk 11th grade
Emika Brown 11th grade
certificate
Fairview High School Boulder
Distinguishing Microbial Communities in Low Elevation Ponderosa Pine Forests After Prescribed and Natural Burns

Emma Perkins 11th grade
certificate
Boulder High School Boulder
Identifying Causes of Ectoparasite Presence on the American Pika (Ochotona princeps)

United States Metric Association

Outstanding Achievement in the Use of the International System Award

Madison Miller 7th grade
certificate
Monte Vista Middle School Monte Vista
Well, Well, Well, What Do We Have Here?

Alyssa Rawinski 11th grade
certificate
Monte Vista High School Monte Vista
Mealworms . . . A Potential Solution to the Global Plastic Problem

Water Environment Federation

Stockholm Junior Water Prize

Isla Anderson 10th grade
certificate, nomination to enter the SJWP state competition
Denver North High School Denver
Anthropogenic Induction of Antibiotic Resistance by Sulfamethoxazole

Amber Michel 11th grade
certificate, nomination to enter the SJWP state competition
Monte Vista High School Monte Vista
The Alamosa River Watershed: A Proving Ground for Natural Selection

Maximilian Shen 11th grade
certificate, nomination to enter the SJWP state competition
Fairview High School Boulder
Harvesting Water from Air with Solar Power for Underdeveloped Areas

Yale Science & Engineering Association

Outstanding Achievement in Science & Engineering Award

Elia Gorokhovskiy 11th grade
certificate
Fairview High School Boulder
Assimilating Time-Uncertain Measurements in Ensemble Kalman Filtering

Katelyn Salmon 11th grade
certificate
Palmer Ridge High School Monument
Synthesis of Acetylene-Perfluorinatedpyridine Monomer and Click0Mediated Polymerization

Teacher

Lockheed Martin

CSEF Teacher of the Year Award

Terri Paulson
\$3,000, plaque
Sargent Jr/Sr High School Monte Vista

Colorado Science & Engineering Fair

CSEF Teacher of the Year Nomination

Terri Paulson
certificate
Sargent Jr/Sr High School Monte Vista

Robin Staker
certificate
Lamar Middle School Lamar

Annette Humphrey
certificate
Good Shepherd Catholic School Denver

Dr. Paul Strode
certificate
Fairview High School Boulder

Appendix 3

2017/2018 Expense Report

Category Descriptions	Budget	Actual	Difference
INCOME			
Sponsorships	\$56,800.00	\$50,967.96	(\$5,832.04)
Contributions	\$6,050.00	\$5,408.00	(\$642.00)
General Income			
<i>Interest</i>	\$100.00	\$90.65	(\$9.35)
<i>Matching Gifts</i>	\$400.00	\$1,824.10	\$1,424.10
<i>RSF Outreach Funds</i>	\$10,000.00	\$14,000.00	\$4,000.00
<i>Sales</i>	\$1,500.00	\$1,560.00	\$60.00
<i>Scholarships/Special Awards</i>	\$5,830.00	\$6,800.00	\$970.00
<i>Teacher of the Year Award</i>	<u>\$3,000.00</u>	<u>\$0.00</u>	<u>(\$3,000.00)</u>
TOTAL General Income	\$20,830.00	\$24,274.75	\$3,444.75
Grants	\$0.00	\$980.00	\$980.00
In-Kind	\$13,000.00	\$12,682.66	(\$317.34)
Registrations	\$15,600.00	\$15,210.00	(\$390.00)
TOTAL INCOME	\$112,280.00	\$109,532.37	(\$2,756.63)
EXPENSES			
Awards			
Grand Awards	\$9,350.00	\$9,350.00	\$0.00
CSEF Special Awards	\$1,400.00	\$1,250.00	\$150.00
Other Special Awards	\$8,830.00	\$9,000.00	(\$170.00)
Non-Cash Awards	<u>\$2,052.00</u>	<u>\$1,942.00</u>	<u>\$110.00</u>
TOTAL Awards	\$21,632.00	\$21,542.00	\$90.00
Board Expenses			
Communications	\$750.00	\$825.80	(\$75.80)
Meetings	\$750.00	\$617.24	\$132.76
Operations	<u>\$8,798.96</u>	<u>\$7,919.11</u>	<u>\$879.85</u>
TOTAL Board Expenses	\$10,298.96	\$9,362.15	\$936.81
ISEF			
Affiliation	\$1,110.00	\$1,110.00	\$0.00
Travel	<u>\$9,460.00</u>	<u>\$7,634.13</u>	<u>\$1,825.87</u>
TOTAL ISEF	\$10,570.00	\$8,744.13	\$1,825.87
Outreach	\$12,000.00	\$14,762.54	(\$2,762.54)
CSEF Expenses			
Adult Sponsors	\$750.00	\$492.00	\$258.00
Advisory Council	\$100.00	\$0.00	\$100.00
Finalist Activities	\$8,400.00	\$8,195.95	\$204.05
Finalist Registration	\$12,900.00	\$12,875.59	\$24.41
Fund Raising	\$750.00	\$2,147.03	(\$1,397.03)
Judging	\$8,500.00	\$8,939.65	(\$439.65)
Personnel	\$10,075.44	\$10,602.00	(\$526.56)
Publications	\$2,675.00	\$2,182.11	\$492.89
Regional Fair Directors	\$150.00	\$159.91	(\$9.91)
Scientific Review Committee	\$500.00	\$265.76	\$234.24
Supplies	\$650.00	\$375.32	\$274.68
Volunteers	<u>\$3,500.00</u>	<u>\$2,748.88</u>	<u>\$751.12</u>
TOTAL CSEF Expenses	\$48,950.44	\$48,984.20	(\$33.76)
TOTAL EXPENSES	\$103,451.40	\$103,395.02	\$56.38
OVERALL TOTAL	\$8,828.60	\$6,128.35	(\$2,700.25)