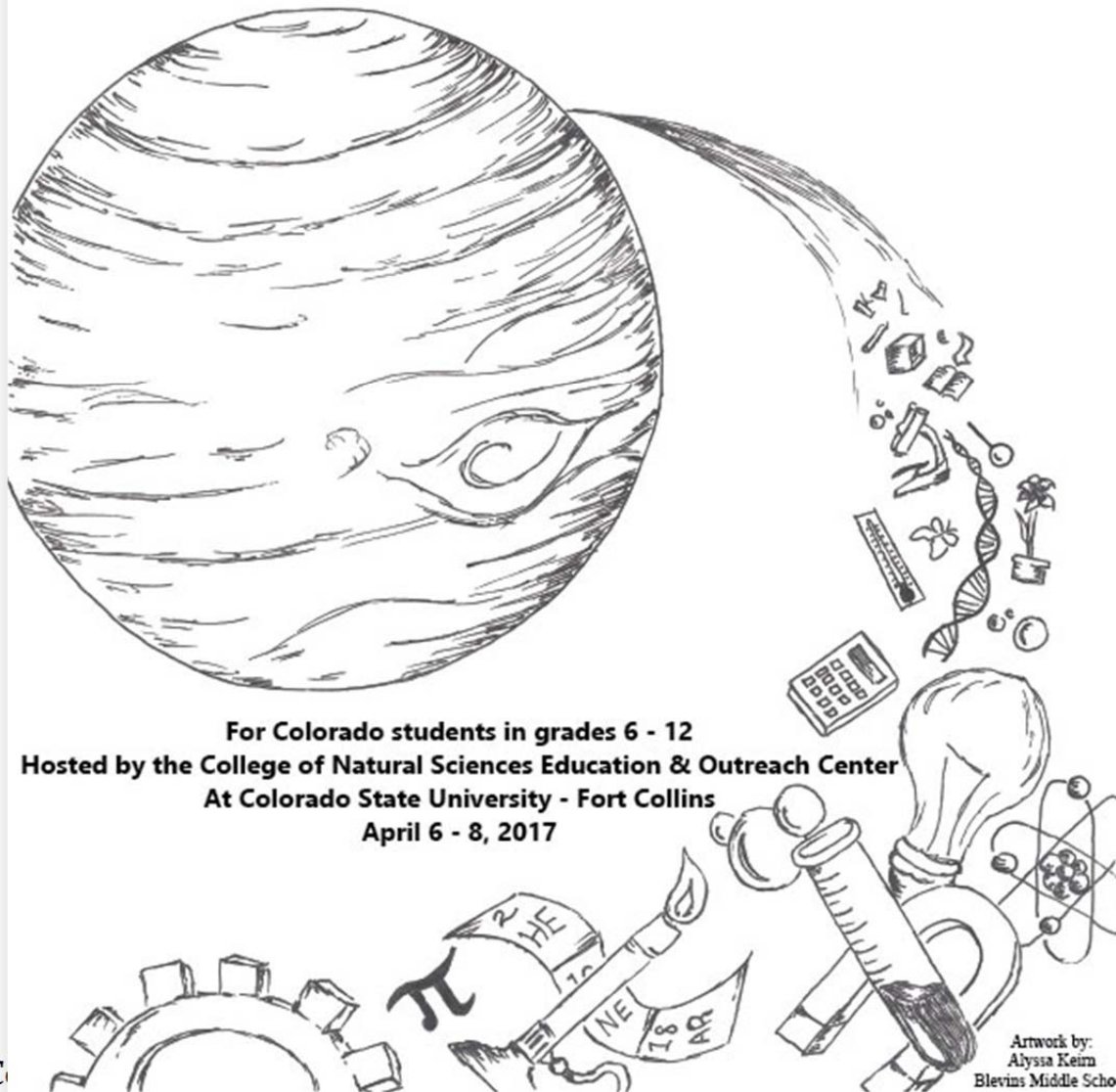


62nd ANNUAL
COLORADO
SCIENCE AND ENGINEERING FAIR



2017 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, 2017
Colorado State Science Fair, Inc.
College of Natural Sciences
Education & Outreach Center
Colorado State University
Campus Delivery 1802
Fort Collins, CO 80523-1802
Tel (970) 498-4121
Fax (970) 491-2005
e-mail: csef@colostate.edu
<http://www.csef.colostate.edu>

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

2017 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.

2017 COLORADO SCIENCE AND ENGINEERING FAIR

The sixty-second Colorado Science and Engineering Fair was held at the Lory Student Center of the Colorado State University campus in Fort Collins from Thursday, April 6, 2017 to Saturday, April 8, 2017.

This year, CSEF winners were chosen from among 333 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 2017 Colorado Science and Engineering Fair had 26 sponsors. Sponsors included 4 Diamond Sponsors (providing over \$10,000), 1 Platinum Sponsor (providing between \$5,000 - \$9,999), 3 Gold Sponsors (providing between \$2,500 - \$4,999), 7 Silver Sponsors (providing between \$1,000 - \$2,499), 0 Bronze Sponsors (providing between \$750 - \$999) and 12 Copper Sponsors (providing between \$500 - \$749). In addition, there were 40 Contributors (less than \$500 each).

Scholarships from several Colorado universities were also presented. Adams State University awarded thirteen one-year full resident tuition and fees scholarships. The Colorado School of Mines awarded eight \$1,000 renewable tuition scholarships. Colorado State University awarded eight \$1,000 renewable tuition scholarships to each of the 1st place senior division category winners

who were eligible. The College of Natural Sciences at CSU also awarded five \$1,000 tuition scholarships to each of the Senior Division CSEF Best Project award winners. Colorado State University-Pueblo awarded one \$1,000 tuition scholarships. The University of Colorado, Boulder awarded three \$500 renewable scholarships and five \$1,000 renewable scholarships. Colorado College Summer Session Office awarded one \$500 merit scholarship to attend CC in Summer 2017 as a pre-college student. The Colorado Science and Engineering Fair also awarded a \$2,000 scholarship to a twelfth grader in the name of Ryan Patterson (Intel ISEF top winner in 2001) for use at the college or university of his/her choice.

This year, the CSEF was honored to have David Aucsmith from the University of Washington's Applied Physics Lab as the guest speaker. Mr. Aucsmith spoke on *Conflict in Cyberspace – Past, Present & Future*.



(See Appendix 1 – 2017 CSEF Schedule)

2017 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 – 48%

Female – 52%

Percentage of Projects by Category

Animal Sciences

Male – 28%

Female – 72%

Behavioral & Social Sciences

Male – 30%

Female – 70%

Chemistry & Biochemistry

Male – 48%

Female – 52%

Earth & Space Sciences

Male – 50%

Female – 50%

Energy

Male – 62%

Female – 38%

Engineering

Male – 66%

Female – 34%

Environmental Sciences

Male – 46%

Female – 54%

Mathematics & Computer Sciences

Male – 72%

Female – 28%

Medicine & Health

Male – 22%

Female – 78%

Microbiology & Molecular Biology

Male – 22%

Female – 78%

Physics

Male – 63%

Female – 37%

Plant Sciences

Male – 35%

Female – 65%

Percentage of Awards by Category

Animal Sciences

Male – 19%

Female – 81%

Behavioral & Social Sciences

Male – 36%

Female – 64%

Chemistry & Biochemistry

Male – 63%

Female – 37%

Earth & Space Sciences

Male – 34%

Female – 66%

Energy

Male – 59%

Female – 41%

Engineering

Male – 51%

Female – 49%

Environmental Sciences

Male – 70%

Female – 30%

Mathematics & Computer Sciences

Male – 61%

Female – 39%

Medicine & Health

Male – 34%

Female – 66%

Microbiology & Molecular Biology

Male – 32%

Female – 68%

Physics

Male – 58%

Female – 42%

Plant Sciences

Male – 42%

Female – 58%

2017 CSEF ETHNICITY RATIOS

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

Percentage of Projects

Caucasian – 53%
Hispanic – 10%
Asian – 7%
African American – 0%
Native American – 1%
Other/Unknown – 29%

Percentage of Awards

Caucasian – 48%
Hispanic – 6%
Asian – 11%
African American – 0%
Native American – 1%
Other/Unknown – 34%

2017 CSEF GRADE LEVEL RATIOS

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

Percentage of Students

Junior Division – 62%
6th grade – 11%
7th grade – 20%
8th grade – 31%
Senior Division – 38%
9th grade – 9%
10th grade – 11%
11th grade – 9%
12th grade – 9%

Percentage of Projects

Junior Division – 64%
6th grade – 11%
7th grade – 20%
8th grade – 33%
Senior Division – 36%
9th grade – 8%
10th grade – 11%
11th grade – 9%
12th grade – 8%

Percentage of Grand Awards per Division

Junior Division – 54%
6th grade – 6/81 awards – 7%
7th grade – 28/81 awards – 35%
8th grade – 47/81 awards – 58%
Senior Division – 46%
9th grade – 11/68 awards – 16%
10th grade – 16/68 awards – 24%
11th grade – 22/68 awards – 32%
12th grade – 19/68 awards – 28%

Percentage of Students Winning Grand Awards

Junior Division – 36%
6th grade – 6/42 students – 14%
7th grade – 31/75 students – 41%
8th grade – 47/116 students – 41%
Senior Division – 52%
9th grade – 17/31 students – 42%
10th grade – 17/42 students – 40%
11th grade – 20/34 students – 59%
12th grade – 20/34 students – 59%

Percentage of Special Awards per Division

Junior Division – 47%
6th grade – 16/314 awards – 5%
7th grade – 48/314 awards – 15%
8th grade – 85/314 awards – 27%
Senior Division – 53%
9th grade – 15/314 awards – 5%
10th grade – 44/314 awards – 14%
11th grade – 69/314 awards – 22%
12th grade – 37/314 awards – 12%

Percentage of Students Winning Special Awards

Junior Division – 37%
6th grade – 11/42 students – 26%
7th grade – 32/75 students – 43%
8th grade – 43/116 students – 37%
Senior Division – 55%
9th grade – 9/31 students – 29%
10th grade – 23/42 students – 55%
11th grade – 26/34 students – 76%
12th grade – 19/34 students – 56%

2017 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 Los Angeles, CA May 14 - 19, 2017. First place went to **Isani Singh**, Cherry Creek High School, grade 11, for the project *Worse Outcomes in Turner Syndrome Women Compared to Women without Turner Syndrome*. Second place went to **Elliot Gorokhovskiy**, Fairview High School, grade 12, for the project *Adding Data-Aware Sort Optimizations to C-Python*. Third place went to **Molly Nehring**, Monte Vista High School, grade 10, for the project *Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection*. Fourth place went to **Seth Young**, The Classical Academy, grade 12, for the project *Applied Biomineralization*. Fifth place went to **Aubrey Berger**, Eagle Crest High School, grade 11, for the project *Mechanized Collection of Organic Spider Silk*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Elia Gorokhovskiy**, from Fairview High School, grade 10, for the project *A Method for the Reduction of Time Error in the Ensemble Adjustment Kalman Filter*.

The winner of the Elemer Bernath Technical Writing Award was **Anika Fergusson** from Summit Charter Middle School, grade 8, for the project *The Relationship between Cloud Chambers, pH and Probiotics: Is Traditional Yogurt Better?*

The winner of the Senior Division Student Choice Award was **Seth Young** from Palmer High School, grade 12, for the project *Applied Biomineralization*. The Junior Division Student Choice winner was **Kathryn Kummel** from North Middle School, grade 8, for the project *Gone with the Wind*.

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

The winners of the Pioneers of Science Awards were **Katelyn Carpenter**, Dolores Middle School, grade 7, for the project *Bite*; **Sophie Eschallier**, Mancos Middle School, grade 6, for the project *Exercise: A Wonder of Science*; **Chance Hill**, Walt Clark Middle School, grade 6, for the project *The Stroop Effect*; **Kaydee Dodge**, Craver Middle School, grade 8, for the project *Pumpkin Preservation Part 3*; **Adrian Pizano**, Rocky Ford Jr/Sr High School, grade 8, for the project *Testing the Waters*; **Kadence Kunselman**, Walsh Jr/Sr High School, grade 7, for the project *I've Got the Power*; **Leighton Burt**, Sargent Jr/Sr High School, grade 12, for the project *Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3*; **Ellie Clark**, St. Columba Catholic School, grade 7, for the project *Fabric Nanofinishing: Adventures in Textile Engineering*; **Paul Knight**, Miller Middle School, grade 8, for the project *Tidy Up Those Tailings*; **Eden Sears**, Liberty School, grade 8, for the project *Ripples in the Water*; **Elizabeth Sundheim**, St. John the Evangelist Catholic School, grade 8, for the project *Monte Python and the Search for the Perfect Plinko Placement*; **Jeffrey Knutson**, Manzanola Junior High School, grade 7, for the project *Behind the Screen (of Gaming)*; **D'Neil Doyle**, Walsh Jr/Sr High School, grade 8, for the project *Dangerous Temptations*; **Sarah-Cate Ogden**, Eaton Middle School, grade 8, for the project *Fat Cat*; **Anika Fergusson**, Summit Charter Middle School, grade 8, for the project, *pH and Probiotics: Is Traditional Yogurt Better?*; **Thomas Ferrell**, Home School, grade 6, for the project *Learning Physics Using a Pendulum and an Arduino*; and **Anuradha Prakash**, Summit Charter Middle School, grade 8, for the project *Pee Is for Plants*.

2017 COLORADO SCIENCE AND ENGINEERING FAIR

SCHOLARSHIP AWARDS

ADAMS STATE COLLEGE

Natalya Komleva, Northridge High School, grade 12, for the project *The Effects of Nutritional Changes in Memory Enhancement and Neurotransmitter Functionality*

Sarah Davidson, Nederland Middle-Senior High School, grade 11, for the project *Differences in Functions of Proprioceptive Feedback Mechanisms: In Shod and Barefoot Conditions*

Aaliyah Garcia, Center High School, grade 10, for the project *Wildland Firefighter Defense System: Phase Two*

Jenna Salvat, Coronado High School, grade 10, for the project *Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide*

Max Markuson DiPrince, Central High School, grade 11, for the project, *Windmill Efficiency Part 2*

Chase Cromwell, Lamar High School, grade 9, for the project *Stampede Arm*

Alyssa Rawinski, Monte Vista High School, grade 10, for the project *Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat*

Caroline Jennings, The Classical Academy, grade 10, for the project *Population Dynamics of Predation in Competitive Lupine-Ovine-Grassland Ecosystem*

Katherine Larson, Home School, grade 11, for the project *Electrical Impedance Tomography as a Tool for Detecting Tumors*

Cassidy Plane, Alamosa High School, grade 12, for the project *Can This Macromolecule Captivate Your Microorganisms?*

Michael Duran, Primero Jr/Sr High School, grade 10, for the project *How Strong Is Water?*

Parker Randolph, Monte Vista High School, grade 10, for the project *Examining the Effects of Martian Soil, Additives, Water Quality, and Companion Planting on Biomass a*

Maya Duran, Dolores Huerta Preparatory High School, grade 11, & **Sayer Guerrero**, South High School, grade 11, for their project *Strike a Pose*

COLORADO COLLEGE

Eric Bear, Colorado Academy, grade 11, for the project *Determining Water Treatment Planning Using a Classification Model Neural Network*

COLORADO SCHOOL OF MINES

Kyle Fridberg, Fairview High School, grade 11, for the project *A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid*

Max Markuson DiPrince, Central High School, grade 11, for the project, *Windmill Efficiency Part 2*

Jay Chandra, Fossil Ridge High School, grade 11, for the project *Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries*

Aubrey Berger, Eaglecrest High School, grade 11, for the project *Mechanized Collection of Organic Spider Silk*

Eric Bear, Colorado Academy, grade 11, for the project *Determining Water Treatment Planning Using a Classification Model Neural Network*

McKinley Dirks & Alexandra Rivera, SkyView Academy, grade 11, for the project *Methods to Reduce Micropollutants in Treated Water*

Stephanie Zhang, Fairview High School, grade 11, for the project *Gene Expression and Diseases Phase II: Developing a Model to Predict Cancer Progression*

COLORADO STATE UNIVERSITY

COLLEGE OF NATURAL SCIENCES

Isani Singh, Cherry Creek High School, grade 11, for the project *Worse Outcomes in Turner Syndrome Women Compared to Women Without Turner Syndrome*

Elliot Gorokhovsky, Fairview High School, grade 12, for the project *Adding Data-Aware Sort Optimizations to C-Python*

Molly Nehring, Monte Vista High School, grade 10, for the project *Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection*

Seth Young, The Classical Academy, grade 12, for the project *Applied Biomineralization*

Aubrey Berger, Eaglecrest High School, grade 11, for the project *Mechanized Collection of Organic Spider Silk*

COLORADO STATE UNIVERSITY

Felix Channiago, Conifer High School, grade 10, for the project *The Effect of Airborne Vibration on Sensory Hairs (Trichobothria) of Phidippus Jumping Spiders*

Scott Litwiler, Fairview High School, grade 11, for the project *Teenagers Texting While Driving*

Jenna Salvat, Coronado High School, grade 10, for the project *Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide*

Jay Chandra, Fossil Ridge High School, grade 11, for the project *Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries*

Aubrey Berger, Eaglecrest High School, grade 11, for the project *Mechanized Collection of Organic Spider Silk*

Alyssa Rawinski, Monte Vista High School, grade 10, for the project *Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat*

Seth Young, The Classical Academy, grade 12, for the project *Applied Biomineralization*

Isani Singh, Cherry Creek High School, grade 10, for the project *Studying the Effects of a Missing X Chromosome on the Liver*

Molly Nehring, Monte Vista High School, grade 10, for the project *Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection*

COLORADO STATE UNIVERSITY - PUEBLO

Isaac Jordan, Animas High School, grade 11, for the project *A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites*

UNIVERSITY OF COLORADO, BOULDER

Santiago Castillo, Challenge School, grade 8, for the project, *Reducing Seismic Accelerations in Buildings by Adding Reinforcements*

Amy Nguyen & Katherine Tran, DSST: College View High School, grade 9, for the project *Let It Flow: Developments of a New Two-Leaflet Bovine Tissue Mitral Valve Replacement*

Caroline Jennings, The Classical Academy, grade 10, for the project *Population Dynamics of Predation in Competitive Lupine-Ovine-Grassland Ecosystem: The Simulation That Cried Wolf*

Casey Shaw, Liberty School, grade 11, for the project *Make Way for Duckweed: Observing the Growth Rates of Lemna and Its Effect on Atmospheric Carbon Dioxide Concentrations in a Simulated Carbon Sink*

Isabella Bowland, Fairview High School, grade 11, for the project *Bad Altitude: Climate Change in the Alpine May Alter Beneficial Plant-Fungal Relationships*

Katherine Larson, Home School, grade 11, for the project *Electrical Impedance Tomography as a Tool for Detecting Tumors*

Anurag Golla, Fairview High School, grade 11, for the project *Motility Optimization of the PNIPAm Based Drug Delivery System*

Stephanie Zhang, Fairview High School, grade 11, for the project *Gene Expression and Diseases Phase II: Developing a Model to Predict Cancer Progression*

RYAN PATTERSON SCHOLARSHIP

The Ryan Patterson Scholarship is named in honor of the Intel ISEF top winner of 2001. This year's winner was **Seth Young**, The Classical Academy, grade 12, for the project *Applied Biomineralization*.

(See Appendix 2 – CSEF Press Release)



2017 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 14 – 19, 2017.

GRAND AWARDS

Isabella Bowland from Boulder, CO won \$5,000 (Top of Category) and \$3,000 (1st Place) in Plant Sciences.

Kyle Fridberg from Boulder, CO won \$5,000 (Top of Category) and \$3,000 (1st Place) in Chemistry. Kyle also won the Intel-Indo US Science and Technology Forum Visit to India Award.

Elliot Gorokhovsky from Lafayette, CO won \$3,000 (1st Place) in System Software.

Isani Singh from Aurora, CO won \$1,500 (2nd Place) in Biomedical & Health Sciences.

Hari Sowriraiian from Aurora, CO won \$1,000 (3rd Place) in Cellular & Molecular Biology.

Jay Chandra from Ft. Collins, CO won \$500 (4th Place) in Energy.

Seth Young Colorado Springs, CO won \$500 (4th Place) in Microbiology.

Cassandra Blew from Walsenberg, CO won \$500 (4th Place) in Behavioral & Social Sciences.

SPECIAL AND GOVERNMENT AWARDS

Aubrey Berger from Aurora, CO won \$250 (won Place) from the American Intellectual Property Law Association.

Jay Chandra from Ft. Collins, CO received a scholarship from Arizona State University.

Kyle Fridberg from Boulder, CO won \$750 from the US Air Force. Kyle also won \$4,000 (1st Place) from the American Chemical Society.

Elliot Gorokhovsky from Lafayette, CO won \$1,000 (1st Place) from the Association for Computing Machinery. Elliot also received participation and travel to summer school “Web Valley” in Trento, Italy from Fondazione Bruno Kessler.

Isaac Jordan from Ignacio, CO won \$2,500 (1st Place) from the Society for Experimental Mechanics. Isaac also received an Honorable Mention from NASA.

Michelle Kummel from Colorado Springs, CO received an Honorable Mention from the American Meteorological Society.

Isani Singh from Aurora, CO won \$500 (2nd Place) from the American Statistical 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)

Bayswater Exploration & Production, LLC

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)

US Department of Commerce/NOAA

GOLD SPONSORS

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

Colorado Dental Association

Lockheed Martin

Society of Petroleum Engineers,

Denver Section

SILVER SPONSORS

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

Black & Veatch

CableLabs

Colorado Medical Society

Education Foundation

IEEE, Denver Section

National Renewable Energy Laboratory

Seagate Technology

COPPER SPONSORS

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

Anheuser-Busch

Mike Bemski

Colorado Engineering Council

Exponential Engineering Company

Galvanic Engineering

Optimal Schedule

Rickards & Company, CPAs

San Luis Valley Regional Science Fair, Inc.

Sundyne Corporation

Dr. Larry & Carol Sveum

Vaughan Web Works

COMPANY CONTRIBUTORS

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

AceTivity, LLC

Colorado Association of Science Teachers

Colorado BioScience Institute

Hahn Water Resources

King Soopers

Kristi Mountain Sports

Myers Brothers Truck & Tractor, Inc.

Pro-Sports

SparkFun Electronics

INDIVIDUAL CONTRIBUTORS

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

Ed & Lucy Adams
Sam & Eileen Bartlett
Tim & Courtney Butler
Thomas Butts
Al Bedard Jr.
Emily Chan
Karl Dise
Monica Engler
James & Wendy Fischer
Darcy Gulig
Shelley & Glenn Gundry
Carol Hoffman
Gina Holland & Isaac Britton
Dr. David & Vonda Holm
Neil Kelley
Dan Kowal
The Lenz Kids
Lale Lovell
Ron McDaniel
Woody Moss
Jennifer & Matt Nehring
Jody & Floyd Oaks
Jennie Ridgley
James Rivers, Jr.
Thomas Salmon & Kay Duncan
Michel Schuh
Tracy Webb
The RedLion York
Kate Zerefos

DOOR PRIZE CONTRIBUTORS

Colorado Avalanche
Colorado Geological Survey
Colorado State University Bookstore
Colorado State University,
CNS Education & Outreach Center
Colorado State University,
College of Natural Sciences
Denver Museum of Nature & Science
Durango/Silverton Narrow Gauge Railroad
Mesa Verde Museum Association
Great Sand Dunes National Park & Preserve
Steve Spangler Science
Texas Instruments
USA Rugby

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- Mr. Brian Scriber

Vice President- Mrs. Dolly Morrow

Treasurer- Mr. Dan Kowal

Secretary- Ms. Madison Martinez

Past President- Dr. Russell Chadwick

Executive Director- Ms. Courtney Butler

*Mike Bemski
Gwyneth Glissmann
Mike Bemski*

*Optimal Schedule
Brian Scriber
Kerry Scriber*

*Colorado Dental Association
Dolly Morrow
Dr. Robert Morrow*

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

*Colorado Engineering Council
Sam Bartlett*

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

*Colorado State University
Dr. Andrew Warnock
Dr. Jan Nerger*

*US Department of Commerce/NOAA
Dr. Russell Chadwick
Dan Kowal*

*Galvanic Engineering
Ryan Patterson
Katlin Hornig*

*Vaughan Web Works
Nancy Vaughan
Peter Teasdale*

*IEEE, Denver Section
David Young
Jackie Adams*

*Associate/Alternative Members
Elemer Bernath - Historian
Dr. Alfred Bedard- NOAA
Doug Everett - SRC Chair
Judy Prester – Dr. Larry Sveum*

*Lockheed Martin
Ed Scholz*

*National Renewable Energy Laboratory
Madison Martinez*

REGIONAL FAIR DIRECTORS

Arkansas Valley Regional Science Fair
Dol Nath Khanal & Wayne Beadles

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
George Guddendorf

Western Regional Science Fair
Kevin Hoskin

MEMBERS AT LARGE

Loree Harvey	Steve Hiebert
Steve Iona	Ron Kollars
Nicole McMahon	Kim Melville-Smith
Candus Muir	Rod Simpson
Jim Sites	Laura Ussery
Tracy Webb	Wendy Wempe

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.

Room 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

62nd Annual Colorado Science & Engineering Fair
Thursday, April 6, 2017

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
<i>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.</i>		
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.	ISEF Rules Update & Discussion	Room 312
2:30 – 4:30 p.m.	Professional Development for Teachers: <i>Science Fair Best Practices</i> Candus Muir, The Classical Academy & Loree’ Harvey, Monte Vista HS	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	Theater Lobby
12:15 – 12:30 p.m.	Special Awards Judges’ Briefing	North Ballroom
12:00 – 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 7, 2017

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 – David Aucsmith Applied Physics Lab at University of Washington	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 8, 2017

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>	3 rd Floor Foyer
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

2017 Colorado Science and Engineering Fair Grand Awards Press Release

Junior Division Best CSEF Project

First Place

Kathryn Kummel 8th grade
Gone with the Wind: The Horseshoe Vortex Behind Tree Is-
lands on Pikes Peak & Impact on Tree Growth
 North Middle School Colorado Springs

Second Place

Scott Prieve 8th grade
To Rip or To Rap: How Does the Design of Erosion Control
on a Creek Bend Affect Bank Deterioration?
 North Middle School Colorado Springs

Third Place

Henry Foisie 7th grade
Easy Peazy Piezo Power
 The Classical Academy Colorado Springs

Senior Division Best CSEF Project

First Place

Isani Singh 11th grade
Worse Outcomes in Turner Syndrome Women Compared to
Women Without Turner Syndrome
 Cherry Creek High School Englewood

Second Place

Elliot Gorokhovskiy 12th grade
Adding Data-Aware Sort Optimizations to C-Python
 Fairview High School Boulder

Third Place

Molly Nehring 10th grade
Dancing with the Stars: Simulating Multi-Star Solar Systems
& the Probability of Planetary Ejection
 Monte Vista High School Monte Vista

Fourth Place

Seth Young 12th grade
Applied Biomineralization: Increasing Magnetosome For-
mation in AMB-1 for Industrial Purposes Through Genetic
Recombination of Genes Essential to Magnetosome Formation
and Mutation Mediated by UV Radiation
 The Classical Academy Colorado Springs

Fifth Place

Aubrey Berger 11th grade
Mechanized Collection of Organic Spider Silk
 Eaglecrest High School Centennial

Junior Division Animal Sciences

First Place

Alexandra Dalton 8th grade
Lobelia vs. Daphnia
 Peak to Peak Charter School Lafayette

Second Place

Elishevlyne Eliason 8th grade
The Least of Us
 Challenge School Denver

Third Place

Camille Rawinski 7th grade
Do Female Quarter Horses Have Better Memory Than Males?
Yay or Neigh?
 Monte Vista Middle School Monte Vista

Fourth Place

Michael Erwin & Carter Larsen 8th grade
Planarian Regeneration and Its Effect on Behavioral Memory
Retention
 Challenge School Denver

Honorable Mention

Charlese Satterfield 7th grade
Bigger Eggs for Peanuts
 Canon Exploratory School Canon City

Honorable Mention

Libby Schelich 7th grade
Cup vs. Normal Incubation Showdown
 Eaton Middle School Eaton

Honorable Mention

Lilly Figueroa 6th grade
What in the Whorl!
 Mancos Middle School Mancos

Honorable Mention

Chelsey Hale 7th grade
Caution: Is Turf Toxic?
 The Classical Academy Colorado Springs

Senior Division Animal Sciences

First Place

Felix Channiago 10th grade
The Effect of Airborne Vibration on Sensory Hairs (Tricho-
bothria) of Phidippus Jumping Spiders
 Conifer High School Conifer

Second Place

Amrita Purkayastha 11th grade
Role of Endothelin Receptor B in Vertebrate Pigment Cell
Evolution
 Fairview High School Boulder

Third Place

Sydnee Roth 10th grade
Don't Stress Me Out!
 Liberty School Joes

Fourth Place

Elissa Velasquez 9th grade
Epi(c)genetics
 Dolores Huerta Preparatory High School Pueblo

Junior Division Behavioral & Social Sciences

First Place

Ellie Schueler 8th grade
Violence in the Media: An Analysis of the Effects of Media
Violence on Mental and Physical Health
 North Middle School Colorado Springs

Appendix 2

Second Place
 Blakeley Bennett 8th grade
Got Color Cognition?
 North Middle School Colorado Springs

Third Place
 Madison Hening 7th grade
The Effect of Music on Cardiovascular Physiology
 St. Columba Catholic School Durango

Fourth Place
 Hayli Mackey 8th grade
The Effects of Cognitive Distraction on Reaction Times
 Springfield Jr/Sr High School Springfield

Honorable Mention
 Sophia Murray 8th grade
Mind the Gap: Growth Mindset and Gender
 Summit Charter Middle School Boulder

Honorable Mention
 Kristyn Cameron 8th grade
Is President Trump Correct About Attitudes Toward Immigration?
 The Classical Academy Colorado Springs

Honorable Mention
 Ethan Pattison Shoop 7th grade
The Music of Typing
 STEM High & Academy Highlands Ranch

Honorable Mention
 Sophie Eschallier 6th grade
Exercise: A Wonder of Science
 Mancos Middle School Mancos

Honorable Mention
 Emma Stone & Reiley Leake 8th grade
Which Is the Fairest of Them All?
 Brush Middle School Brush

Honorable Mention
 Isaac Fayram 8th grade
The Winning Touch
 Blevins Middle School Fort Collins

Senior Division Behavioral & Social Sciences

First Place
 Scott Litwiler 11th grade
Teenagers Texting While Driving: Computerized Eye Tracking as a Method to Assess Visual Distraction During Driving Simulations
 Fairview High School Boulder

Second Place
 Tyler Giallanza 12th grade
 Andrew Ying 11th grade
Overcoming Cognitive Biases in Mathematical Finance: An Artificial Intelligence Approach
 Cherry Creek High School Greenwood Village

Third Place
 Edwin Bodoni 10th grade
 Evelyn Bodoni 9th grade
Hearts Over Minds
 Cherry Creek High School Greenwood Village

Fourth Place
 Sarah Davidson 11th grade
Differences in Functions of Proprioceptive Feedback Mechanisms: In Shod and Barefoot Conditions
 Nederland Middle-Senior High School Nederland

Honorable Mention
 Angel Castillo 9th grade
"Extra" Focus
 West Grand High School Kremmling

Junior Division Chemistry & Biochemistry

First Place
 Grace Valentine 7th grade
The Effect of Cocoa Content, Cooling Time and Heating Temperature on the Tempering of Chocolate
 Most Precious Blood Catholic School Denver

Second Place
 Kaydee Dodge 8th grade
Pumpkin Preservation Part 3: Evaluating Hazards of Petroleum Jelly as a Jack'o Lantern Preservative
 Craver Middle School Colorado City

Third Place
 Kobi Hobert 8th grade
Iron Oxide
 Turner Middle School Berthoud

Fourth Place
 Dustin Medina 8th grade
Plop-Plop Fizz-Fizz: How Does Surface Area and Temperature Affect Chemical Reaction Rates?
 Corwin International Magnet School Pueblo

Honorable Mention
 Tyler Burt 8th grade
BPANIC?
 North Arvada Middle School Arvada

Honorable Mention
 Ethan Hotz 8th grade
How Cool Is That Light?
 Monte Vista Middle School Monte Vista

Honorable Mention
 Noah Randall 8th grade
Biodegradable Darts
 Flagstaff Academy Longmont

Honorable Mention
 Kylea Roitsch 8th grade
Leaching Chemicals
 The Classical Academy Colorado Springs

Senior Division Chemistry & Biochemistry

First Place
 Kyle Fridberg 11th grade
A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid
 Fairview High School Boulder

Appendix 2

Second Place	
Katelynn Salmon	10th grade
<i>Biodetoxification and Quantification of N-Nitrosamines by Symbiotaphrina kochii</i>	
Palmer Ridge High School	Monument
Third Place	
Aliya Godoy	10th grade
<i>Does Humidity of a Crime Scene Affect Transfer Quality of a Fingerprint?</i>	
SkyView Academy	Highlands Ranch
Fourth Place	
Brendan Gould	9th grade
<i>Going Bananas: Using Banana Peels in Polymerization Reactions to Produce Thermoplastics</i>	
The Classical Academy	Colorado Springs
Honorable Mention	
Allen Olmedo Soto	12th grade
<i>From Poop To Your Table</i>	
Greeley West High School	Greeley
Honorable Mention	
Aaliyah Garcia	10th grade
<i>Wildland Firefighter Defense System: Phase Two</i>	
Center High School	Center

Junior Division	Earth & Space Sciences
------------------------	-----------------------------------

First Place	
Kathryn Kummel	8th grade
<i>Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth</i>	
North Middle School	Colorado Springs
Second Place	
Joshua Miller	8th grade
<i>Effect of Sand Grain Size on Supportiveness of a Structure During a Liquefaction Event</i>	
Skinner Middle School	Denver
Third Place	
Tommy Pope	7th grade
<i>Slippery Slope: A Study on Erosion Control Methods</i>	
St. Columba Catholic School	Durango
Fourth Place	
Sam Haggans	8th grade
<i>Does Position Matter? Testing Different Layouts of Erosion Barriers in a Stream Bed</i>	
Summit Charter Middle School	Boulder
Honorable Mention	
Adrian Pizano	8th grade
<i>Testing the Waters</i>	
Rocky Ford Jr/Sr High School	Rocky Ford
Honorable Mention	
Raja Braford	8th grade
Belen Roof	7th grade
<i>Let It Snow</i>	
Silverton Schools	Silverton

Senior Division	Earth & Space Sciences
------------------------	-----------------------------------

First Place	
Jenna Salvat	10th grade
<i>Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide: Potential Application as a Micro-Thermovoltic Transducer</i>	
Coronado High School	Colorado Springs

Second Place	
Adrienne Jones	11th grade
<i>Borax Crystal Growth Response to Environmental Audio Variables</i>	
Trinidad High School	Trinidad

Third Place	
Rain Orsi	9th grade
<i>Is Your Faith in Fracking Shaken?</i>	
Rocky Mountain High School	Fort Collins

Fourth Place	
Leo Foster Greer	12th grade
<i>Harvest Project: Correcting Sea State Bias</i>	
Boulder High School	Boulder

Honorable Mention	
Kate DeMarsh & Madison Bohling	12th grade
<i>Cape Verde Hurricanes: How Genesis Point Impacts Landfall Latitude</i>	
Monarch High School	Louisville

Junior Division	Energy
------------------------	---------------

First Place	
Henry Foisie	7th grade
<i>Easy Peazy Piezo Power</i>	
The Classical Academy	Colorado Springs

Second Place	
Alex Tseng	7th grade
<i>Which Waste Shouldn't Be Wasted?</i>	
Stanley British Primary School	Denver

Third Place	
Hailey Melvin	6th grade
<i>Can You Make an Alternate Fuel Out of Food?</i>	
Dolores Middle School	Dolores

Fourth Place	
Cooper Hanley	8th grade
<i>Can You Generate Electricity By Moving?</i>	
Louisville Middle School	Louisville

Honorable Mention	
Payton Brown	8th grade
<i>Hemp Hemp Hooray</i>	
Sargent Jr/Sr High School	Monte Vista

Senior Division	Energy
------------------------	---------------

First Place	
Jay Chandra	11th grade
<i>Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries</i>	
Fossil Ridge High School	Fort Collins

Appendix 2

Second Place

Ashley Aguilar 12th grade
Converting Mechanical Vibrations into Electrical Energy Via Dielectric Elastomer Generators (DEGs)
 New Vista High School Boulder

Third Place

Claire Victor 12th grade
Renewable Hydrogen and Fuel Cells: The Future of Energy
 Centaurus High School Lafayette

Fourth Place

Max Markuson DiPrince 11th grade
Windmill Efficiency Part 2: Replicating & 3D Printing Natural Leaf Designs on a Vertical-axis Turbine
 Central High School Pueblo

Honorable Mention

Daniel Orbidan & Ethan Simpson 10th grade
The Impact of Rutile Phase Titania Nanowire Length on Periphyton Colonization and Voltage Output
 SkyView Academy Highlands Ranch

Honorable Mention

Michelle Ren & Julianna O'Clair 10th grade
Energy Production of Microbial Fuel Cells
 Brush High School Brush

Junior Division Engineering

First Place

Marissa Jordan 8th grade
A Softer Side of Robots: Using Grippers Made From Soft Materials
 Home School Ignacio

Second Place

Ellie Clark 7th grade
Fabric Nanofinishing: Adventures in Textile Engineering
 St. Columba Catholic School Durango

Third Place

Tate Schrock 7th grade
H2 and O2 Generator Fabrication & PEM Fuel Cell Efficiency
 Arickaree School Anton

Fourth Place

Allison Rose 7th grade
Engineering Design of an Improved Grasper for Eating Cheesy-Sticky Snacks
 The Classical Academy Colorado Springs

Honorable Mention

Kylie Walters 7th grade
The Blind Side
 The Classical Academy Colorado Springs

Honorable Mention

Alden Kruse 8th grade
Into Thin Air: A Search for Microbes in the Stratosphere
 Home School Colorado Springs

Honorable Mention

Samuel Uyemura 8th grade
The Future of Flight
 Buchanan Middle School Wray

Honorable Mention

Nicholas Huber 7th grade
Solar Still Design Efficiency
 St. Columba Catholic School Durango

Senior Division Engineering

First Place

Aubrey Berger 11th grade
Mechanized Collection of Organic Spider Silk
 Eaglecrest High School Centennial

Second Place

Anurag Golla 12th grade
Motility Optimization of the PNIPAm Based Drug Delivery System
 Fairview High School Boulder

Third Place

Isaac Jordan 11th grade
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites
 Animas High School Durango

Fourth Place

Amy Nguyen & Katherine Tran 9th grade
Let It Flow: Developments of a New Two-Leaflet Bovine Tissue Mitral Valve Replacement
 DSST: College View High School Denver

Honorable Mention

Chase Cromwell 9th grade
Stampede Arm
 Lamar High School Lamar

Honorable Mention

Krithik Ramesh 9th grade
Redesigning the Jet Engine to be Impervious to Foreign Contaminants: Part Two
 Cherry Creek High School Greenwood Village

Junior Division Environmental Sciences

First Place

Scott Prieve 8th grade
To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?
 North Middle School Colorado Springs

Second Place

Nathaniel Brim 8th grade
Depuration Kinetics of Activated Carbon with Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals
 The Classical Academy Colorado Springs

Third Place

Kaleb Andreatta 8th grade
 Cavin McCay 7th grade
Enhancing the Survival of Microinvertebrates in Rural Waste Water Treatment Plants
 La Veta Schools La Veta

Fourth Place

Grace Ramsey 7th grade
Worming Around With Compost
 Windsor Charter Academy Windsor

Appendix 2

Honorable Mention	
Grace Romero	8th grade
<i>The Effect Water Pollutants Have on Vegetation</i>	
Aspen Middle School	Aspen

Senior Division	Environmental Sciences
------------------------	-------------------------------

First Place	
Alyssa Rawinski	10th grade
<i>Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat</i>	
Monte Vista High School	Monte Vista

Second Place	
Eric Bear	11th grade
<i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	
Colorado Academy	Denver

Third Place	
Mitchell Fosdick	12th grade
<i>The Uptake of Copper Ions by <i>Chlorella Vulgaris</i></i>	
Fowler High School	Fowler

Fourth Place	
Max Warnock	9th grade
<i>The Impact of Odor Control Clothing on Water Boatmen (<i>Coriixidae</i>)</i>	
Poudre Global Academy	Fort Collins

Honorable Mention	
Michael Savala	10th grade
<i>Ferro-Solution? Can Iron Nanoparticles Help with Oil Spill Clean-up?</i>	
Monte Vista High School	Monte Vista

Junior Division	Math & Computer Sciences
------------------------	-------------------------------------

First Place	
Sara Nehring	8th grade
<i>Over the Hill and Through the Codes to Encryption and Decryption We Go!</i>	
Monte Vista Middle School	Monte Vista

Second Place	
Charles Rothbaum	8th grade
<i>Learning Robots</i>	
Corwin International Magnet School	Pueblo

Third Place	
Elizabeth Sundheim	8th grade
<i>Monte Python and the Search for the Perfect Plinko Placement</i>	
St. John the Evangelist Catholic School	Loveland

Fourth Place	
Jack Balaguer	8th grade
<i>Rally Time: The Effects of Psychological Momentum in Baseball</i>	
Summit Charter Middle School	Boulder

Honorable Mention	
Jeffery Knutson	7th grade
<i>Behind the Screen (of Gaming)</i>	
Manzanola Junior High School	Manzanola

Honorable Mention	
Shreyas Sriram	7th grade
<i>Designing a Crowd-Sourced Weather Alert System</i>	
Challenge School	Denver

Senior Division	Math & Computer Sciences
------------------------	-------------------------------------

First Place	
Elliot Gorokhovsky	12th grade
<i>Adding Data-Aware Sort Optimizations to C-Python</i>	
Fairview High School	Boulder

Second Place	
Elia Gorokhovsky	10th grade
<i>A Method for the Reduction of Time Error in the Ensemble Adjustment Kalman Filter</i>	
Fairview High School	Boulder

Third Place	
Daniel Zamoshchin	9th grade
<i>Predicting Clickbait Headlines Using Machine Learning and the Naive Bayes Classifier</i>	
Cherry Creek High School	Greenwood Village

Fourth Place	
Stephanie Zhang	11th grade
<i>Gene Expression and Diseases Phase II: Developing a Model to Predict Cancer Progression</i>	
Fairview High School	Boulder

Honorable Mention	
Colin Burdine	12th grade
<i>Determining the Complexity of Boolean Formulae Modeling NP Decision Problems</i>	
Cherry Creek High School	Greenwood Village

Junior Division	Medicine & Health
------------------------	------------------------------

First Place	
Jason Cui	7th grade
<i>Powerful Natural Antibiotics</i>	
Southern Hills Middle School	Boulder

Second Place	
Lauren Linnebur & Malayne Perry	7th grade
<i>Student Health Literacy and Snack Consumption in Elementary and Middle Schools</i>	
Liberty Middle School	Aurora

Third Place	
Charlotte Granrud	7th grade
<i>Which Sunscreen Provides the Most Protection from Harmful Sun Rays?</i>	
Frontier Academy	Greeley

Fourth Place	
Evie Upchurch	7th grade
<i>Nice Ice?</i>	
The Classical Academy	Colorado Springs

Honorable Mention	
Colleen Farrell	7th grade
<i>Hidden Dangers of the Doctor's Office</i>	
Eagle County Charter Academy	Edwards

Appendix 2

Honorable Mention

Juliana Kelley 8th grade
Organic: "Can" It Be Better?
 Pueblo School for Arts & Sciences Pueblo

Honorable Mention

D'Neil Doyle 8th grade
Dangerous Temptations
 Walsh Jr/Sr High School Walsh

Senior Division Medicine & Health

First Place

Isani Singh 11th grade
Worse Outcomes in Turner Syndrome Women Compared to Women Without Turner Syndrome
 Cherry Creek High School Englewood

Second Place

Ibrohim Nosirov 9th grade
Use of SPECT Imagery to Establish a General Statistical Predictive Model for Dementia
 SkyView Academy Highlands Ranch

Third Place

Hari Sowrirajan 11th grade
Optimization of Zinc Oxide Nanoparticles for Vaccine Delivery
 Cherry Creek High School Greenwood Village

Fourth Place

Chelsea Wang 11th grade
Alterations in Sleep Architecture Resulting from Amygdala Kindling in Mice
 Fossil Ridge High School Fort Collins

Honorable Mention

Solomon Bloomfield 11th grade
*Amph-1 Knockdown Aggravates Pathogenesis of Alzheimer's Disease in *Caenorhabditis Elegans**
 Fairview High School Boulder

Honorable Mention

Katherine Larson 11th grade
Electrical Impedance Tomography as a Tool for Detecting Tumors
 Home School Colorado Springs

Junior Division Microbiology & Molecular Biology

First Place

Anjali Chaparala 8th grade
Gut Less Sugar
 The Classical Academy Colorado Springs

Second Place

Anika Fergusson 8th grade
pH and Probiotics: Is Traditional Yogurt Better?
 Summit Charter Middle School Boulder

Third Place

Maya Monks & Annika Reeder-Holman 7th grade
Effect of Teeth Brushing and Chewies on Canine Oral Bacterial Count
 Stanley British Primary School Denver

Fourth Place

Jocelynn Elizabeth King 7th grade
Farm vs Pharmacy
 Challenge School Denver

Senior Division Microbiology & Molecular Biology

First Place

Seth Young 12th grade
Applied Biomineralization
 The Classical Academy Colorado Springs

Second Place

Peyton Leyendecker 9th grade
Manuka Honey Surgical Adhesive
 SkyView Academy Highlands Ranch

Third Place

Kaitlyn Carson 12th grade
The Effects of Wash Water Temperature on Egg Shell Permeability
 Windsor High School Windsor

Fourth Place

Cassidy Plane 12th grade
Can This Macromolecule Captivate Your Microorganisms?
 Alamosa High School Alamosa

Honorable Mention

Elora Smith 10th grade
That Gut Feeling: Identifying the Gut Microboita in Different Groups of Children
 Sargent Jr/Sr High School Monte Vista

Honorable Mention

Avi Swartz 12th grade
Statistical Analysis of Graft vs. Host Disease and Immune Reconstitution in Humanized Mice
 Cherry Creek High School Greenwood Village

Honorable Mention

Sarah Danekind & Tesla Newton 12th grade
Cultivation of Soil Bacteria Across Stress Gradients
 Monarch High School Louisville

Junior Division Physics

First Place

Corey Schanker 8th grade
Kinetic Energy
 Turner Middle School Berthoud

Second Place

Olivia Greene 7th grade
The Need for Speed
 The Classical Academy Colorado Springs

Third Place

Xander Duvall 6th grade
Magnetic Effects on Subatomic Particles
 Thomas MacLaren School Colorado Springs

Fourth Place

Alyssa Lee 8th grade
The Physics of Flying: G-Forces in Aerial Dance
 Summit Charter Middle School Boulder

Appendix 2

Honorable Mention

Matthew Anderson 7th grade
How the Percentage of Alpha Particles Shielded Changes with Different Types of Shielding
 Challenge School Denver

Senior Division Physics

First Place

Molly Nehring 10th grade
Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection
 Monte Vista High School Monte Vista

Second Place

Katie Gorsline 11th grade
Friction and Penetration
 Greeley West High School Greeley

Third Place

Sai Kaushik Yeturu 12th grade
A Bio-inspired Saddle Mechanism for Mechanical Energy Storage
 Peak to Peak Charter School Lafayette

Fourth Place

Christoph Cikraji 12th grade
Artificial Gravity Concept for Sustainable Space
 Durango High School Durango

Junior Division Plant Sciences

First Place

Anuradha Prakash 8th grade
Pee Is for Plants
 Summit Charter Middle School Boulder

Second Place

Elias Arredondo 6th grade
Fish Fertilizer: The Correlation Between Fish and Foliage
 Monte Vista On-line Academy Monte Vista

Third Place

Sofia Bader 8th grade
Build the Swamp
 Miller Middle School Durango

Fourth Place

Parker Stone 6th grade
Get It Ripe
 Beaver Valley Elementary School Brush

Honorable Mention

Sarah Duzenack 8th grade
A Comparison of Endomycorrhizae and Commercial Fertilizer on Fodder Crops: Year 3
 La Veta Schools La Veta

Honorable Mention

Caleb Rigggenbach 8th grade
The Little Things in Life A Study on Microorganisms
 Monte Vista Middle School Monte Vista

Senior Division Plant Sciences

First Place

Michelle Kummel 11th grade
Microclimatological Feedbacks at Treeline
 Palmer High School Colorado Springs

Second Place

Isabella Bowland 11th grade
Bad Altitude: Climate Change in the Alpine May Alter Beneficial Plant-Fungal Relationships
 Fairview High School Boulder

Third Place

Casey Shaw 11th grade
Make Way for Duckweed: Observing the Growth Rates of Lemna and its Effect on Atmospheric Carbon Dioxide Concentrations in a Simulated Carbon Sink
 Liberty School Joes

Fourth Place

Parker Randolph 10th grade
Examining the Effects of Martian Soil, Additives, Water Quality, and Companion Planting on Biomass a
 Monte Vista High School Monte Vista

2017 Colorado Science and Engineering Fair Special Awards Press Release

CSEF Awards

Poster Art Contest

Angel Castillo 9th grade
\$100, certificate
West Grand High School Kremmling

Elemér Bernath Technical Writing Award

Anika Fergusson 8th grade
\$100, certificate
Summit Charter Middle School Boulder
pH and Probiotics: Is Traditional Yogurt Better?

Ralph Desch Memorial Technical Writing Award

Elia Gorokhovskiy 10th grade
\$100, certificate
Fairview High School Boulder
A Method for the Reduction of Time Error in the Ensemble Adjustment Kalman Filter

Student Choice Award

Kathryn Kummel 8th grade
\$100, trophy, certificate
North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Seth Young 12th grade
\$100, trophy, certificate
The Classical Academy Colorado Springs
Applied Biomineralization: Increasing Magnetosome Formation in AMB-1 for Industrial Purposes Through Genetic Recombination of Genes Essential to Magnetosome Formation and Mutation Mediated by UV Radiation

Pioneers of Science Awards

Temple Grandin Award

Katelyn Carpenter 7th grade
\$50, certificate, poster of pioneer scientist
Dolores Middle School Dolores
Bite

Sigmund Freud Award

Sophie Eschallier 6th grade
\$50, certificate, poster of pioneer scientist
Mancos Middle School Mancos
Exercise: A Wonder of Science

Margaret Mead Award

Chance Hill 6th grade
\$50, certificate, poster of pioneer scientist
Walt Clark Middle School Loveland
The Stroop Effect

John Dalton Award

Kaydee Dodge 8th grade
\$50, certificate, poster of pioneer scientist
Craver Middle School Colorado City
Pumpkin Preservation Part 3: Evaluating Hazards of Petroleum Jelly as a Jack'o Lantern Preservative

Edwin Hubble Award

Adrian Pizano 8th grade
\$50, certificate, poster of pioneer scientist
Rocky Ford Jr/Sr High School Rocky Ford
Testing the Waters

Christa McAuliffe Award

Kadence Kunselman 7th grade
\$50, certificate, poster of pioneer scientist
Walsh Jr/Sr High School Walsh
I've Got the Power

Hedy Lamarr Award

Leighton Burt 12th grade
\$50, certificate, poster of pioneer scientist
Sargent Jr/Sr High School Monte Vista
Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3

Nicola Tesla Award

Ellie Clark 7th grade
\$50, certificate, poster of pioneer scientist
St. Columba Catholic School Durango
Fabric Nanofinishing: Adventures in Textile Engineering

Rachel Louise Carson Award

Paul Knight 8th grade
\$50, certificate, poster of pioneer scientist
Miller Middle School Durango
Tidy Up Those Tailings

Gifford Pinchot Award

Eden Sears 8th grade
\$50, certificate, poster of pioneer scientist
Liberty School Joes
Ripples in the Water

Ada Lovelace Award

Elizabeth Sundheim 8th grade
\$50, certificate, poster of pioneer scientist
St. John the Evangelist Catholic School Loveland
Monte Python and the Search for the Perfect Plinko Placement

Grace Hopper

Jeffery Knutson 7th grade
\$50, certificate, poster of pioneer scientist
Manzanola Junior High School Manzanola
Behind the Screen (of Gaming)

Elizabeth Blackwell Award

D'Neil Doyle 8th grade
\$50, certificate, poster of pioneer scientist
Walsh Jr/Sr High School Walsh
Dangerous Temptations

G. V. Black Award

Sarah-Cate Ogden 8th grade
\$50, certificate, poster of pioneer scientist
Eaton Middle School Eaton
Fat Cat

Appendix 2

Louis Pasteur Award

Anika Fergusson 8th grade
 \$50, certificate, poster of pioneer scientist
 Summit Charter Middle School Boulder
pH and Probiotics: Is Traditional Yogurt Better?

Albert von Szent-Gyorgyi Award

Thomas Ferrell 6th grade
 \$50, certificate, poster of pioneer scientist
 Home School Durango
Learning Physics Using a Pendulum and an Arduino

Luther Burbank Award

Anuradha Prakash 8th grade
 \$50, certificate, poster of pioneer scientist
 Summit Charter Middle School Boulder
Pee Is for Plants

Organizational Awards

Air & Waste Management Association

Rocky Mountain Section

Air & Waste Management Award

Kathryn Kummel 8th grade
 \$50
 North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Is-
lands on Pikes Peak & Impact on Tree Growth

Kody Donnelson 6th grade
 \$100
 Fleming Middle School Fleming
Marble, Marble, Everywhere and What an Acid Rain Drop
Will Do

Max Warnock 9th grade
 \$50
 Poudre Global Academy Fort Collins
The Impact of Odor Control Clothing on Water Boatmen (Co-
rixidae)

Nathaniel Miner & Drake Ludgate 10th grade
 \$100
 Brush High School Brush
Black Carbon Detection: A Regional Snow Survey

American Association of University Women

AAUW Award for Women in STEM

Kaydee Dodge 8th grade
 \$100
 Craver Middle School Colorado City
Pumpkin Preservation Part 3: Evaluating Hazards of Petrole-
um Jelly as a Jack'o Lantern Preservative

Aaliyah Garcia 10th grade
 \$100
 Center High School Center
Wildland Firefighter Defense System: Phase Two

American Chemical Society

Colorado Local Section

ACS Award

Tyler Burt 8th grade
 \$50

North Arvada Middle School Arvada
BPANIC?

Dustin Medina 8th grade
 \$50

Corwin International Magnet School Pueblo
Plop-Plop Fizz-Fizz: How Does Surface Area and Tempera-
ture Affect Chemical Reaction Rates?

Noah Randall 8th grade
 \$50

Flagstaff Academy Longmont
Biodegradable Darts

Grace Valentine 7th grade
 \$50

Most Precious Blood Catholic Denver
The Effect of Cocoa Content, Cooling Time and Heating Tem-
perature on the Tempering of Chocolate

Ethan Hotz 8th grade
 \$150

Monte Vista Middle School Monte Vista
How Cool Is That Light?

Kylie Franklin & Lauren Wood 11th grade
 \$50

Campo School Campo
It's Electro...phoresis!

Katelynn Salmon 10th grade
 \$50

Palmer Ridge High School Monument
Biodetoxification and Quantification of N-Nitrosamines by
Symbiotaphrina kochii

Danae Beauprez 10th grade
 \$50

Yuma High School Yuma
Dying To Know: How Quickly Does Hair Dye Leach Out?

Joshua Chapman 12th grade
 \$50

Cherry Creek High School Greenwood Village
General Formula for Deriving Reaction Rate Constants

Kyle Fridberg 11th grade
 \$150

Fairview High School Boulder
A Novel Method of Producing Colloidal Gold Nanoparticles
from Gold Ore and Aqueous Sulfuric Acid

American Industrial Hygiene Association

Rocky Mountain Section

Excellence in Protection of Health and the Envi- *ronment Award*

Mindi Carr 8th grade
 \$50

Genoa-Hugo School Hugo
Deep Knee Bends

Appendix 2

Aaliyah Garcia 10th grade
 \$200
 Center High School Center
Wildland Firefighter Defense System: Phase Two

American Institute of Aeronautics & Astronautics

Rocky Mountain Section

Excellence in Aeronautics & Astronautics Award

Tate Schrock 7th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Arickaree School Anton
H2 and O2 Generator Fabrication & PEM Fuel Cell Efficiency

Alden Kruse 8th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Home School Colorado Springs
Into Thin Air: A Search for Microbes in the Stratosphere

Molly Nehring 10th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Monte Vista High School Monte Vista
Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection

Aubrey Berger 11th grade
 certificate, Arduino kit, 1 year AIAA student membership
 Eaglecrest High School Centennial
Mechanized Collection of Organic Spider Silk

American Institute of Chemical Engineers Rocky Mountain Section

Excellence in Chemical Engineering Award

Dustin Medina 8th grade
 \$75
 Corwin International Magnet School Pueblo
Plop-Plop Fizz-Fizz: How Does Surface Area and Temperature Affect Chemical Reaction Rates?

Nathaniel Brim 8th grade
 \$100
 The Classical Academy Colorado Springs
Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals

Brendan Gould 9th grade
 \$75
 The Classical Academy Colorado Springs
Going Bananas: Using Banana Peels in Polymerization Reactions to Produce Thermoplastics

Michael Savala 10th grade
 \$100
 Monte Vista High School Monte Vista
Ferro-Solution? Can Iron Nanoparticles Help with Oil Spill Clean-up?

American Institute of Professional Geologists Colorado Section

AIPG Certificate of Excellence in the Geosciences

Nathaniel Brim 8th grade
 \$50

The Classical Academy Colorado Springs
Depuration Kinetics of Activated Carbon with Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals

Scott Prieve 8th grade
 \$100

North Middle School Colorado Springs
To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?

Isaac Jordan 11th grade
 \$50

Animas High School Durango
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites

Kyle Fridberg 11th grade
 \$100

Fairview High School Boulder
A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid

American Meteorological Society Denver/Boulder Chapter

Award for Excellence in Atmospheric Science

Kathryn Kummel 8th grade
 gift certificate, certificate

North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Kate DeMarsh & Madison Bohling 12th grade
 gift certificate, certificate

Monarch High School Louisville
Cape Verde Hurricanes: How Genesis Point Impacts Landfall Latitude

American Public Power Association & Platte River Power Authority

Special Award for Demonstration of Energy & Efficiency Development

Juno Gregg 7th grade
 \$100

Skinner Middle School Denver
The Effect of Electricity's Fields on the Strength of an Electromagnet

Claire Victor 12th grade
 \$150

Centaurus High School Lafayette
Renewable Hydrogen and Fuel Cells: The Future of Energy

Special Award for Environmental Innovation

Rewa Raizada 7th grade
 \$100

STEM High & Academy Highlands Ranch
Water Conservation Using SMART Technology

Appendix 2

Jay Chandra 11th grade
 \$150
 Fossil Ridge High School Fort Collins
Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries

American Statistical Association Colorado/Wyoming Chapter David Young Memorial Award

Matthew Anderson 7th grade
 \$200, student membership in American Statistical Association, acknowledgement at chapter spring meeting and on chapter web site
 Challenge School Denver
How the Percentage of Alpha Particles Shielded Changes with Different Types of Shielding
 Isani Singh 11th grade
 \$200, student membership in American Statistical Association, acknowledgement at chapter spring meeting and on chapter web site
 Cherry Creek High School Englewood
Worse Outcomes in Turner Syndrome Women Compared to Women without Turner Syndrome

American Vacuum Society Rocky Mountain Chapter

Excellence in Physical Sciences & Engineering Award

Kylea Roitsch 8th grade
 \$50, \$50 matching award to teacher/sponsor
 The Classical Academy Colorado Springs
Leaching Chemicals
 Xander Duvall 6th grade
 \$100, \$100 matching award to teacher/Sponsor
 Thomas MacLaren School Colorado Springs
Magnetic Effects on Subatomic Particles
 Claire Victor 12th grade
 \$50, \$50 matching award to teacher/sponsor
 Centaurus High School Lafayette
Renewable Hydrogen and Fuel Cells: The Future of Energy
 Isaac Jordan 11th grade
 \$100, \$100 matching award to teacher/Sponsor
 Animas High School Durango
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites

ASM International

ASM Materials Education Foundation Award

Kyle Fridberg 11th grade
 \$100
 Fairview High School Boulder
A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid

Jay Chandra 11th grade
 \$150
 Fossil Ridge High School Fort Collins
Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries

Biomedical Engineering Society

Excellence in Biomedical Engineering Award

Marissa Jordan 8th grade
 goody bag of BME stuff
 Home School Ignacio
A Softer Side of Robots: Using Grippers Made From Soft Materials
 Chase Cromwell 9th grade
 goody bag of BME stuff
 Lamar High School Lamar
Stampede Arm
 Amy Nguyen & Katherine Tran 9th grade
 \$50, goody bag of BME stuff
 DSST: College View High School Denver
Let It Flow: Developments of a New Two-Leaflet Bovine Tissue Mitral Valve Replacement

Biophysical Society

Biophysics Award

Caroline Jennings 10th grade
 \$100, certificate
 The Classical Academy Colorado Springs
Population Dynamics of Predation in a Competitive Lupine-Ovine-Grassland Ecosystem: The Simulation that Cried Wolf

Colorado Association of Meat Processors

Excellence in Meat Science & Food Safety Award

Allen Olmedo Soto 12th grade
 \$80, certificate
 Greeley West High School Greeley
From Poop To Your Table

Colorado Association of Science Teachers

CAST Award

Charlotte Granrud 7th grade
 \$100
 Frontier Academy Greeley
Which Sunscreen Provides the Most Protection from Harmful Sun Rays?
 Kobi Hobert 8th grade
 \$100
 Turner Middle School Berthoud
Iron Oxide
 Kyle Fridberg 11th grade
 \$100
 Fairview High School Boulder
A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid

Appendix 2

Molly Nehring 10th grade
 \$100
 Monte Vista High School Monte Vista
*Dancing with the Stars: Simulating Multi-Star Solar Systems
 & the Probability of Planetary Ejection*

Colorado Biology Teachers' Association

CBTA Best Biology Project Award

Elias Arredondo 6th grade
 \$50, certificate
 Monte Vista On-line Academy Monte Vista
Fish Fertilizer: The Correlation Between Fish and Foliage

Jason Cui 7th grade
 \$100, certificate
 Southern Hills Middle School Boulder
Powerful Natural Antibiotics

Kaitlyn Carson 12th grade
 \$50, certificate
 Windsor High School Windsor
The Effects of Wash Water Temperature on Egg Shell Permeability

Michelle Kummel 11th grade
 \$100, certificate
 Palmer High School Colorado Springs
Microclimatological Feedbacks at Treeline

Colorado BioScience Institute

BioGENEius Challenge

Hari Sowrirajan 11th grade
 all-expense paid trip to compete at the US National and International competition held in San Diego, CA June 2017 during the International BIO Convention
 Cherry Creek High School Greenwood Village
Optimization of Zinc Oxide Nanoparticles for Vaccine Delivery

Colorado Chemistry Teachers' Association

CCTA Chemistry Award

Charlie Clapper 7th grade
 \$100
 Stratton Schools Stratton
Viscosity

Tyson Schneider 9th grade
 \$100
 Arickaree School Anton
Wicktastic

Colorado Dental Association

CDA Excellence in Oral Health Award

Beau Tate 7th grade
 \$50
 Walsh Jr/Sr High School Walsh
They See Me Flossing!

Maya Monks & Annika Reeder-Holman 7th grade
 \$100
 Stanley British Primary School Denver
Effect of Teeth Brushing and Chewies on Canine Oral Bacterial Count

Brecken Dobbs 8th grade
 \$50
 La Veta Schools La Veta
Tooth Enamel: Can It Really Be Strengthened? Year Two

Kaytlyn Keating¹ & Emilee Wells² 8th grade
 \$100

¹Weldon Valley School Weldon

²Fort Morgan Middle School Fort Morgan

Detox Your Mouth to Cleanse Your Health!

Colorado Division of Reclamation, Mining & Safety

Outstanding Earth Science Award

Nathaniel Brim 8th grade
 \$75

The Classical Academy Colorado Springs
Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals

Mitchell Fosdick 12th grade
 \$75

Fowler High School Fowler
The Uptake of Copper Ions by Chlorella Vulgaris

Colorado Environmental Health Association

Environmental Health Award

Mikailah Feinman 7th grade
 \$75, framed certificate

Primero Jr/Sr High School Weston
Produced Gas Well Water: Can It Be Repurposed for Agricultural Use?

Eric Bear 11th grade
 \$150, framed certificate, invitation to exhibit at the CEHA Annual Educational Conference (valued at \$400)

Colorado Academy Denver
Determining Water Treatment Planning Using a Classification Model Neural Network

Colorado Foundation for Agriculture

Agriculture in the Classroom Award

Michaela Ravenkamp 7th grade
 certificate, \$50

Genoa-Hugo School Hugo
Farmtastic

Paige Beedy 8th grade
 Trista Marx 7th grade

certificate, \$50
 Limon Schools Limon
Organic Fertilizers

Parker Randolph 10th grade
 certificate, \$50

Monte Vista High School Monte Vista
Examining the Effects of Martian Soil, Additives, Water Quality, and Companion Planting on Biomass a

Lacey Niccoli 10th grade
 certificate, \$50

Arickaree School Anton
Reclaimed! The Effects of Amendments on Soil Reclamation

Appendix 2

Colorado Geographic Alliance

COGA Application of Geography Award

Julia Warnock \$100 Poudre Global Academy <i>Habitats Most Affected by Light Pollution in Red Fox Meadows</i>	7th grade Fort Collins
Kate DeMarsh & Madison Bohling \$100 Monarch High School <i>Cape Verde Hurricanes: How Genesis Point Impacts Landfall Latitude</i>	12th grade Louisville

Colorado Medical Society

CMS Education Foundation Award

Colleen Farrell \$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 Eagle County Charter Academy <i>Hidden Dangers of the Doctor's Office</i>	7th grade Edwards
Hari Sowrirajan \$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 Cherry Creek High School <i>Optimization of Zinc Oxide Nanoparticles for Vaccine Delivery</i>	11th grade Greenwood Village

Colorado Mineral Society

Best Earth Science Award

Paul Knight \$35, mineral specimen, book, certificate Miller Middle School <i>Tidy Up Those Tailings</i>	8th grade Durango
Joshua Miller \$50, mineral specimen, book, certificate Skinner Middle School <i>Effect of Sand Grain Size on Supportiveness of a Structure During a Liquefaction Event</i>	8th grade Denver
Jenna Salvat \$35, mineral specimen, book, certificate Coronado High School <i>Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide: Potential Application as a Micro-Thermovoltic Transducer</i>	10th grade Colorado Springs
Kyle Fridberg \$50, mineral specimen, book, certificate Fairview High School <i>A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid</i>	11th grade Boulder

Colorado Mycological Society

Excellence in Mycological Research Award

Paul Knight certificate, \$100, CMS membership for 2017 Miller Middle School <i>Tidy Up Those Tailings</i>	8th grade Durango
---	----------------------

Colorado Native Plant Society

Colorado Native Plants Award for Excellence

Sofia Bader \$50 Miller Middle School <i>Build the Swamp</i>	8th grade Durango
Michelle Kummel \$50 Palmer High School <i>Microclimatological Feedbacks at Treeline</i>	11th grade Colorado Springs

Colorado Scientific Society

Excellence in Geology Award

Josef Perko \$50 Walt Clark Middle School <i>Effects of Dry Ice Sublimation on Mars Geology, Part 2</i>	7th grade Loveland
Kody Donnelson \$75 Fleming Middle School <i>Marble, Marble, Everywhere and What an Acid Rain Drop Will Do</i>	6th grade Fleming
Wyatt Wiening \$75 Trinidad High School <i>Effect of Milankovitch Cyclicity on Prehistoric Marine Life of the Late Cretaceous Middle Cenomanian</i>	11th grade Trinidad
Jenna Salvat \$100 Coronado High School <i>Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide: Potential Application as a Micro-Thermovoltic Transducer</i>	10th grade Colorado Springs

Colorado State University

College of Agricultural Sciences

Innovations in the Science of Agriculture Award

Elishevlyne Eliason \$500 Challenge School <i>The Least of Us</i>	8th grade Denver
Riley Russell Anand Chundi \$500 SkyView Academy <i>Morphological Effects of a Predator on Crayfish: Fight or Flight?</i>	11th grade 9th grade Highlands Ranch

Colorado State University

Dept. of Biochemistry & Molecular Biology

Excellence in Biochemistry & Molecular Biology Award

Solomon Bloomfield \$100, certificate Fairview High School <i>Amph-I Knockdown Aggravates Pathogenesis of Alzheimer's Disease in Caenorhabditis Elegans</i>	11th grade Boulder
--	-----------------------

Appendix 2

Colorado State University Dept. of Horticulture & Landscape Architecture

Excellence in Horticulture Award

Elias Arredondo \$125	6th grade
Monte Vista On-line Academy <i>Fish Fertilizer: The Correlation Between Fish and Foliage</i>	Monte Vista
Parker Stone \$125	6th grade
Beaver Valley Elementary School <i>Get It Ripe</i>	Brush
Isabella Bowland \$125	11th grade
Fairview High School <i>Bad Altitude: Climate Change in the Alpine May Alter Beneficial Plant-Fungal Relationships</i>	Boulder
Parker Randolph \$125	10th grade
Monte Vista High School <i>Examining the Effects of Martian Soil, Additives, Water Quality, and Companion Planting on Biomass a</i>	Monte Vista

Colorado State University Energy Institute

Energy Achievement Award

Claire Victor \$250, certificate	12th grade
Centaurus High School <i>Renewable Hydrogen and Fuel Cells: The Future of Energy</i>	Lafayette

Colorado Veterinary Medical Association

Veterinary Science Award

Maya Monks & Annikae Reeder-Holman \$100, certificate	7th grade
Stanley British Primary School <i>Effect of Teeth Brushing and Chewies on Canine Oral Bacterial Count</i>	Denver
Peyton Leyendecker \$100, certificate	9th grade
SkyView Academy <i>Manuka Honey Surgical Adhesive</i>	Highlands Ranch

Colorado's Touchstone Energy Cooperatives

The Colorado EnergyWise award

Tate Schrock \$250	7th grade
Arickaree School <i>H2 and O2 Generator Fabrication & PEM Fuel Cell Efficiency</i>	Anton
Michelle Ren & Julianna O'Clair \$250	10th grade
Brush High School <i>Energy Production of Microbial Fuel Cells</i>	Brush

Colorado-Wyoming Society of American Foresters

Excellence in Forestry Research Award

Kathryn Kummel \$200	8th grade
North Middle School <i>Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth</i>	Colorado Springs
Michelle Kummel \$200	11th grade
Palmer High School <i>Microclimatological Feedbacks at Treeline</i>	Colorado Springs

Comstock Family

Heather Comstock Memorial Award

Seth Young \$200	12th grade
The Classical Academy <i>Applied Biomineralization: Increasing Magnetosome Formation in AMB-1 for Industrial Purposes Through Genetic Recombination of Genes Essential to Magnetosome Formation and Mutation Mediated by UV Radiation</i>	Colorado Springs

Consumer Energy Education Foundation

Energy Day Academic Program Award

Kyle Fridberg \$100	11th grade
Fairview High School <i>A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid</i>	Boulder
Jenna Salvat \$100	10th grade
Coronado High School <i>Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by $\hat{\pm}$-Crystalline SiO2</i>	Colorado Springs
Jay Chandra \$100	11th grade
Fossil Ridge High School <i>Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries</i>	Fort Collins
Aubrey Berger \$100	11th grade
Eaglecrest High School <i>Mechanized Collection of Organic Spider Silk</i>	Centennial
Alyssa Rawinski \$100	10th grade
Monte Vista High School <i>Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat</i>	Monte Vista
Molly Nehring \$100	10th grade
Monte Vista High School <i>Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection</i>	Monte Vista

Appendix 2

Eric Bear 11th grade
\$00
Colorado Academy Denver
Determining Water Treatment Planning Using a Classification Model Neural Network
Elia Gorokhovskiy 10th grade
\$100
Fairview High School Boulder
A Method for the Reduction of Time Error in the Ensemble Adjustment Kalman Filter

Dairy Tech, Inc.

Dairy Tech Agricultural Focus Award

Charlese Satterfield 7th grade
\$200
Canon Exploratory School Canon City
Bigger Eggs for Peanuts

Fort Collins Conservation District

Conservation District Award

Mikailah Feinman 7th grade
plaque, \$50
Primero Jr/Sr High School Weston
Produced Gas Well Water: Can It Be Repurposed for Agricultural Use?
Cassidy Plane 12th grade
plaque, \$50
Alamosa High School Alamosa
Can This Macromolecule Captivate Your Microorganisms?

Frank Armbruster Foundation

Armbruster Memorial Award

Kadence Kunselman 7th grade
\$100
Walsh Jr/Sr High School Walsh
I've Got the Power

Geological Society of America

GSA Awards in Environmental Geology

Nathaniel Brim 8th grade
plaque, certificate, \$50 gift card, GSA memorabilia
The Classical Academy Colorado Springs
Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals
Scott Prieve 8th grade
plaque, certificate, \$75 gift card, GSA memorabilia
North Middle School Colorado Springs
To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?
Kathryn Kummel 8th grade
plaque, certificate, \$100 gift card, GSA memorabilia
North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Gromko Family

Gerald Gromko Memorial Award

Leighton Burt 12th grade
\$150
Sargent Jr/Sr High School Monte Vista
Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3

Human Factors and Ergonomics Society

Rocky Mountain Chapter

Excellence in Human Factors & Ergonomics Award
Allison Rose 7th grade
\$100
The Classical Academy Colorado Springs
Engineering Design of an Improved Grasper for Eating Cheesy-Sticky Snacks

Institute of Electrical & Electronics Engineers

High Plains Section

IEEE Award

Sara Nehring 8th grade
\$100 cash card
Monte Vista Middle School Monte Vista
Over the Hill and Through the Codes to Encryption and Decryption We Go!
Weston Metzler 11th grade
\$150 cash card
Peak to Peak Charter School Lafayette
Compiling to Higher Levels of Abstraction on Calculators

Koppa Research, LLC

Koppa Research's Einstein Award for Achievements in Physics

Matthew Anderson 7th grade
\$250
Challenge School Denver
How the Percentage of Alpha Particles Shielded Changes with Different Types of Shielding

Little Shop of Physics

Matthew McCausland Memorial Award

Henry Foisie 7th grade
science equipment/instruments
The Classical Academy Colorado Springs
Easy Peazy Piezo Power
Alyssa Lee 8th grade
science equipment/instruments
Summit Charter Middle School Boulder
The Physics of Flying: G-Forces in Aerial Dance
Alden Kruse 8th grade
science equipment/instruments
Home School Colorado Springs
Into Thin Air: A Search for Microbes in the Stratosphere
Paul Brophy 10th grade
science equipment/instruments
Yuma High School Yuma
Non-Newtonian Fluids in Baseball

Appendix 2

Lockheed Martin

Lockheed Martin Aerospace Award

Eric Bauman \$50 The Classical Academy <i>In the Absence of Air</i>	8th grade Colorado Springs
Christoph Cikraji \$100 Durango High School <i>Artificial Gravity Concept for Sustainable Space</i>	12th grade Durango

National Centers for Environmental Information

NCEI Award for Scientific Achievement

Nathaniel Brim certificate, monetary award from an anonymous donor The Classical Academy <i>Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals</i>	8th grade Colorado Springs
---	-------------------------------

National Defense Industrial Association

NDIA STEM Excellence Award

Nico Martinez \$100 Pueblo Academy of Arts <i>Does a Robotic Hand Have the Ability to Grasp and Move Objects in a Timely Manner?</i>	6th grade Pueblo
Matthew Anderson \$100 Challenge School <i>How the Percentage of Alpha Particles Shielded Changes with Different Types of Shielding</i>	7th grade Denver
Alden Kruse \$100 Home School <i>Into Thin Air: A Search for Microbes in the Stratosphere</i>	8th grade Colorado Springs
Hailey Melvin \$200 Dolores Middle School <i>Can You Make an Alternate Fuel Out of Food?</i>	6th grade Dolores
Gabe Wu \$200 The Classical Academy <i>Improving the LED Solar Panel Light Circuit</i>	7th grade Colorado Springs
Cooper Hanley \$200 Louisville Middle School <i>Can You Generate Electricity By Moving?</i>	8th grade Louisville

National Renewable Energy Laboratory

NREL Energy Award

Brendan Gould \$100 The Classical Academy <i>Going Bananas: Using Banana Peels in Polymerization Reactions to Produce Thermoplastics</i>	9th grade Colorado Springs
---	-------------------------------

Rocky Mountain Association of Geologists

Excellence in Earth Science Award

Sam Haggans \$125 Summit Charter Middle School <i>Does Position Matter? Testing Different Layouts of Erosion Barriers in a Stream Bed</i>	8th grade Boulder
Leo Foster Greer \$125 Boulder High School <i>Harvest Project: Correcting Sea State Bias</i>	12th grade Boulder
Alex Tseng \$250 Stanley British Primary School <i>Which Waste Shouldn't Be Wasted?</i>	7th grade Denver
Eric Bear \$250 Colorado Academy <i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	11th grade Denver

Rocky Mountain Water Environment Association

Water Research Award

Sofia Bader \$200 Miller Middle School <i>Build the Swamp</i>	8th grade Durango
Nathaniel Brim \$400 The Classical Academy <i>Depuration Kinetics of Activated Carbon with Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals</i>	8th grade Colorado Springs
Max Warnock \$200 Poudre Global Academy <i>The Impact of Odor Control Clothing on Water Boatmen (Co-rixidae)</i>	9th grade Fort Collins
McKinley Dirks & Alexandria Rivera \$400 SkyView Academy <i>Methods to Reduce Micropollutants in Treated Water</i>	11th grade Highlands Ranch

SACNAS, Colorado State University Chapter

SACNAS CSU Rising Young Scientist Award

Anila Narayana \$50 Rock Canyon High School <i>Exploring the Genome: A Search for the Eczema Gene</i>	10th grade Highlands Ranch
Elishevlyne Eliason \$50 Challenge School <i>The Least of Us</i>	8th grade Denver

Appendix 2

Adrian Pizano 8th grade
 \$50
 Rocky Ford Jr/Sr High School Rocky Ford
Testing the Waters

Science Toy Magic, LLC

Physics Classroom Demonstration Award

Ethan Cerniglia 8th grade
 \$50
 The Classical Academy Colorado Springs
Lift Off

Marissa Jordan 8th grade
 \$100
 Home School Ignacio
A Softer Side of Robots: Using Grippers Made From Soft Materials

Xander Duvall 6th grade
 \$50
 Thomas MacLaren School Colorado Springs
Magnetic Effects on Subatomic Particles

Chase Cromwell 9th grade
 \$100
 Lamar High School Lamar
Stampede Arm

Society for Mining, Metallurgy and Exploration Colorado Section

Excellence in Mineral Science & Engineering Award

Nathaniel Brim 8th grade
 plaque, \$100
 The Classical Academy Colorado Springs
Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals

Scott Prieve 8th grade
 plaque, \$200
 North Middle School Colorado Springs
To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?

Mitchell Fosdick 12th grade
 plaque, \$150
 Fowler High School Fowler
The Uptake of Copper Ions by Chlorella Vulgaris

Lacey Niccoli 10th grade
 plaque, \$150
 Arickaree School Anton
Reclaimed! The Effects of Amendments on Soil Reclamation

Kyle Fridberg 11th grade
 plaque, \$400
 Fairview High School Boulder
A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid

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
Stampede Arm

Henry Foisie 7th grade
 \$150, recognition by local chapter
 The Classical Academy Colorado Springs
Easy Peazy Piezo Power

Marissa Jordan 8th grade
 \$200, recognition by local chapter
 Home School Ignacio
A Softer Side of Robots: Using Grippers Made From Soft Materials

Society of Women Engineers Rocky Mountain Section

SWE Award

Allison Rose 7th grade
 certificate, \$75
 The Classical Academy Colorado Springs
Engineering Design of an Improved Grasper for Eating Cheesy-Sticky Snacks

Marissa Jordan 8th grade
 certificate, \$100
 Home School Ignacio
A Softer Side of Robots: Using Grippers Made From Soft Materials

Aubrey Berger 11th grade
 certificate, \$75
 Eaglecrest High School Centennial
Mechanized Collection of Organic Spider Silk

Ashley Aguilar 12th grade
 certificate, \$100
 New Vista High School Boulder
Converting Mechanical Vibrations into Electrical Energy Via Dielectric Elastomer Generators (DEGs)

Soil & Water Conservation Society Colorado Chapter

Natural Resource Conservation Award

Serenity Foutz 6th grade
 \$100, certificate
 Bayfield Middle School Bayfield
Gone with the Water

Shannon Bland 12th grade
 \$100, certificate
 Lamar High School Lamar
Stop That Flood (Part VI)

Appendix 2

SPIE, the international society for optics and photonics

SPIE Optics and Photonics Special Award

Kylie Walters	7th grade
\$50	
The Classical Academy	Colorado Springs
<i>The Blind Side</i>	
Anna Dery	7th grade
\$100	
Holy Family Catholic School	Grand Junction
<i>Distance to the Stars</i>	
Julia Warnock	7th grade
\$150	
Poudre Global Academy	Fort Collins
<i>Habitats Most Affected by Light Pollution in Red Fox Meadows</i>	
Karry Pileggi	10th grade
\$100	
SkyView Academy	Highlands Ranch
<i>The Effects of Auxin with External Factors on Root Growth</i>	
Nathaniel Miner & Drake Ludgate	10th grade
\$150	
Brush High School	Brush
<i>Black Carbon Detection: A Regional Snow Survey</i>	
Molly Nehring	10th grade
\$250	
Monte Vista High School	Monte Vista
<i>Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection</i>	

The Inventors' Roundtable

Inventors' Roundtable Award

Leighton Burt	12th grade
\$100 cash, free patent search (valued at \$499.00)	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3</i>	

Trout Unlimited

Trout Unlimited River Conservation Award

Paul Knight	8th grade
\$75	
Miller Middle School	Durango
<i>Tidy Up Those Tailings</i>	
Manuel Lucero	6th grade
\$125	
Centauri Middle School	La Jara
<i>Those "Banking" Beavers: A Trickle-Down Approach to Conservation</i>	
Scott Prieve	8th grade
\$200	
North Middle School	Colorado Springs
<i>To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?</i>	

United States Air Force

Air Force ROTC Award

Leighton Burt	12th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3</i>	
Kylie Walters	7th grade
certificate, over-the-shoulder sling pack, power bank charger, dog tag USB flash memory drive, dual USB car charger	
The Classical Academy	Colorado Springs
<i>The Blind Side</i>	

United States Department of Commerce

Award for Excellence in Science and Engineering

Ashley Aguilar	12th grade
alternate for an opportunity for summer employment with the Department of Commerce (possibility for future continued employment)	
New Vista High School	Boulder
<i>Converting Mechanical Vibrations into Electrical Energy Via Dielectric Elastomer Generators (DEGs)</i>	
Leighton Burt	12th grade
an opportunity for summer employment with the Department of Commerce (possibility for future continued employment)	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3</i>	

United States Navy & Marine Corps

Office of Naval Research Award

Hailey Melvin	6th grade
letter of congratulations, certificate, medallion	
Dolores Middle School	Dolores
<i>Can You Make an Alternate Fuel Out of Food?</i>	
Jason Cui	7th grade
letter of congratulations, certificate, medallion	
Southern Hills Middle School	Boulder
<i>Powerful Natural Antibiotics</i>	
Julia Warnock	7th grade
letter of congratulations, certificate, medallion	
Poudre Global Academy	Fort Collins
<i>Habitats Most Affected by Light Pollution in Red Fox Meadows</i>	
Eric Bauman	8th grade
letter of congratulations, certificate, medallion	
The Classical Academy	Colorado Springs
<i>In the Absence of Air</i>	
Ellie Clark	7th grade
letter of congratulations, certificate, medallion	
St. Columba Catholic School	Durango
<i>Fabric Nanofinishing: Adventures in Textile Engineering</i>	

Appendix 2

Weston Metzler	11th grade
letter of congratulations, certificate, medallion, \$75 gift card (to be mailed)	
Peak to Peak Charter School	Lafayette
<i>Compiling to Higher Levels of Abstraction on Calculators</i>	
Max Markuson DiPrince	11th grade
letter of congratulations, certificate, medallion, \$75 gift card (to be mailed)	
Central High School	Pueblo
<i>Windmill Efficiency Part 2: Replicating & 3D Printing Natural Leaf Designs on a Vertical-axis Turbine</i>	
Sai Kaushik Yeturu	12th grade
letter of congratulations, certificate, medallion, \$75 gift card (to be mailed)	
Peak to Peak Charter School	Lafayette
<i>A Bio-inspired Saddle Mechanism for Mechanical Energy Storage</i>	

University of Colorado, Denver

Medical Scientist Training Program Award

Nathan Panzer	8th grade
\$50	
North Arvada Middle School	Arvada
<i>The Effects of Foreign Substances on Blood Coagulation Times</i>	
Solomon Bloomfield	11th grade
\$50	
Fairview High School	Boulder
<i>Amph-1 Knockdown Aggravates Pathogenesis of Alzheimer's Disease in Caenorhabditis Elegans</i>	

Vaughan Web Works

Glissmann Family Award for Best Use of Software Programming

Sara Nehring	8th grade
\$50	
Monte Vista Middle School	Monte Vista
<i>Over the Hill and Through the Codes to Encryption and Decryption We Go!</i>	
Eric Bear	11th grade
\$100	
Colorado Academy	Denver
<i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	

Wilkins Family

Young Entrepreneur's Award

Leighton Burt	12th grade
\$500	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue Part 3</i>	

Wojtaszek Family

Paul Wojtaszek Memorial Award

Katherine Larson	11th grade
\$200	
Home School	Colorado Springs
<i>Electrical Impedance Tomography as a Tool for Detecting Tumors</i>	

Women in Physics, Colorado State University

Promising Young Woman in Science Award

Molly Nehring	10th grade
certificate, science gift bag	
Monte Vista High School	Monte Vista
<i>Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection</i>	

Zonta Club of Boulder County

Amelia Earhart Award

Anna Dery	7th grade
\$100, certificate	
Holy Family Catholic School	Grand Junction
<i>Distance to the Stars</i>	

Scholarships

Adams State University

Adams State University Scholarships

Natalya Komleva	12th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Northridge High School	Greeley
<i>Brain Food: The Effects of Nutritional Changes In Memory Enhancement and Neurotransmitter Functional</i>	
Sarah Davidson	11th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Nederland Middle-Senior High	Nederland
<i>Differences in Functions of Proprioceptive Feedback Mechanisms: In Shod and Barefoot Conditions</i>	
Aaliyah Garcia	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Center High School	Center
<i>Wildland Firefighter Defense System: Phase Two</i>	
Jenna Salvat	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Coronado High School	Colorado Springs
<i>Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide: Potential Application as a Micro-Thermovoltic Transducer</i>	
Max Markuson DiPrince	11th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Central High School	Pueblo
<i>Windmill Efficiency Part 2: Replicating & 3D Printing Natural Leaf Designs on a Vertical-axis Turbine</i>	

Appendix 2

Chase Cromwell	9th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Lamar High School	Lamar
<i>Stampede Arm</i>	
Alyssa Rawinski	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Monte Vista High School	Monte Vista
<i>Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat</i>	
Caroline Jennings	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
The Classical Academy	Colorado Springs
<i>Population Dynamics of Predation in a Competitive Lupine-Ovine-Grassland Ecosystem: The Simulation that Cried Wolf</i>	
Katherine Larson	11th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Home School	Colorado Springs
<i>Electrical Impedance Tomography as a Tool for Detecting Tumors</i>	
Cassidy Plane	12th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Alamosa High School	Alamosa
<i>Can This Macromolecule Captivate Your Microorganisms?</i>	
Michael Duran	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Primero Jr/Sr High School	Weston
<i>How Strong Is Water?</i>	
Parker Randolph	10th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
Monte Vista High School	Monte Vista
<i>Examining the Effects of Martian Soil, Additives, Water Quality, and Companion Planting on Biomass a</i>	
Maya Duran ¹ & Sayer Guerrero ²	11th grade
scholarship to ASU valued as the equivalent to one-year resident tuition and fees (~\$9,000)	
¹ Dolores Huerta Preparatory High School	Pueblo
² South High School	Pueblo
<i>Strike a Pose</i>	

Colorado College, Summer Session Office

Colorado College Summer Session Merit Scholarship

Eric Bear	11th grade
\$500 merit scholarship to attend Colorado College in Summer 2017 as a pre-college student	
Colorado Academy	Denver
<i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	

Colorado School of Mines

Colorado School of Mines Scholarships

Kyle Fridberg	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Fairview High School	Boulder
<i>A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid</i>	
Max Markuson DiPrince	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Central High School	Pueblo
<i>Windmill Efficiency Part 2: Replicating & 3D Printing Natural Leaf Designs on a Vertical-axis Turbine</i>	
Jay Chandra	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Fossil Ridge High School	Fort Collins
<i>Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries</i>	
Aubrey Berger	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Eaglecrest High School	Centennial
<i>Mechanized Collection of Organic Spider Silk</i>	
Eric Bear	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Colorado Academy	Denver
<i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	
McKinley Dirks & Alexandria Rivera	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
SkyView Academy	Highlands Ranch
<i>Methods to Reduce Micropollutants in Treated Water</i>	
Stephanie Zhang	11th grade
\$1,000 renewable scholarship for use towards an undergraduate degree	
Fairview High School	Boulder
<i>Gene Expression and Diseases Phase II: Developing a Model to Predict Cancer Progression</i>	

Colorado State University

Colorado State University, Fort Collins Scholarships

Felix Channiago	10th grade
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
Conifer High School	Conifer
<i>The Effect of Airborne Vibration on Sensory Hairs (Trichobothria) of Phidippus Jumping Spiders</i>	

Appendix 2

Scott Litwiler 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Fairview High School Boulder
Teenagers Texting While Driving: Computerized Eye Tracking as a Method to Assess Visual Distraction During Driving Simulations

Jenna Salvat 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Coronado High School Colorado Springs
Characterization of the Pyroelectric and Piezoelectric Effect Exhibited by Alpha-Crystalline Silicon Dioxide: Potential Application as a Micro-Thermovoltic Transducer

Jay Chandra 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Fossil Ridge High School Fort Collins
Carbon Coatings on a Copper Antimonide Anode for Enhanced Performance and Lifetime in Rechargeable Metal-Ion Batteries

Aubrey Berger 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Eaglecrest High School Centennial
Mechanized Collection of Organic Spider Silk

Alyssa Rawinski 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Monte Vista High School Monte Vista
Western Snowy Plover Nest Site Characteristics and Use of Drone Imagery in Predicting Potential Nesting Habitat

Seth Young 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 The Classical Academy Colorado Springs
Applied Biomineralization: Increasing Magnetosome Formation in AMB-1 for Industrial Purposes Through Genetic Recombination of Genes Essential to Magnetosome Formation and Mutation Mediated by UV Radiation

Molly Nehring 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters
 Monte Vista High School Monte Vista
Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection

Colorado State University, Fort Collins

College of Natural Sciences

Colorado State University, College of Natural Sciences Scholarships

Isani Singh 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 years
 Cherry Creek High School Englewood
Worse Outcomes in Turner Syndrome Women Compared to Women Without Turner Syndrome

Elliot Gorokhovskiy 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 years
 Fairview High School Boulder
Adding Data-Aware Sort Optimizations to C-Python

Molly Nehring 10th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 years
 Monte Vista High School Monte Vista
Dancing with the Stars: Simulating Multi-Star Solar Systems & the Probability of Planetary Ejection

Seth Young 12th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 years
 The Classical Academy Colorado Springs
Applied Biomineralization: Increasing Magnetosome Formation in AMB-1 for Industrial Purposes Through Genetic Recombination of Genes Essential to Magnetosome Formation and Mutation Mediated by UV Radiation

Aubrey Berger 11th grade
 \$1,000 scholarship to attend CSU, renewable for up to 3 years
 Eaglecrest High School Centennial
Mechanized Collection of Organic Spider Silk

Colorado State University, Pueblo

Colorado State University, Pueblo Scholarship

Isaac Jordan 11th grade
 \$1,000 scholarship to Colorado State University, Pueblo
 Animas High School Durango
A Novel Approach for Sensing Seismic Events: Applications of Graphene Nano-flake Powder Composites

Intel

Ryan Patterson Scholarship

Seth Young 12th grade
 \$2,000 nonrenewable scholarship to college of student's choice
 The Classical Academy Colorado Springs
Applied Biomineralization: Increasing Magnetosome Formation in AMB-1 for Industrial Purposes Through Genetic Recombination of Genes Essential to Magnetosome Formation and Mutation Mediated by UV Radiation

University of Colorado, Boulder

College of Engineering & Applied Science Scholarships

Santiago Castillo 8th grade
 \$500 renewable, conditional scholarship to CU Boulder
 Challenge School Denver
Reducing Seismic Accelerations in Buildings by Adding Reinforcements

Amy Nguyen & Katherine Tran 9th grade
 \$500 renewable, conditional scholarship to CU Boulder
 DSST: College View High School Denver
Let It Flow: Developments of a New Two-Leaflet Bovine Tissue Mitral Valve Replacement

Caroline Jennings 10th grade
 \$500 renewable, conditional scholarship to CU Boulder
 The Classical Academy Colorado Springs
Population Dynamics of Predation in a Competitive Lupine-Ovine-Grassland Ecosystem: The Simulation that Cried Wolf

Appendix 2

Casey Shaw	11th grade
\$1000 renewable scholarship to CU Boulder	
Liberty School	Joes
<i>Make Way for Duckweed: Observing the Growth Rates of Lemna and its Effect on Atmospheric Carbon Dioxide Concentrations in a Simulated Carbon Sink</i>	
Isabella Bowland	11th grade
\$1000 renewable scholarship to CU Boulder	
Fairview High School	Boulder
<i>Bad Altitude: Climate Change in the Alpine May Alter Beneficial Plant-Fungal Relationships</i>	
Katherine Larson	11th grade
\$1000 renewable scholarship to CU Boulder	
Home School	Colorado Springs
<i>Electrical Impedance Tomography as a Tool for Detecting Tumors</i>	
Anurag Golla	12th grade
\$1000 renewable scholarship to CU Boulder	
Fairview High School	Boulder
<i>Motility Optimization of the PNIPAm Based Drug Delivery System</i>	
Stephanie Zhang	11th grade
\$1000 renewable scholarship to CU Boulder	
Fairview High School	Boulder
<i>Gene Expression and Diseases Phase II: Developing a Model to Predict Cancer Progression</i>	

SSP

American Psychological Association

Outstanding Achievement in Psychological Sciences Award

Sophia Murray	8th grade
certificate	
Summit Charter Middle School	Boulder
<i>Mind the Gap: Growth Mindset and Gender</i>	
Cassandra Blew	10th grade
certificate	
La Veta Schools	La Veta
<i>Investigating Triggers of Sundowners Syndrome in Dementia Patients in an Institutional Setting: Year Two</i>	

Arizona State University

Rob & Melani Walton Sustainability Solutions Initiative Award

Eric Bear	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)	
Colorado Academy	Denver
<i>Determining Water Treatment Planning Using a Classification Model Neural Network</i>	

Max Markuson DiPrince	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)	
Central High School	Pueblo
<i>Windmill Efficiency Part 2: Replicating & 3D Printing Natural Leaf Designs on a Vertical-axis Turbine</i>	
Claire Victor	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
<i>Renewable Hydrogen and Fuel Cells: The Future of Energy</i>	
Daniel Orbidan & Ethan Simpson	10th grade
certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2018 Sustainability Solutions Festival)	
SkyView Academy	Highlands Ranch
<i>The Impact of Rutile Phase Titania Nanowire Length on Periphyton Colonization and Voltage Output</i>	

Association for Women Geoscientists

Outstanding Achievement in Geosciences Award

Kathryn Kummel	8th grade
certificate	
North Middle School	Colorado Springs
<i>Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth</i>	
Leo Foster Greer	12th grade
certificate	
Boulder High School	Boulder
<i>Harvest Project: Correcting Sea State Bias</i>	

Broadcom

Broadcom MASTERS Nomination

Alexandra Dalton	8th grade
nomination to enter the 2017 Broadcom MASTERS competition for middle school students	
Peak to Peak Charter School	Lafayette
<i>Lobelia vs. Daphnia</i>	
Ellie Schueler	8th grade
nomination to enter the 2017 Broadcom MASTERS competition for middle school students	
North Middle School	Colorado Springs
<i>Violence in the Media: An Analysis of the Effects of Media Violence on Mental and Physical Health</i>	
Grace Valentine	7th grade
nomination to enter the 2017 Broadcom MASTERS competition for middle school students	
Most Precious Blood Catholic	Denver
<i>The Effect of Cocoa Content, Cooling Time and Heating Temperature on the Tempering of Chocolate</i>	
Kathryn Kummel	8th grade
nomination to enter the 2017 Broadcom MASTERS competition for middle school students	
North Middle School	Colorado Springs
<i>Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth</i>	

Appendix 2

Henry Foisie nomination to enter the 2017 Broadcom MASTERS competition for middle school students The Classical Academy <i>Easy Peazy Piezo Power</i>	7th grade Colorado Springs	Kaydee Dodge nomination to enter the 2017 Broadcom MASTERS competition for middle school students Craver Middle School <i>Pumpkin Preservation Part 3: Evaluating Hazards of Petroleum Jelly as a Jack'o Lantern Preservative</i>	8th grade Colorado City
Marissa Jordan nomination to enter the 2017 Broadcom MASTERS competition for middle school students Home School <i>A Softer Side of Robots: Using Grippers Made From Soft Materials</i>	8th grade Ignacio	Joshua Miller nomination to enter the 2017 Broadcom MASTERS competition for middle school students Skinner Middle School <i>Effect of Sand Grain Size on Supportiveness of a Structure During a Liquefaction Event</i>	8th grade Denver
Scott Prieve nomination to enter the 2017 Broadcom MASTERS competition for middle school students North Middle School <i>To Rip or To Rap: How Does the Design of Erosion Control on a Creek Bend Affect Bank Deterioration?</i>	8th grade Colorado Springs	Alex Tseng nomination to enter the 2017 Broadcom MASTERS competition for middle school students Stanley British Primary School <i>Which Waste Shouldn't Be Wasted?</i>	7th grade Denver
Sara Nehring nomination to enter the 2017 Broadcom MASTERS competition for middle school students Monte Vista Middle School <i>Over the Hill and Through the Codes to Encryption and Decryption We Go!</i>	8th grade Monte Vista	Ellie Clark nomination to enter the 2017 Broadcom MASTERS competition for middle school students St. Columba Catholic School <i>Fabric Nanofinishing: Adventures in Textile Engineering</i>	7th grade Durango
Jason Cui nomination to enter the 2017 Broadcom MASTERS competition for middle school students Southern Hills Middle School <i>Powerful Natural Antibiotics</i>	7th grade Boulder	Nathaniel Brim nomination to enter the 2017 Broadcom MASTERS competition for middle school students The Classical Academy <i>Depuration Kinetics of Activated Carbon With Ion Exchange Resins, Poly Filter Pad, and Freshwater Bivalves in Aqueous Solutions contaminated with Heavy Metals</i>	8th grade Colorado Springs
Anjali Chaparala nomination to enter the 2017 Broadcom MASTERS competition for middle school students The Classical Academy <i>Gut Less Sugar</i>	8th grade Colorado Springs	Charles Rothbaum nomination to enter the 2017 Broadcom MASTERS competition for middle school students Corwin International Magnet School <i>Learning Robots</i>	8th grade Pueblo
Corey Schanker nomination to enter the 2017 Broadcom MASTERS competition for middle school students Turner Middle School <i>Kinetic Energy</i>	8th grade Berthoud	Lauren Linnebur & Malayne Perry nomination to enter the 2017 Broadcom MASTERS competition for middle school students Liberty Middle School <i>Student Health Literacy and Snack Consumption in Elementary and Middle Schools</i>	7th grade Aurora
Anuradha Prakash nomination to enter the 2017 Broadcom MASTERS competition for middle school students Summit Charter Middle School <i>Pee Is for Plants</i>	8th grade Boulder	Anika Fergusson nomination to enter the 2017 Broadcom MASTERS competition for middle school students Summit Charter Middle School <i>pH and Probiotics: Is Traditional Yogurt Better?</i>	8th grade Boulder
Elishevlyne Eliason nomination to enter the 2017 Broadcom MASTERS competition for middle school students Challenge School <i>The Least of Us</i>	8th grade Denver	Olivia Greene nomination to enter the 2017 Broadcom MASTERS competition for middle school students The Classical Academy <i>The Need for Speed</i>	7th grade Colorado Springs
Blakeley Bennett nomination to enter the 2017 Broadcom MASTERS competition for middle school students North Middle School <i>Got Color Cognition?</i>	8th grade Colorado Springs	Elias Arredondo nomination to enter the 2017 Broadcom MASTERS competition for middle school students Monte Vista On-line Academy <i>Fish Fertilizer: The Correlation Between Fish and Foliage</i>	6th grade Monte Vista

Appendix 2

Intel Corporation

Intel Excellence in Computer Science Award

Elliot Gorokhovskiy 12th grade
\$200 (to be mailed), certificate
Fairview High School Boulder
Adding Data-Aware Sort Optimizations to C-Python

Weston Metzler 11th grade
\$200 (to be mailed), certificate
Peak to Peak Charter School Lafayette
Compiling to Higher Levels of Abstraction on Calculators

Mu Alpha Theta

Outstanding Achievement in Mathematics

Elia Gorokhovskiy 10th grade
certificate
Fairview High School Boulder
A Method for the Reduction of Time Error in the Ensemble Adjustment Kalman Filter

Colin Burdine 12th grade
certificate
Cherry Creek High School Greenwood Village
Determining the Complexity of Boolean Formulae Modeling NP Decision Problems

NASA

NASA Earth System Science Award

Kathryn Kummel 8th grade
certificate
North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Leo Foster Greer 12th grade
certificate
Boulder High School Boulder
Harvest Project: Correcting Sea State Bias

National Oceanic and Atmospheric Administration

Taking the Pulse of the Planet Award

Kathryn Kummel 8th grade
certificate, medal
North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Josephina Hoskins-Marcantonio 11th grade
certificate, medal
Fairview High School Boulder
When Even the Early Bird Is Late

Ricoh

Ricoh Sustainability Development Award

Nicholas Huber 7th grade
certificate
St. Columba Catholic School Durango
Solar Still Design Efficiency

Brendan Gould 9th grade
certificate
The Classical Academy Colorado Springs
Going Bananas: Using Banana Peels in Polymerization Reactions to Produce Thermoplastics

Society for In Vitro Biology

Outstanding Achievement in In Vitro Biology Award

Katherine Larson 11th grade
certificate
Home School Colorado Springs
Electrical Impedance Tomography as a Tool for Detecting Tumors

Hari Sowrirajan 11th grade
certificate
Cherry Creek High School Greenwood Village
Optimization of Zinc Oxide Nanoparticles for Vaccine Delivery

United States Metric Association

Outstanding Achievement in the Use of the International System Award

Kathryn Kummel 8th grade
certificate
North Middle School Colorado Springs
Gone with the Wind: The Horseshoe Vortex Behind Tree Islands on Pikes Peak & Impact on Tree Growth

Michelle Kummel 11th grade
certificate
Palmer High School Colorado Springs
Microclimatological Feedbacks at Treeline

Water Environment Federation

Stockholm Junior Water Prize

Michelle Ren & Julianna O'Claire 10th grade
certificate, nomination to enter the SJWP state competition
Brush High School Brush
Energy Production of Microbial Fuel Cells

McKinley Dirks & Alexandria Rivera 11th grade
certificate, nomination to enter the SJWP state competition
SkyView Academy Highlands Ranch
Methods to Reduce Micropollutants in Treated Water

Max Warnock 9th grade
certificate, nomination to enter the SJWP state competition
Poudre Global Academy Fort Collins
The Impact of Odor Control Clothing on Water Boatmen (Co-rixidae)

Eric Bear 11th grade
certificate, nomination to enter the SJWP state competition
Colorado Academy Denver
Determining Water Treatment Planning Using a Classification Model Neural Network

Michael Savala 10th grade
certificate, nomination to enter the SJWP state competition
Monte Vista High School Monte Vista
Ferro-Solution? Can Iron Nanoparticles Help with Oil Spill Clean-up?

Appendix 2

Yale Science & Engineering Association

Outstanding Achievement in Science & Engineering Award

Aubrey Berger certificate	11th grade
Eaglecrest High School <i>Mechanized Collection of Organic Spider Silk</i>	Centennial
Kyle Fridberg certificate	11th grade
Fairview High School <i>A Novel Method of Producing Colloidal Gold Nanoparticles from Gold Ore and Aqueous Sulfuric Acid</i>	Boulder

Teacher

Lockheed Martin

CSEF Teacher of the Year Award

Lorry Getz \$3,000, plaque	Aurora
Liberty Middle School	

SparkFun Electronics

SparkFun's Thank You to Educators Award

Lorry Getz certificate, SparkFun Inventor's kit (valued at \$99)	Liberty Middle School	Aurora
Amy Melby certificate, SparkFun Inventor's kit (valued at \$99)	Yuma High School	Yuma
Terri Paulson certificate, SparkFun Inventor's kit (valued at \$99)	Sargent Jr/Sr High School	Monte Vista
Nicole Schnee certificate, SparkFun Inventor's kit (valued at \$99)	St. Columba Catholic School	Durango
John Wiley certificate, SparkFun Inventor's kit (valued at \$99)	Challenge School	Denver

Appendix 3

2016/2017 Expense Report

Category Descriptions	Budget	Actual	Difference
INCOME			
Sponsorships	\$64,500.00	\$50,800.20	(\$13,699.80)
Contributions	\$6,250.00	\$5,461.00	(\$789.00)
General Income			
<i>Interest</i>	\$50.00	\$100.72	\$50.72
<i>Matching Gifts</i>	\$250.00	\$381.99	\$131.99
<i>RSF Outreach Funds</i>	\$10,000.00	\$10,000.00	\$0.00
<i>Sales</i>	\$1,500.00	\$1,211.04	(\$288.96)
<i>Scholarships/Special Awards</i>	\$6,675.00	\$6,730.00	\$55.00
<i>Teacher of the Year Award</i>	<u>\$6,000.00</u>	<u>\$6,000.00</u>	<u>\$0.00</u>
TOTAL General Income	\$24,475.00	\$24,423.75	(\$51.25)
Grants	\$0.00	\$0.00	\$0.00
In-Kind	\$13,000.00	\$12,989.20	(10.80)
Registrations	\$15,600.00	\$15,170.00	(\$430.00)
TOTAL INCOME	\$123,825.00	\$108,844.15	(\$14,980.85)
EXPENSES			
Awards			
Grand Awards	\$9,350.00	\$9,350.00	\$0.00
CSEF Special Awards	\$500.00	\$1,350.00	(\$850.00)
Other Special Awards	\$9,475.00	\$8,830.00	\$645.00
Non-Cash Awards	<u>\$2,710.00</u>	<u>\$3,030.51</u>	<u>(\$320.51)</u>
TOTAL Awards	\$22,035.00	\$22,560.51	(\$525.51)
Board Expenses			
Communications	\$750.00	\$735.41	\$14.59
Meetings	\$750.00	\$345.70	\$404.30
Operations	<u>\$8,726.96</u>	<u>\$10,036.36</u>	<u>(\$1,309.40)</u>
TOTAL Board Expenses	\$10,226.96	\$11,117.47	(\$890.51)
ISEF			
Affiliation	\$1,110.00	\$1,110.00	\$0.00
Travel	<u>\$9,460.00</u>	<u>\$6,249.06</u>	<u>\$3,210.94</u>
TOTAL ISEF	\$10,570.00	\$7,359.06	\$3,210.94
Outreach	\$12,000.00	\$10,022.77	\$1,977.23
CSEF Expenses			
Adult Sponsors	\$750.00	\$563.96	\$186.04
Advisory Council	\$100.00	\$39.42	\$60.58
Finalist Activities	\$8,400.00	\$7,954.67	\$445.33
Finalist Registration	\$12,875.00	\$12,654.24	\$220.76
Fund Raising	\$750.00	\$653.23	\$96.77
Judging	\$8,575.00	\$8,507.65	\$67.35
Personnel	\$10,975.44	\$10,183.73	\$791.71
Publications	\$3,425.00	\$1,468.33	\$1,956.67
Regional Fair Directors	\$150.00	\$158.42	(\$8.42)
Scientific Review Committee	\$150.00	\$484.22	(\$334.22)
Supplies	\$650.00	\$667.87	(\$17.87)
Volunteers	<u>\$3,500.00</u>	<u>\$3,361.01</u>	<u>\$138.99</u>
TOTAL CSEF Expenses	\$50,300.44	\$46,696.75	\$3,603.69
TOTAL EXPENSES	\$105,132.40	\$97,756.56	\$7,375.84
OVERALL TOTAL	\$18,692.60	\$11,087.59	(\$7,605.01)