



Colorado State Science Fair, Inc.

2016 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, 2016
Colorado State Science Fair, Inc.
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2016 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 four 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.

2016 COLORADO SCIENCE AND ENGINEERING FAIR

The sixty-first Colorado Science and Engineering Fair was held at the Lory Student Center of the Colorado State University campus in Fort Collins from Thursday, April 7, 2016 to Saturday, April 9, 2016.

This year, CSEF winners were chosen from among 328 projects represented by 370 finalists from 126 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 175 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 2016 Colorado Science and Engineering Fair had 25 sponsors. Sponsors included 4 Diamond Sponsors (providing over \$10,000), 3 Platinum Sponsors (providing between \$5,000 - \$9,999), 2 Gold Sponsors (providing between \$2,500 - \$4,999), 5 Silver Sponsor (providing between \$1,000 - \$2,4999), 1 Bronze Sponsors (providing between \$750 - \$999) and 10 Copper Sponsors (providing between \$500 - \$749). In addition, there were 29 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 twelve \$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 four \$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 awarded each of the Senior Division category 1st – 4th place winners a \$500 merit scholarship to attend Colorado College in the summer of 2016 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 their choice.

This year, the CSEF was honored to have Dr. Joel Parker from the New Horizon's Mission to Pluto and NASA's Alice instrument on Rosetta as the guest speaker.



(See Appendix 1 – 2016 CSEF Schedule)

2016 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 – 44%
Female – 56%

Percentage of Awards

Male – 44%
Female – 56%

Percentage of Projects by Category

Animal Sciences

Male – 46%
Female – 54%

Behavioral & Social Sciences

Male – 26%
Female – 74%

Chemistry & Biochemistry

Male – 45%
Female – 55%

Earth & Space Sciences

Male – 36%
Female – 64%

Energy

Male – 57%
Female – 43%

Engineering

Male – 73%
Female – 27%

Environmental Sciences

Male – 43%
Female – 57%

Mathematics & Computer Sciences

Male – 35%
Female – 65%

Medicine & Health

Male – 24%
Female – 76%

Microbiology & Molecular Biology

Male – 13%
Female – 87%

Physics

Male – 57%
Female – 43%

Plant Sciences

Male – 43%
Female – 57%

Percentage of Awards by Category

Animal Sciences

Male – 42%
Female – 58%

Behavioral & Social Sciences

Male – 33%
Female – 67%

Chemistry & Biochemistry

Male – 40%
Female – 60%

Earth & Space Sciences

Male – 29%
Female – 71%

Energy

Male – 51%
Female – 49%

Engineering

Male – 79%
Female – 21%

Environmental Sciences

Male – 54%
Female – 46%

Mathematics & Computer Sciences

Male – 24%
Female – 76%

Medicine & Health

Male – 38%
Female – 62%

Microbiology & Molecular Biology

Male – 18%
Female – 82%

Physics

Male – 62%
Female – 38%

Plant Sciences

Male – 33%
Female – 67%

2016 CSEF ETHNICITY RATIOS

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

Percentage of Projects

Caucasian – 53%
Hispanic – 6%
Asian – 10%
African American – 1%
Native American – 1%
Other/Unknown – 29%

Percentage of Awards

Caucasian – 53%
Hispanic – 7%
Asian – 10%
African American – 1%
Native American – 1%
Other/Unknown – 28%

2016 CSEF GRADE LEVEL RATIOS

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

Percentage of Students

Junior Division – 60%
6th grade – 11%
7th grade – 21%
8th grade – 28%
Senior Division – 40%
9th grade – 12%
10th grade – 8%
11th grade – 9%
12th grade – 11%

Percentage of Projects

Junior Division – 60%
6th grade – 12%
7th grade – 20%
8th grade – 28%
Senior Division – 40%
9th grade – 12%
10th grade – 9%
11th grade – 10%
12th grade – 9%

Percentage of Grand Awards per Division

Junior Division – 54%
6th grade - 11/78 awards – 14%
7th grade – 27/78 awards – 35%
8th grade – 40/78 awards – 51%
Senior Division – 46%
9th grade – 15/66 awards – 23%
10th grade – 18/66 awards – 27%
11th grade – 17/66 awards – 26%
12th grade – 16/66 awards – 24%

Percentage of Students Winning Grand Awards

Junior Division – 36%
6th grade – 12/41 students – 29%
7th grade- 29/76 students – 38%
8th grade – 39/104 students – 38%
Senior Division – 46%
9th grade – 17/44 students – 48%
10th grade – 18/31 students – 58%
11th grade – 15/35 students – 43%
12th grade- 19/39 students – 49%

Percentage of Special Awards per Division

Junior Division – 43%
6th grade – 30/370 awards – 8%
7th grade - 55/370 awards – 15%
8th grade – 73/370 awards – 20%
Senior Division – 57%
9th grade – 38/370 awards – 10%
10th grade – 63/370 awards – 17%
11th grade – 71/370 awards – 19%
12th grade – 40/370 awards – 11%

Percentage of Students Winning Special Awards

Junior Division – 43%
6th grade – 19/41 students – 46%
7th grade – 30/76 students – 39%
8th grade – 47/104 students – 45%
Senior Division – 62%
9th grade – 22/44 students – 50%
10th grade – 22/31 students – 71%
11th grade – 26/35 students – 74%
12th grade – 23/39 students – 59%

2016 COLORADO SCIENCE AND ENGINEERING FAIR AWARDS

The top four Senior Division project exhibitors (individual or team) won a trip to compete in the Intel International Science and Engineering Fair held in Phoenix, AZ May 8 - 13, 2016. First place went to **Isani Singh**, Cherry Creek High School, grade 10, for the project *Studying the Effects of a Missing X Chromosome on the Liver*. Second place went to **Joyce Xu**, Fairview High School, grade 11, for the project *Predictive Modeling of Optimal Cancer Therapies*. Third place went to **Rebecca Bloomfield**, Palmer High School, grade 11, for the project *GASP!: Growth Advantage in Stationary Phase in Acinetobacter baylyi*. Fourth place went to **Trevor Jordan**, Animas High School, grade 12, for the project *A Wing of the Future: Phase III*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Laura Fleming** from Fairview High School, grade 12, for the project *Valvular Interstitial Cell Activation in Response to Pro-Inflammatory Cytokine Treatment*.

The winner of the first Elemer Bernath Technical Writing Award was **Sophie Reeves** from Summit Charter Middle School, grade 8, for the project *The Relationship between Cloud Chambers, Alpha Particles, Radon-22 and Different Floors of a House*.

The winner of the Senior Division Student Choice Award was **Marguerite Schueler** from Palmer High School, grade 10, for the project *Pick a Color Any Color: The Influence Negative Experiences Have on Unconscious Decisions*. The Junior Division Student Choice winner was **Kathryn Kummel** from North Middle School, grade 7, for the project *All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies*.

The winner of the Poster Art Contest was **Alyssa Keirn**, from Blevins Middle School.

The winners of the Pioneers of Science Awards were **Wayttyn Wollert**, Wiley Jr/Sr High School, grade 6, for the project *Is That Smile Golden?*; **Sara Nehring**, Monte Vista Middle School, grade 7, for the project *Do the Shuffle*; **Brooks Reed**, Vail Mountain School, grade 7 for the project *Force and Pressure*; **Kate Zerefos**, Monument Academy, grade 6, for the project *How Do Tsunamis Affect the Surrounding Area?*; **Teegan Oatley**, Flagstaff Academy, grade 8, for the project *Hydroelectric Phone Charger*; **Sam Duarte**, Quest Academy, grade 8, for the project *The Perils of Practice*; **Audrey Gulig**, Monument Academy, grade 8, for the project *Concussion Protection, Part 2*; **Riley Ruff**, North Arvada Middle School, grade 8, for the project *Pond-er This!*; **Aiden Quayle**, Miller Middle School, grade 7, for the project *Coffee Cup Conundrum*; **Maddie Plank**, Most Precious Blood Catholic School, grade 8, for the project *How Lemon, Chamomile, Honey and Sea Salt Lighten Hair*; **Sena Uctuk**, Kinard Core Knowledge Middle School, grade 7, for the project *Icy Coli?*; **Kaydee Dodge**, Craver Middle School, grade 7, for the project *Pumpkin Preservation Part II*; **Ellie Schueler**, North Middle School, grade 7, for the project *Fiendish Football Fans*; **Lauren Weaber**, Eaton Middle School, grade 8, for the project *Is the Grass Greener on the Other End of the Horse?*; **Tommy Pope**, St. Columba Catholic School, grade 6, for the project, *Healthier Water*; **Grace Fuselier & Meredith Neid**, Stanley British Primary School, grade 8, for the project *A Faulty Work World*; **Collin Farley**, Abner Baker Central School, grade 6, for the project *Attraction Action*; and **Makenzy Dreher**, Frontier Academy, grade 7, for the project *Butterflies: Hot & Cold*.

2016 COLORADO SCIENCE AND ENGINEERING FAIR

SCHOLARSHIP AWARDS

ADAMS STATE COLLEGE

Patricia Todd, Fairview High School, grade 11, for the project *Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study*

Tyree Jones, Walsh Jr/S High School, grade 9, for the project *Rapid Recognition Recall*

Obbrianna Blea, Central High School, grade 11, for the project *Flaming Candy*

Wyatt Wiening, Trinidad High School, grade 10, for the project *Strength Exerted by Montmorillonite Clay*

Alia Kraxberger, Genoa-Hugo School, grade 9, for the project, *Open or Covered vs. Aerodynamics*

Parker Randolph, Monte Vista High School, grade 9, for the project *Polymer Enhanced Passive Cooling: Designing a Thin Film Material to Remove Thermal Energy and Avert Incoming Solar Radiation*

Cassidy Plane, Alamosa High School, grade 11, for the project *Is a Forester's Trash a Farmer's Treasurer?*

Deyanira Flores, Brush High School, grade 12, for the project *Happy Birthday to You . . . and You . . . and You*

Eileen Xia, Cherry Creek High School grade 11, for the project *Mechanism for How P13K p100a Isoform Inhibits CSR Through AID Expression*

Kaitlyn Carson, Windsor High School, grade 11, for the project *Farm Fresh Eggs: A Backyard Bacteria Source*

Adrienne Jones, Trinidad High School, grade 10, for the project *Amateur Radio Astronomy*

Mitchell Fosdick, Fowler High School, grade 11, for the project *Phase IV: Optimizing Algal Growth for Real World Application*

Kaitlin Wells, Fort Morgan High School, grade 10 & **Kaybree Keating**, Weldon Valley School, grade 9, for their project *Washing Away Vital Elements of Our Environment: A Bioassay Investigation with Daphnia and Detergents*

COLORADO SCHOOL OF MINES

Christoph Cikraji, Durango High School, grade 11, for the project *Applications of Magnetic Fields for Induction of Artificial Gravity*

Joyce Xu, Fairview High School, grade 11, for the project *Predictive Modeling of Optimal Cancer Therapies*

Wyeth Rossi, Home Schooled, grade 11, for the project *Lead Remediation: Applications of Algae in Fresh Water*

Katie Fromm, Greeley West High School, grade 11, for the project *The Effect of Rocker Ratio on Calculated vs. Experimental Lift*

Leighton Burt, Sargent Jr/Sr High School, grade 11, for the project *Life Saving Locating: Developing Autonomous Avalanche Rescue, Part 2*

Anurag Golla, Fairview High School, grade 11, for the project *Actuated Controlled Motion of a Pulsating Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting*

Sirisha Gudavalli, Fairview High School, grade 11, for the project *Assembly of the CDK8 Kinase Module*

Kevyn Kelso, The Classical Academy, grade 11, for the project *Building a High-Resolution Fused Deposition Modeling 3D Printer Out of a Bed Frame*

COLORADO STATE UNIVERSITY

COLLEGE OF NATURAL SCIENCES

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

Joyce Xu, Fairview High School, grade 11, for the project *Predictive Modeling of Optimal Cancer Therapies*

Rebecca Bloomfield, Palmer High School, grade 11, for the project *GASP! : Growth Advantage in Stationary Phase in Acinetobacter baylyi*

Trevor Jordan, Animas High School grade 12, for the project *A Wing of the Future, Part III*

COLORADO STATE UNIVERSITY

Patricia Todd, Fairview High School, grade 11, for the project *Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study*

Benjamin Morris, Fairview High School, grade 12, for the project *The Extent and Severity of the Imposter Phenomenon Amongst College Prep, AP, and IB Students*

Avi Swartz, Cherry Creek High School, grade 11, for the project *Quantifying Spliceosomal Components Using Heavy Labeled Peptide Concatemers*

Michelle Kummel, Palmer High School, grade 10, for the project *Modeling Transport in Creeks by Approximating Partial Differential Equations*

Jayden Edson & Jonathan Belcher, West Grand High School, grade 9, for the project *Engineering a Wind Rover Processed with Python*

Kyle Fridberg, Fairview High School, grade 10, for the project *Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams*

Joyce Xu, Fairview High School, grade 11, for the project *Predictive Modeling of Optimal Cancer Therapies*

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

Rebecca Bloomfield, Palmer High School grade 11, for the project *GASP!: Growth Advantage in Stationary Phase in *Acinetobacter baylyi**

Amanda Li, Fairview High School, grade 10, for the project *Determining Protein Unfolding Times Through Analysis of Single Molecule Force Spectroscopy Data*

Ana Mayordomo, Cherry Creek High School, grade 10, for the project *Effects of Phosphorus and Nitrogen Levels in Soils on the Growth of Grass Under Drought Conditions*

COLORADO STATE UNIVERSITY - PUEBLO

Anurag Golla, Fairview High School, grade 11, for the project *Actuated Controlled Motion of a Pulsating Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting*

UNIVERSITY OF COLORADO, BOULDER

Kimberly Blough, Turner Middle School, grade 8, for the project, *Breaking Bridges*

Molly Nehring, Monte Vista High School, grade 9, for the project *Python Cubed*

Michelle Kummel, Palmer High School, grade 10, for the project *Modeling Transport in Creeks by Approximating Partial Differential Equations*

Joyce Xu, Fairview High School, grade 11, for the project *Predictive Modeling of Optimal Cancer Therapies*

Christoph Cikraji, Durango High School, grade 11, for the project *Applications of Magnetic Fields for Induction of Artificial Gravity*

Anurag Golla, Fairview High School, grade 11, for the project *Actuated Controlled Motion of a Pulsating Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting*

Elyssa Hofgard, Fairview High School, grade 11, for the project *A Historical Analysis of the Current California Drought*

Sergio Estrada, Northridge High School, grade 11, for the project *The Worm Squirm: Identifying the Effects of Frequency on *Lubricus Terrestris*'s Environment*

RYAN PATTERSON SCHOLARSHIP

The Ryan Patterson Scholarship is named in honor of the Intel ISEF top winner of 2001. This year's winner was **Lawrence Zhang**, Fairview High School in Boulder, grade 12, for the project *Suppression of Malonyl-CoA: ACP Transacylase as a Treatment for Squamous Cell Carcinomas*.

(See Appendix 2 – CSEF Press Release)



2016 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 1,500 of the most curious and capable young science pioneers from about 70 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 65th Intel ISEF held in Phoenix, AZ, May 8 - 13, 2016.

GRAND AWARDS

Kathryn Lawrence & Katherine Younglove from Boulder, CO won \$5,000 (Top of Category) and \$3,000 (1st Place) in Chemistry. Kathryn & Katherine also won the Intel Foundation Cultural and Scientific Visit to China award.

Rebecca Bloomfield from Colorado Springs, CO won \$1,000 (3rd Place) in Microbiology.

Joyce Xu from Boulder, CO won \$1,000 (3rd Place) in Computational Biology & Bioinformatics.

Lillie Bahrami from Boulder, CO won \$500 (4th Place) in Animal Sciences.

Trevor Jordan from Durango, CO won \$500 (4th Place) in Engineering Mechanics.

Isani Singh from Denver, CO won \$500 (4th Place) in Biomedical Sciences.

SPECIAL AND GOVERNMENT AWARDS

Rebecca Bloomfield from Colorado Springs, CO won a full tuition scholarship (\$150,000) to the Florida Institute of Technology.

Edwin Bodoni from Denver, CO won \$2,000 (1st Place) from the American Dental Association Foundation.

Trevor Jordan from Durango, CO won \$2,500 (1st Place) from the Alcoa Foundation. Trevor also won \$1,000 (3rd Place) from NASA. Trevor also received an Honorable Mention from the Society of Experimental Test Pilots.

Joyce Xu from Boulder, CO won \$250 (4th Place) from the American Association of Pharmaceutical Scientists. Joyce also won \$500 (3rd Place) from the American Statistical Association.

Matthew Hileman from Colorado Springs, CO received an Honorable Mention from the International Council on Systems Engineering.



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)

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Galvanic Engineering

IEEE, High Plains Section

Optimal Schedule

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San Luis Valley Regional Science Fair, Inc.

Dr. Larry & Carol Sveum

Vaughan Web Works

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

Colorado Association of Science Teachers

Colorado BioScience Institute

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Southern Colorado Orthodontic Specialists:

Drs. Stringert & Brimhall

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INDIVIDUAL CONTRIBUTORS

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

Ed & Lucy Adams

Thomas Butts

Sam & Eileen Bartlett

Al Bedard Jr.

Kevin & Ann Cooney

Frank Denniston

Gina Holland & Isaac Britton

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Jennie Ridgley

James Rivers, Jr.

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Nancy Vaughan

The Voss Family

Walsh Halloween Haunted House

The RedLion York

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Colorado Geological Survey

CSU Bookstore

CSU College of Natural Sciences

Denver Botanic Gardens

Denver Zoo

Downtown Aquarium

Durango/Silverton Narrow Gauge Railroad

Mesa Verde Museum Association

Pueblo Zoo

RAFT Colorado

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Wings Over the Rockies

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

(See Appendix 3 – CSEF Income-Expense Report)

CSEF ADVISORY COUNCIL

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

CSSF BOARD OF DIRECTORS

Executive Committee:

President- Mr. Brian Scriber

Vice President- Mrs. Dolly Morrow

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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

Doug Everett	Brian Geiss
Steve Hiebert	Steve Iona
Ron Kollars	Kim Melville-Smith
Candus Muir	Judy Prester
Rod Simpson	Jim Sites
Doug Steward	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
61st Annual Colorado Science and Engineering Fair

ALL 2016 CSEF Events will be held at the Lory Student Center on the Colorado State University – Fort Collins campus. The CSEF Headquarters will be the Registration Booth on the 3rd floor of the LSC.

Thursday, April 7, 2016

Finalist Schedule

8:30 a.m. – 11:30 a.m.	SRC Interviews – <i>Interviews must be completed BEFORE a project may be set up.</i>	Room 308/310
9:00 a.m. – 11:00 a.m.	Junior and Senior Division Finalist Check-In	Grand Ballroom 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 a.m. – 11:00 a.m.	Tour Ticket Pick-Up & Sales	Room 322
1:30 p.m. – 5:00 p.m.	Judging – <i>Students must be at their exhibits for interviews.</i>	Grand Ballroom

Adult Schedule

2:00 p.m. – 2:30 p.m.	ISEF Rules Update & Discussion	Room 312
2:30 p.m. – 4:30 p.m.	Science Teaching Challenge and Potential Solution Presented by: Dr. Paul Strode, Fairview High School	Room 312

Judging Schedule

9:15 a.m. – 9:45 a.m.	Grand Awards Judge Captains' Briefing	LSC Theater
10:00 a.m. – 11:00a.m.	Grand Awards Judges' Briefing	LSC Theater
11:00 a.m. – 12:00 noon	Grand Awards Judges' Luncheon	LSC Theater Lobby
12:15 p.m. – 12:30 p.m.	Special Awards Judges' Briefing	North Ballroom
12:00 noon – 5:00 p.m.	Judging	Grand Ballroom
12:00 – 12:30 p.m.	<u>Grand Award Judges only</u> in the exhibit room.	
12:30- 1:30 p.m.	Special Award Judges may enter 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 8, 2016

10:30 a.m. – 5:00 p.m.	CSEF Finalist Exhibits Open to the Public and the Media	Grand Ballroom
9:00 a.m. – 10:00 a.m.	Guest Speaker – Dr. Joel Parker, New Horizons Mission to Pluto	LSC Theater
10:30 a.m. – 3:00 p.m.	Tours – <i>Everyone is invited to participate in the tours and presentations – registration required.</i>	
2:00 p.m.	Finalist Ballots for Student Choice and Poster Contest are due.	Registration Booth
6:00 p.m.	Awards Ceremony	Timberline Church

Saturday, April 9, 2016

9:00 a.m. – 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 a.m. – 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 and judges are invited.</i> <i>Finalists must be present to win door prizes!</i>	Grand Ballroom
12:00 noon – 1:00 p.m.	Exhibit Dismantling - <i>Everything must be removed by 1:00 p.m.</i>	Grand Ballroom
12:00 noon – 2:00 p.m.	Board of Directors Meeting – <i>open to all</i>	Room 322

The upcoming Intel International Science and Engineering Fair will be in Phoenix, AZ May 8 – 13, 2016. Next year's Colorado Science and Engineering Fair will be April 6 – 8, 2017 at Colorado State University

(Dates are subject to change.)

2016 Colorado Science and Engineering Fair Grand Awards Press Release

Junior Division Best CSEF Project

First Place

Anudeep Golla 8th grade
Seeking Predictability Trapped in the Midst of the Chaos of the Mandelbrot Set
 Southern Hills Middle School Boulder

Second Place

Alyssa Keirn 8th grade
Solar Powered Decontaminator Testing
 Blevins Middle School Fort Collins

Third Place

Jonathan Haerr 8th grade
Circumstantial Morality
 The Classical Academy Colorado Springs

Senior Division Best CSEF Project

First Place

Isani Singh 10th grade
Studying the Effects of a Missing X Chromosome on the Liver
 Cherry Creek High School Greenwood Village

Second Place

Joyce Xu 11th grade
Predictive Modeling of Optimal Cancer Therapies
 Fairview High School Boulder

Third Place

Rebecca Bloomfield 11th grade
*GASP!: Growth Advantage in Stationary Phase in *Acinetobacter baylyi**
 Palmer High School Colorado Springs

Fourth Place

Trevor Jordan 12th grade
A Wing of the Future: Part III
 Animas High School Durango

Junior Division Animal Sciences

First Place

Alex Roberts 7th grade
Inexpensive Food Alternative from Microalgae Waste
 Challenge School Denver

Second Place

Makenzy Dreher 7th grade
Butterflies: Hot & Cold - Study How Temperature Variations Affect the Metamorphosis of Cynthia Vaness
 Frontier Academy Secondary School Greeley

Third Place

Shelby Wood 8th grade
Inside the Wing
 Monument Academy Monument

Fourth Place

Jocelyn Sanchez 7th grade
Water Effects on the Growth of Brine Shrimp
 Corwin International Magnet School Pueblo

Senior Division Animal Sciences

First Place

Patricia Todd 11th grade
Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study
 Fairview High School Boulder

Second Place

Riley Meisner 10th grade
The Effects of Fluctuating Barometric Pressure on Labor Induction in Pregnant Ewes
 Sterling High School Sterling

Junior Division Behavioral & Social Sciences

First Place

Jonathan Haerr 8th grade
Circumstantial Morality
 The Classical Academy Colorado Springs

Second Place

Evelyn Bodoni 8th grade
The Lure of Distraction
 Challenge School Denver

Third Place

Ellie Schueler 7th grade
Fiendish Football Fans: The Influence of a Football Team's Performance on Negativity Levels
 North Middle School Colorado Springs

Fourth Place

William Dienstfrey 8th grade
Optical Illusions: Contrast Induced Asynchrony
 Summit Charter Middle School Boulder

Honorable Mention

Grace Fuselier & Meredith Neid 8th grade
A Faulty Work World
 Stanley British Primary School Denver

Honorable Mention

Serena Balke 8th grade
Highlighting-Helpful or Hoax?
 The Classical Academy Colorado Springs

Senior Division Behavioral & Social Sciences

First Place

Benjamin Morris 12th grade
The Extent and Severity of the Impostor Phenomenon Amongst College Prep, AP, and IB Students
 Fairview High School Boulder

Second Place

Amber Michel 9th grade
I Guess That's Why They Call It the Blues
 Monte Vista High School Monte Vista

Appendix 2

Third Place
 Sydney Fischer 12th grade
The Expectations and Misconceptions of Brilliance: Gender Disparities in STEM
 Boulder High School Boulder

Fourth Place
 Sydnee Roth 9th grade
The Color of Emotion
 Liberty School Joes

Honorable Mention
 Cassandra Blew 9th grade
Investigating Triggers of Sundowners Syndrome in Dementia Patients in an Institutional Setting
 La Veta Schools La Veta

Junior Division Chemistry & Biochemistry

First Place
 Madeleine Nagle 8th grade
Cost and Effectiveness of Sunscreens
 Summit Charter Middle School Boulder

Second Place
 Emhyr Subramanian 8th grade
An Attempt to Create a Hydrophobic, Biodegradable, Super-Absorbent Polymer That Can Extract Waste
 Challenge School Denver

Third Place
 Owen Growney 6th grade
How Do You Like Your Eggs?
 Connect Charter School Pueblo

Fourth Place
 Kaleb Andreatta & Cavin McCay 7th grade
Metals in Drinking Water
 La Veta Schools La Veta

Honorable Mention
 Tobias DiRito 6th grade
It's "Super-Cool"
 Bromley East Charter School Brighton

Honorable Mention
 Maddie Plank 8th grade
How Lemon, Chamomile, Honey and Sea Salt Lighten Hair
 Most Precious Blood Catholic School Denver

Honorable Mention
 Cole Seger 8th grade
May the Force Be with You
 Sargent Jr/Sr High School Monte Vista

Honorable Mention
 Lillian Buck 8th grade
The Effect of Mixing Metal Salts on Flame Color
 St. John the Evangelist Catholic School Loveland

Senior Division Chemistry & Biochemistry

First Place
 Avi Swartz 11th grade
Quantifying Spliceosomal Components Using Heavy Labeled Peptide Concatemers
 Cherry Creek High School Greenwood Village

Second Place
 Kathryn Lawrence & Katherine Younglove 12th grade
The Effect of Carbon on Iron Nickle Bimetallic Nanoparticle Degradation of Orange G
 Fairview High School Boulder

Third Place
 Sirisha Gudavalli 11th grade
Assembly of the CDK8 Kinase Module
 Fairview High School Boulder

Fourth Place
 Tara Mensch & Nicholas Finan 12th grade
Sun Grown Polymers Using Benchtop Organocatalyzed Atom Transfer Radical Polymerization
 Peak to Peak Charter School Lafayette

Honorable Mention
 Aaliyah Garcia 9th grade
Wildland Firefighter Defense System
 Center High School Center

Junior Division Earth & Space Sciences

First Place
 Charlotte Heeley 8th grade
The Earth Moving the Waves
 Summit Charter Middle School Boulder

Second Place
 Michaela Ravenkamp 6th grade
Crop SOS: Do Crops Create Micro-climates?
 Genoa-Hugo School Hugo

Third Place
 Antonio Arant 8th grade
Did Someone Say . . . Parallax?
 Trinidad Middle School Trinidad

Fourth Place
 Kage Pepper 7th grade
Nitro-Soil
 Sargent Jr/Sr High School Monte Vista

Honorable Mention
 Kate Zerefos 6th grade
How Do Tsunamis Affect the Surrounding Area?
 Monument Academy Monument

Honorable Mention
 Josef Perko 6th grade
Effects of Sublimation of Dry Ice on Mars Geology
 Walt Clark Middle School Loveland

Appendix 2

Senior Division Earth & Space Sciences

First Place		
Michelle Kummel	10th grade	
<i>Modeling Transport in Creeks by Approximating Partial Differential Equations</i>		
Palmer High School		Colorado Springs
Second Place		
Jenna Salvat	9th grade	
<i>Sediment Injectites in Fault Zone Areas: An Investigation of Sedimentological Characteristics</i>		
Coronado High School		Colorado Springs
Third Place		
Elyssa Hofgard	11th grade	
<i>A Historical Analysis of the Current California Drought</i>		
Fairview High School		Boulder
Fourth Place		
Nathaniel Miner & Drake Ludgate	9th grade	
<i>Deadly Stratification: The Role of Temperature on Limnic Eruptions</i>		
Brush High School		Brush
Honorable Mention		
Wyatt Wienen	10th grade	
<i>Strength Exerted by Montmorillonite Clay</i>		
Trinidad High School		Trinidad
Honorable Mention		
Shannon Bland	11th grade	
<i>Stop That Flood Part (V)</i>		
Lamar High School		Lamar

Junior Division Energy

First Place		
Mark Bloomfield	8th grade	
<i>The Heat Is On . . . Or Off: Smart Thermostat Design with a Raspberry Pi Computer</i>		
Holmes Middle School		Colorado Springs
Second Place		
Nicholas Huber	6th grade	
<i>Hot or Not</i>		
St. Columba Catholic School		Durango
Third Place		
Chelsea Padilla	8th grade	
<i>Murky Electricity</i>		
Challenge School		Denver
Fourth Place		
Tyler Higgins	7th grade	
<i>Country Cooked Fuel: Efficiency Comparison of Biodiesel and Diesel</i>		
Genoa-Hugo School		Hugo
Honorable Mention		
Bailey Freeman	7th grade	
<i>Capture That Ray</i>		
Miller Middle School		Durango

Honorable Mention

Tho Nguyen	8th grade	
<i>The Energy of Algae</i>		
DSST: College View Middle School		Denver

Senior Division Energy

First Place		
Trevor Jordan	12th grade	
<i>A Wing of the Future: Part III</i>		
Animas High School		Durango
Second Place		
Hannah Zhang	10th grade	
<i>Reducing Building Energy Consumption by Personal Thermal Regulation</i>		
Fairview High School		Boulder
Third Place		
Sophia Markuson DiPrince	9th grade	
<i>Anaerobic Digestion of Used Coffee Grounds to Generate Electricity</i>		
Central High School		Pueblo
Fourth Place		
Trent Martin	12th grade	
<i>Hydrologic Eddy Current Applications</i>		
Cherry Creek High School		Greenwood Village
Honorable Mention		
Joseph Weisensee	12th grade	
<i>Berry Good Solar Energy: Dye Sensitized Solar Cells</i>		
Limon Schools		Limon
Honorable Mention		
Alia Kraxberger	9th grade	
<i>Open or Covered vs. Aerodynamics</i>		
Genoa-Hugo School		Hugo
Junior Division Engineering		
First Place		
Chase Cromwell	8th grade	
<i>Music on Demand</i>		
Lamar Middle School		Lamar
Second Place		
Benjamin Wilson	8th grade	
<i>Aerostat Communication System</i>		
The Classical Academy		Colorado Springs
Third Place		
Ian Curd	7th grade	
<i>SwimBot: A Robot for Testing Swimming Speed and Energy</i>		
Boulder Country Day School		Boulder
Fourth Place		
Sanavi Pillai	7th grade	
<i>Wireless Electricity</i>		
Mountain Ridge Middle School		Colorado Springs
Honorable Mention		
Amy Dang Nguyen & Katherine Tran	8th grade	
<i>How Hot Is Too Hot? The Effect of Water Temperature on Fuel Cell Car Performance</i>		
DSST: College View Middle School		Denver

Appendix 2

Honorable Mention

Sarah Bian 7th grade
Quaking Skylines
 Challenge School Denver

Honorable Mention

Krithik Ramesh 8th grade
Turbo Pulse: A Hybrid Pulsating Turbo Engine
 Challenge School Aurora

Honorable Mention

Ashley Gilmore 7th grade
 Sage Higbee 7th grade
What's in My Ear?
 Lamar Middle School Lamar

Honorable Mention

Johnathan Pollard 8th grade
Making Biking Accessible to the Visually Impaired
 The Classical Academy Colorado Springs

Senior Division Engineering

First Place

Jayden Edson & Jonathan Belcher 9th grade
Engineering a Wind Rover Processed with Python
 West Grand High School Kremmling

Second Place

Shepherd Kruse 11th grade
Spike Vectoring: Designing and Constructing a Maneuverable Aerospike Rocket Engine
 Home School Colorado Springs

Third Place

Zack Berohn, Ethan Stansbury & Zach Stockbauer 12th grade
Geometric Optimization of Rocker Design in Performance Vehicle Suspension
 Monarch High School Louisville

Fourth Place

Matthew Hileman 12th grade
Reflected Laser Communications for Small Satellites
 The Classical Academy, College Pathways Colorado Springs

Honorable Mention

Leighton Burt 11th grade
Life Saving Locating: Developing Autonomous Avalanche Rescue, Part 2
 Sargent Jr/Sr High School Monte Vista

Honorable Mention

Anurag Golla 11th grade
Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting
 Fairview High School Boulder

Honorable Mention

Parker Randolph 9th grade
Polymer Enhanced Passive Cooling: Designing a Thin Film Material to Remove Thermal Energy and Avert Incoming Solar Radiation
 Monte Vista High School Monte Vista

Honorable Mention

Isaac Jordan 10th grade
A New Twist on Artificial Muscle: Using Supercoiled Polymer Fibers to Power Robotics and Prosthetics
 Animas High School Durango

Junior Division Environmental Sciences

First Place

Sophie Dellinger 8th grade
Capturing Sulfur Dioxide: Chemically or Biologically?
 Summit Charter Middle School Boulder

Second Place

Nathaniel Brim 7th grade
Effects of Zinc and Magnesium Dissolution in Cathodic Protection Systems on the Environment
 The Classical Academy Colorado Springs

Third Place

Avery Lin 8th grade
Clean Green Buffer Machine: A Study of How Phytoplankton Fight Climate Change
 Stanley British Primary School Denver

Fourth Place

Scott Prieve 7th grade
Saving the Slope: How Does the Orientation of Contour-felled Logs Affect Erosion on a Barren Slope?
 North Middle School Colorado Springs

Honorable Mention

Logan Kilgroe 8th grade
Tsunami!
 Turner Middle School Berthoud

Honorable Mention

Grace Gulig 8th grade
A Worm's Eye View on Pesticides
 Monument Academy Monument

Honorable Mention

Jordan Eskew & Ella Rise 7th grade
How's the Air Out There?
 Windsor Charter Academy Windsor

Senior Division Environmental Sciences

First Place

Kyle Fridberg 10th grade
Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams
 Fairview High School Boulder

Second Place

Kylie Hunter 10th grade
Wastewater Sourceflow and Its Effect on Energy Output in a Pressure Retarded Osmosis System
 Cherry Creek High School Greenwood Village

Third Place

Josephina Hoskins 10th grade
Effect of Advancing Springs on Population Fluctuations of Migrant Cayuga Lake Warblers (Parulidae)
 Fairview High School Boulder

Appendix 2

Fourth Place
 Wyeth Rossi 11th grade
Lead Remediation: Applications of Algae in Fresh Water
 Home School Durango

Honorable Mention
 Eric Bear 10th grade
Hybrid Water Treatment with Slow Biosand Filter and Solar-Powered Electrolysis Chlorine Producing Unit
 Colorado Academy Denver

Junior Division Mathematics & Computer Sciences

First Place
 Anudeep Golla 8th grade
Seeking Predictability Trapped in the Midst of the Chaos of the Mandelbrot Set
 Southern Hills Middle School Boulder

Second Place
 Sara Nehring 7th grade
Do the Shuffle
 Monte Vista Middle School Monte Vista

Third Place
 Daniel Zamoshchin 8th grade
Near Field Communication for Digital and Physical Two Factor Authentication
 Challenge School Denver

Fourth Place
 Kael Mattics 6th grade
Mathematics of a Tsunami Wave
 Olathe Middle School Olathe

Honorable Mention
 Isabelle Washburn 7th grade
All A'board
 Miller Middle School Durango

Senior Division Mathematics & Computer Sciences

First Place
 Joyce Xu 11th grade
Predictive Modeling of Optimal Cancer Therapies
 Fairview High School Boulder

Second Place
 Andrea Lin 10th grade
A Genetic Algorithm Based Approach to Optimize Sound Externalization
 Fairview High School Boulder

Third Place
 Molly Nehring 9th grade
Python Cubed
 Monte Vista High School Monte Vista

Fourth Place
 Tyler Giallanza 11th grade
Novel Applications of Stochastic Global Optimization Algorithms to the Shortest Common Superstring Problem
 Cherry Creek High School Greenwood Village

Junior Division Medicine & Health

First Place
 Nathan Panzer 7th grade
The Effects of a Granulocyte-Colony Stimulating Factor on White Blood Cells
 North Arvada Middle School Arvada

Second Place
 Georgia Mynatt 7th grade
Does the Shirt on Your Back Stop the Sun's Attack?
 Miller Middle School Durango

Third Place
 Anjali Chaparala 7th grade
Protect It or Forget It
 The Classical Academy Colorado Springs

Fourth Place
 Sam Duarte 8th grade
The Perils of Practice: Noise Dosimetry, Pipers, Earplugs and Noise Induced Hearing Loss?
 Quest Academy Dacono

Honorable Mention
 Galileo Dumont 8th grade
Does Going Up Bring You Down? Effects of Altitude on Lactate Threshold in Unacclimatized Individuals
 Estes Park Middle School Estes Park

Honorable Mention
 Kristine Hoffner 8th grade
Altitude's Effect on the Oxygen Hemoglobin Dissociation Curve
 Home School Center

Honorable Mention
 Laura Clark 8th grade
Human Microbiome: Medical Ecology and the Effect of Behavior on Human Microflora
 St. Columba Catholic School Durango

Honorable Mention
 Katie Mann 8th grade
Feeling Charged?
 Classical Conversations Monument

Senior Division Medicine & Health

First Place
 Isani Singh 10th grade
Studying the Effects of a Missing X Chromosome on the Liver
 Cherry Creek High School Greenwood Village

Second Place
 Hari Sowrirajan 10th grade
Nanoparticle-Induced Alterations in Cellular Junctions and Possible Therapeutic Interventions
 Cherry Creek High School Greenwood Village

Third Place
 Stephanie Zhang 10th grade
DNA Packing and Diseases: Developing a Pipeline to Analyze Data Collected from ATAC-sequence
 Fairview High School Boulder

Appendix 2

Fourth Place

Laura Fleming 12th grade
Valvular Interstitial Cell Activation in Response to Pro-Inflammatory Cytokine Treatment
 Fairview High School Boulder

Honorable Mention

Sirey Zhang 12th grade
The Effect of Epigenetics on CD8 T-Cell Function
 Cherry Creek High School Greenwood Village

Junior Division Microbiology & Molecular Biology

First Place

Alyssa Keirn 8th grade
Solar Powered Decontaminator Testing
 Blevins Middle School Fort Collins

Second Place

Eliot Wright 7th grade
Proteomic Approach to UV/HNO₃ Deamination Mutagenesis in Antibiotic-Resistant Monera
 Miller Middle School Durango

Third Place

Breann Ritter 8th grade
Leaf No Trace Behind
 St. Stephen's Catholic School Glenwood Springs

Fourth Place

Isla Anderson 8th grade
The Effects of Water Contaminants of the Microbiome of a Stalk Eyed Fly
 Skinner Middle School Denver

Honorable Mention

Gavin Grant 6th grade
The War Against Bacteria: Will Copper Win?
 Highland Park Elementary School Pueblo

Senior Division Microbiology & Molecular Biology

First Place

Rebecca Bloomfield 11th grade
*GASP!: Growth Advantage in Stationary Phase in *Acinetobacter baylyi**
 Palmer High School Colorado Springs

Second Place

Katelynn Salmon 9th grade
*Biodetoxification Spectrum of *Symbiotaphrina Kochii* on Carcinogens Found in Cigarette Smoke*
 Palmer Ridge High School Monument

Third Place

Eric Sun 12th grade
*Computational Analysis of Stress Responses in *Saccharomyces cerevisiae**
 Pueblo West High School Pueblo West

Fourth Place

Kaitlyn Carson 11th grade
Farm Fresh Eggs; A Backyard Bacteria Source
 Windsor High School Windsor

Honorable Mention

Jessalyn Bay-Voit 11th grade
*The Effects of *Giardia* on the Ecosystem of a Farm*
 Mancos High School Mancos

Honorable Mention

Maya Jean Duran¹ & Sayer Guerrero² 10th grade
Innie or Outie II: Does Age Really Matter?
¹Dolores Huerta Preparatory High School Pueblo
²South High School Pueblo

Junior Division Physics

First Place

Adam Vagle 8th grade
The Three Body Problem and the Search for Intelligent Life
 Stanley British Primary School Denver

Second Place

Xander Duvall 6th grade
How Does Atmosphere Affect the Amount of Subatomic Particles?
 Banning Lewis Ranch Academy Colorado Springs

Third Place

Skyler Kranjcec 7th grade
Let's Solve Levitation with a Sine Wave Situation
 Boulder Country Day School Boulder

Fourth Place

Anna Cheesewright 6th grade
Hot or Cold: Which Is a Magnet's Kryptonite?
 St. Columba Catholic School Durango

Honorable Mention

Megan Goforth-Harmon 7th grade
The Effect of Dropping Stitched Tomatoes and How Well They Hold
 Morey Middle School Denver

Senior Division Physics

First Place

Amanda Li 10th grade
Determining Protein Unfolding Times Through Analysis of Single Molecule Force Spectroscopy Data
 Fairview High School Boulder

Second Place

Matthew Radzihovsky 12th grade
Buffer Gas Cooling in Molecular Spectroscopy
 Boulder High School Boulder

Third Place

Severn Young 12th grade
Using Discharge in Freestyle to Swim the "Perfect Race"
 Greeley West High School Greeley

Fourth Place

James Berndt & Kyle Berndt 12th grade
Quantum Levitation: The Future?
 Limon Schools Limon

Appendix 2

Honorable Mention

Christoph Cikraji 11th grade
Applications of Magnetic Fields for Induction of Artificial Gravity
 Durango High School Durango

Honorable Mention

Jaden Hoechstetter 10th grade
Modulation of Laser Beam Using a Digital Micromirror Device
 Fairview High School Boulder

Junior Division Plant Sciences

First Place

Kathryn Kummel 7th grade
All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies
 North Middle School Colorado Springs

Second Place

Logan DeGraaf 7th grade
Venus Fly Trap Response Time
 Evangelical Christian Academy Colorado Springs

Third Place

Braxton O'Bryan 6th grade
How Deep Can You Plant?
 Alta Vista Charter School Lamar

Fourth Place

Sarah Duzenack 7th grade
A Comparison of Edomycorrhizae and Commercial Fertilizer on Blue Grass.
 La Veta Schools La Veta

Honorable Mention

Trevor Frank 8th grade
The Hard Facts of Water: Is Your Water Inhibiting Your Fertilizer?
 Liberty School Joes

Honorable Mention

L. Sofia Bader 7th grade
Is The Grass Greener?
 Miller Middle School Durango

Senior Division Plant Sciences

First Place

Ana Mayordomo 10th grade
Effects of Phosphorus and Nitrogen Levels in Soil on the Growth of Grass Under Drought Conditions
 Cherry Creek High School Greenwood Village

Second Place

Sophia Niccoli 9th grade
Storage Wars: The Effect of Storage Conditions on Feeds
 Liberty School Joes

Third Place

Kit Bellefeuille 9th grade
Glomus spp. and Azospirillum brasilense Inoculation of Triticum aestivum and Medicago sativa
 Limon Schools Limon

Fourth Place

Tyson Lichty 9th grade
SNS-244 vs. Captan The Battle That Kills: Possible Prevention of Aspergillus flavus in Seed Storage
 Liberty School Joes

2016 Colorado Science and Engineering Fair Special Awards Press Release

Colorado Science & Engineering Fair

Elemer Bernath Technical Writing Award

Sophie Reeves 8th grade
\$100, certificate
Summit Charter Middle School Boulder
*The Relationship between Cloud Chambers, Alpha Particles,
Radon-222, and Different Floors of a House*

Ralph Desch Memorial Technical Writing Award

Laura Fleming 12th grade
\$100, certificate
Fairview High School Boulder
*Valvular Interstitial Cell Activation in Response to Pro-
Inflammatory Cytokine Treatment*

Poster Art Contest

Alyssa Keirn 8th grade
\$100, certificate
Blevins Middle School Fort Collins

Student Choice Award

Kathryn Kummel 7th grade
\$100, certificate, trophy
North Middle School Colorado Springs
*All Spruced Up: The Causes and Consequences of Spruce
Invasion into Aspen Canopies*

Marguerite Schueler 10th grade
\$100, certificate, trophy
Palmer High School Colorado Springs
*Pick a Color Any Color: The Influence Negative Experiences
Have on Unconscious Decisions*

Pioneers of Science

Ada Lovelace Award

Wayttyn Wollert 6th grade
\$50, certificate, poster of pioneer scientist
Wiley Jr/Sr High School Wiley
Is That Smile Golden?

Alan Turing Award

Sara Nehring 7th grade
\$50, certificate, poster of pioneer scientist
Monte Vista Middle School Monte Vista
Do the Shuffle

Albert von Szent-Gyorgyi Award

Brooks Reed 7th grade
\$50, certificate, poster of pioneer scientist
Vail Mountain School Vail
Force and Pressure

Alfred Wegener Award

Kate Zerefos 6th grade
\$50, certificate, poster of pioneer scientist
Monument Academy Monument
How Do Tsunamis Affect the Surrounding Area?

Christa McAuliffe Award

Teegan Oatley 8th grade
\$50, certificate, poster of pioneer scientist
Flagstaff Academy Longmont
Hydroelectric Phone Charger

Elizabeth Blackwell Award

Sam Duarte 8th grade
\$50, certificate, poster of pioneer scientist
Quest Academy Dacono
*The Perils of Practice: Noise Dosimetry, Pipers, Earplugs
and Noise Induced Hearing Loss?*

G. V. Black Award

Audrey Gulig 8th grade
\$50, certificate, poster of pioneer scientist
Monument Academy Monument
Concussion Protection, Part 2

Gifford Pinchot Award

Riley Ruff 8th grade
\$50, certificate, poster of pioneer scientist
North Arvada Middle School Arvada
Pond-er This!

Hedy Lamar Award

Aiden Quayle 7th grade
\$50, certificate, poster of pioneer scientist
Miller Middle School Durango
Coffee Cup Conundrum

John Dalton Award

Maddie Plank 8th grade
\$50, certificate, poster of pioneer scientist
Most Precious Blood Catholic Denver
How Lemon, Chamomile, Honey and Sea Salt Lighten Hair

Louis Pasteur Award

Sena Uctuk 7th grade
\$50, certificate, poster of pioneer scientist
Kinard Core Knowledge Middle Fort Collins
Icy Coli?

Luther Burbank Award

Kaydee Dodge 7th grade
\$50, certificate, poster of pioneer scientist
Craver Middle School Colorado City
Pumpkin Preservation Part II: Jack-o-Lantern Preservation

Margaret Mead Award

Ellie Schueler 7th grade
\$50, certificate, poster of pioneer scientist
North Middle School Colorado Springs
*Fiendish Football Fans: The Influence of a Football Team's
Performance on Negativity Levels*

Appendix 2

Norman Borlaug Award

Lauren Weaber 8th grade
 \$50, certificate, poster of pioneer scientist
 Eaton Middle School Eaton
Is the Grass Greener on the Other End of the Horse?

Rachel Carson Award

Tommy Pope 6th grade
 \$50, certificate, poster of pioneer scientist
 St. Columba Catholic School Durango
Healthier Water: A Study of Water Filtration Using Natural Materials

Sigmund Freud Award

Grace Fuselier & Meredith Neid 8th grade
 \$50, certificate, poster of pioneer scientist
 Stanley British Primary School Denver
A Faulty Work World

Sir Frederick Herschel Award

Collin Farley 6th grade
 \$50, certificate, poster of pioneer scientist
 Abner Baker Central School Fort Morgan
Attraction Action

Temple Grandin Award

Makenzy Dreher 7th grade
 \$50, certificate, poster of pioneer scientist
 Frontier Academy Secondary School Greeley
Butterflies: Hot & Cold - Study How Temperature Variations Affect the Metamorphosis of Cynthia Vaness

Military

Office of Naval Research

Naval Science Award

Hayli Mackey 7th grade
 certificate, medallion
 Springfield Junior High School Springfield
What Genre of Music Affects Blood Pressure the Most?

Nicholas Huber 6th grade
 certificate, medallion
 St. Columba Catholic School Durango
Hot or Not

Scott Prieve 7th grade
 certificate, medallion
 North Middle School Colorado Springs
Saving the Slope: How Does the Orientation of Contour-felled Logs Affect Erosion on a Barren Slope?

Nathan Panzer 7th grade
 certificate, medallion
 North Arvada Middle School Arvada
The Effects of a Granulocyte-Colony Stimulating Factor on White Blood Cells

Krithik Ramesh 8th grade
 certificate, medallion
 Challenge School Aurora
Turbo Pulse: A Hybrid Pulsating Turbo Engine

Jenna Salvat 9th grade
 \$75 gift certificate (to be mailed), certificate, medallion
 Coronado High School Colorado Springs
Sediment Injectites in Fault Zone Areas: An Investigation of Sedimentological Characteristics

Kylie Hunter 10th grade
 \$75 gift certificate (to be mailed), certificate, medallion
 Cherry Creek High School Greenwood Village
Wastewater Sourceflow and Its Effect on Energy Output in a Pressure Retarded Osmosis System

Stephanie Zhang 10th grade
 \$75 gift certificate (to be mailed), certificate, medallion
 Fairview High School Boulder
DNA Packing and Diseases: Developing a Pipeline to Analyze Data Collected from ATAC-sequence

Organizational

Air & Waste Management Association

Rocky Mountain States Section

Air & Waste Management Award

Emily Idler 8th grade
 \$50
 Liberty School Joes
The Exhausted Farmer: The Effects of Diesel Exhaust on Wheat

Sophie Dellinger 8th grade
 \$50
 Summit Charter Middle School Boulder
Capturing Sulfur Dioxide: Chemically or Biologically?

Avery Lin 8th grade
 \$100
 Stanley British Primary School Denver
Clean Green Buffer Machine: A Study of How Phytoplankton Fight Climate Change

Emhyr Subramanian 8th grade
 \$100
 Challenge School Denver
An Attempt to Create a Hydrophobic, Biodegradable, Super-Absorbent Polymer That Can Extract Waste

Kathryn Lawrence & Katherine Younglove 12th grade
 \$50
 Fairview High School Boulder
The Effect of Carbon on Iron Nickle Bimetallic Nanoparticle Degradation of Orange G

Julianna O'Clair & Michelle Ren 9th grade
 \$50
 Brush High School Brush
The Production of Methane Gas in Waste Biomass

Eric Bear 10th grade
 \$100
 Colorado Academy Denver
Hybrid Water Treatment with Slow Biosand Filter and Solar-Powered Electrolysis Chlorine Producing Unit

Appendix 2

American Association of University Women

AAUW Award for Women in STEM

Rochelle Casey	6th grade
\$100	
Walsh Elementary School	Walsh
<i>Rise Up!</i>	
Kelsey Lindbloom	12th grade
\$100	
Salida High School	Salida
<i>Fueling the Future Phase 5: A Single-Chambered Microbial Fuel Cell as a Trickle Charger</i>	

American Chemical Society

Colorado Local Section

ACS Award

Owen Growney	6th grade
\$25, certificate	
Connect Charter School	Pueblo
<i>How Do You Like Your Eggs?</i>	
Tobias DiRito	6th grade
\$25, certificate	
Bromley East Charter School	Brighton
<i>It's "Super-Cool"</i>	
Dustin Medina	7th grade
\$25, certificate	
Corwin International Magnet School	Pueblo
<i>Catalase Enzymes: How Does Temperature Affects Their Rates?</i>	
Emhyr Subramanian	8th grade
\$25, certificate	
Challenge School	Denver
<i>An Attempt to Create a Hydrophobic, Biodegradable, Super-Absorbent Polymer That Can Extract Waste</i>	
Madeleine Nagle	8th grade
\$100, certificate	
Summit Charter Middle School	Boulder
<i>Cost and Effectiveness of Sunscreens</i>	
Aliya Godoy	9th grade
\$25, certificate	
Skyview Academy	Highlands Ranch
<i>Does Temperature of a Crime Scene Affect the Transfer Quality of a Finger Print?</i>	
Sirisha Gudavalli	11th grade
\$25, certificate	
Fairview High School	Boulder
<i>Assembly of the CDK8 Kinase Module</i>	
Tara Mensch & Nicholas Finan	12th grade
\$25, certificate	
Peak to Peak Charter School	Lafayette
<i>Sun Grown Polymers Using Benchtop Organocatalyzed Atom Transfer Radical Polymerization</i>	
Kathryn Lawrence & Katherine Younglove	12th grade
\$25, certificate	
Fairview High School	Boulder
<i>The Effect of Carbon on Iron Nickel Bimetallic Nanoparticle Degradation of Orange G</i>	

Avi Swartz	11th grade
\$100, certificate	
Cherry Creek High School	Greenwood Village
<i>Quantifying Spliceosomal Components Using Heavy Labeled Peptide Concatemers</i>	

American Industrial Hygiene Association

Rocky Mountain Section

Excellence in Protection of Health and the Environment Award

Isaac Jordan	10th grade
\$100	
Animas High School	Durango
<i>A New Twist on Artificial Muscle: Using Supercoiled Polymer Fibers to Power Robotics and Prosthetics</i>	
Sophie Reeves	8th grade
\$150	
Summit Charter Middle School	Boulder
<i>The Relationship between Cloud Chambers, Alpha Particles, Radon-222, and Different Floors of a House</i>	

American Institute of Aeronautics &

Astronautics

Rocky Mountain Section

Excellence in Aeronautics & Astronautics Award

Siddarth Ijju	8th grade
Arduino Kit & 1 Year AIAA Student Membership	
Challenge School	Denver
<i>UAV-Emergency Response: Building an Autonomous Quad-copter for Emergency Response</i>	
Rylan McCall	8th grade
Arduino Kit & 1 Year AIAA Student Membership	
Walsh Jr/Sr High School	Walsh
<i>Aviation Aerodynamics</i>	
Jayden Edson & Jonathan Belcher	9th grade
Arduino Kit & 1 Year AIAA Student Membership	
West Grand High School	Kremmling
<i>Engineering a Wind Rover Processed with Python</i>	
Trevor Jordan	12th grade
Arduino Kit & 1 Year AIAA Student Membership	
Animas High School	Durango
<i>A Wing of the Future: Part III</i>	

American Institute of Chemical Engineers

Rocky Mountain Section

Excellence in Chemical Engineering Award

Aubrie Lewis	6th grade
\$75	
Olathe Middle School	Olathe
<i>Desalination Evaporation</i>	
Sophie Dellinger	8th grade
\$100	
Summit Charter Middle School	Boulder
<i>Capturing Sulfur Dioxide: Chemically or Biologically?</i>	

Appendix 2

Lindsay Golding \$75 Edison High School <i>Energy Efficient, Applicable Window Coverings</i>	9th grade Yoder	Hannah Zhang \$150 Fairview High School <i>Reducing Building Energy Consumption by Personal Thermal Regulation</i>	10th grade Boulder
Sophia Markuson DiPrince \$100 Central High School <i>Anaerobic Digestion of Used Coffee Grounds to Generate Electricity</i>	9th grade Pueblo	<i>APPA/Platte River Power Authority Special Award for Environmental Innovation</i>	
American Institute of Professional Geologists Colorado Section			
<i>AIPG Certificate of Excellence in the Geosciences</i>			
Josef Perko \$50 Walt Clark Middle School <i>Effects of Sublimation of Dry Ice on Mars Geology</i>	6th grade Loveland	Sophie Dellinger \$100 Summit Charter Middle School <i>Capturing Sulfur Dioxide: Chemically or Biologically?</i>	8th grade Boulder
Charlotte Heeley \$100 Summit Charter Middle School <i>The Earth Moving the Waves</i>	8th grade Boulder	Eric Bear \$150 Colorado Academy <i>Hybrid Water Treatment with Slow Biosand Filter and Solar-Powered Electrolysis Chlorine Producing Unit</i>	10th grade Denver
Elyssa Hofgard \$50 Fairview High School <i>A Historical Analysis of the Current California Drought</i>	11th grade Boulder	American Statistical Association Colorado/Wyoming Chapter David Young Memorial Award	
Jenna Salvat \$100 Coronado High School <i>Sediment Injectites in Fault Zone Areas: An Investigation of Sedimentological Characteristics</i>	9th grade Colorado Springs	Kathryn Kummel \$200, student membership in the American Statistical Association, acknowledgement at chapter spring meeting and on chapter web site North Middle School <i>All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies</i>	7th grade Colorado Springs
American Meteorological Society Denver/Boulder Section			
<i>Award for Excellence in Atmospheric Science Research</i>			
Breana Sinclair gift certificate, certificate of recognition Lamar Middle School <i>Geomagnetic Storms</i>	7th grade Lamar	Kyle Fridberg \$200, student membership in the American Statistical Association, acknowledgement at chapter spring meeting and on chapter web site Fairview High School <i>Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams</i>	10th grade Boulder
Elyssa Hofgard gift certificate, certificate of recognition Fairview High School <i>A Historical Analysis of the Current California Drought</i>	11th grade Boulder	American Vacuum Society Rocky Mountain Chapter Excellence in Physical Sciences & Engineering Award	
American Public Power Association Platte River Power Authority			
<i>APPA/Platte River Power Authority Special Award for Demonstration of Energy & Efficiency Development</i>			
Chelsea Padilla \$100 Challenge school <i>Murky Electricity</i>	8th grade Denver	Lillian Buck \$50, \$50 matching award to teacher/sponsor St. John the Evangelist Catholic <i>The Effect of Mixing Metal Salts on Flame Color</i>	8th grade Loveland
		Sarah Bian \$75, \$75 matching award to teacher/sponsor Challenge School <i>Quaking Skylines</i>	7th grade Denver
		Skyler Kranjcec \$75, \$75 matching award to teacher/sponsor Boulder Country Day School <i>Let's Solve Levitation with a Sine Wave Situation</i>	7th grade Boulder
		Nathaniel Brim \$100, \$100 matching award to teacher/sponsor The Classical Academy <i>Effects of Zinc and Magnesium Dissolution in Cathodic Protection Systems on the Environment</i>	7th grade Colorado Springs

Appendix 2

ASM International

ASM Materials Education Foundation Award

Nathaniel Brim 7th grade
\$150
The Classical Academy Colorado Springs
Effects of Zinc and Magnesium Dissolution in Cathodic Protection Systems on the Environment

Biophysical Society

Biophysical Excellence Award

Amanda Li 10th grade
\$100, certificate
Fairview High School Boulder
Determining Protein Folding Times Through Analysis of Single Molecule Force Spectroscopy Data

Colorado Association of Meat Processors

Excellence in Meat Science & Food Safety Award

Kaitlyn Carson 11th grade
\$75, certificate
Windsor High School Windsor
Farm Fresh Eggs; A Backyard Bacteria Source

Colorado Association of Science Teachers

CAST Award

Makayla Compton 8th grade
\$75
Liberty Point International Middle Pueblo West
Antibiotics vs. Probiotics

Mark Bloomfield 8th grade
\$75
Holmes Middle School Colorado Springs
The Heat Is On . . . Or Off: Smart Thermostat Design with a Raspberry Pi Computer

Aliya Godoy 9th grade
\$75
Skyview Academy Highlands Ranch
Does Temperature of a Crime Scene Affect the Transfer Quality of a Finger Print?

Hari Sowrirajan 10th grade
\$75
Cherry Creek High School Greenwood Village
Nanoparticle-Induced Alterations in Cellular Junctions and Possible Therapeutic Interventions

Colorado Biology Teachers' Association

CBTA Best Biology Project Award

Kathryn Kummel 7th grade
\$50, certificate
North Middle School Colorado Springs
All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies

Eliot Wright 7th grade
\$100, certificate
Miller Middle School Durango
Proteomic Approach to UV/HNO₃ Deamination Mutagenesis in Antibiotic-Resistant Monera

Katelynn Salmon 9th grade
\$50, certificate
Palmer Ridge High School Monument
Biodetoxification Spectrum of Symbiotaphrina Kochii on Carcinogens Found in Cigarette Smoke

Hannah Niccoli 11th grade
\$100, certificate
Liberty School Joes
A Delicate Balance: Relationships Between Electrolytes, pH, and Probiotics

Colorado BioScience Institute

BioGENEius Challenge

Laura Fleming 12th grade
all-expense paid trip to compete at the U.S. National and International competition held in San Francisco, CA June 2016 during the International BIO Convention

Fairview High School Boulder
Valvular Interstitial Cell Activation in Response to Pro-Inflammatory Cytokine Treatment

Colorado Chemistry Teachers' Association

CCTA Chemistry Award

Mark Bloomfield 8th grade
\$100
Holmes Middle School Colorado Springs
The Heat Is On . . . Or Off: Smart Thermostat Design with a Raspberry Pi Computer

Aliya Godoy 9th grade
\$100
Skyview Academy Highlands Ranch
Does Temperature of a Crime Scene Affect the Transfer Quality of a Finger Print?

Colorado Dental Association

CDA Excellence in Oral Health Award

Brecken Dobbs 7th grade
\$50
La Veta Schools La Veta
Tooth Enamel? Can It Really Be Strengthened?

Wayttyn Wollert 6th grade
\$100
Wiley Jr/Sr High School Wiley
Is That Smile Golden?

Edwin Bodoni 9th grade
\$100
Cherry Creek High School Greenwood Village
The Effect of Bruxism on Mercury Leakage from Amalgam Restorations

Colorado Division of Reclamation, Mining & Safety

Outstanding Earth Science Award

Michaela Ravenkamp 6th grade
\$75
Genoa-Hugo School Hugo
Crop SOS: Do Crops Create Micro-climates?

Appendix 2

Wyatt Wiening 10th grade
 \$75
 Trinidad High School Trinidad
Strength Exerted by Montmorillonite Clay

Colorado Environmental Health Association Environmental Health Award

Sophie Reeves 8th grade
 \$75, framed certificate
 Summit Charter Middle School Boulder
*The Relationship between Cloud Chambers, Alpha Particles,
 Radon-222, and Different Floors of a House*

Wyeth Rossi 11th grade
 \$150, framed certificate, invitation to exhibit at the CEHA
 Annual Educational Conference (\$400 value)
 Home School Durango
Lead Remediation: Applications of Algae in Fresh Water

Colorado Foundation for Agriculture Agriculture in the Classroom Award

Eojin Lee 8th grade
 \$50, certificate
 Summit Charter Middle School Boulder
A Bout of Drought: Will It Change Cell Size?

Dylan Renquist 8th grade
 \$50, certificate
 Walsh Jr/Sr High School Walsh
*Grow It Right! Testing the Effect of Different Soils on Plant
 Growth*

Sophia Niccoli 9th grade
 \$50, certificate
 Liberty School Joes
Storage Wars: The Effect of Storage Conditions on Feeds

Tyson Lichty 9th grade
 \$50, certificate
 Liberty School Joes
*SNS-244 vs. Captan The Battle That Kills: Possible Preven-
 tion of Aspergillus flavus in Seed Storage*

Colorado Geographic Alliance COGA Application of Geography Award

Jeffrey Brittain 7th grade
 \$100
 Ignacio Middle School Ignacio
Deer Crossing

Elyssa Hofgard 11th grade
 \$100
 Fairview High School Boulder
A Historical Analysis of the Current California Drought

Colorado Medical Society CMS Education Foundation Award

Nathan Panzer 7th grade
 \$100, invitation to the winners & their parents to exhibit at the
 CMS annual meeting and attendance at the Presidential inau-
 gural Dinner with a paid overnight stay
 North Arvada Middle School Arvada
*The Effects of a Granulocyte-Colony Stimulating Factor on
 White Blood Cells*

Laura Fleming 12th grade
 \$100, invitation to the winners & their parents to exhibit at the
 CMS annual meeting and attendance at the Presidential inau-
 gural Dinner with a paid overnight stay
 Fairview High School Boulder
*Valvular Interstitial Cell Activation in Response to Pro-
 Inflammatory Cytokine Treatment*

Colorado Mineral Society Best Earth Science Award

Logan Kilgroe 8th grade
 \$35, 1 mineral specimen, book, certificate
 Turner Middle School Berthoud
Tsunami!

Charlotte Heeley 8th grade
 \$50, 1 mineral specimen, book, certificate
 Summit Charter Middle School Boulder
The Earth Moving the Waves

Nathaniel Miner & Drake Ludgate 9th grade
 \$35, 1 mineral specimen, book, certificate
 Brush High School Brush
*Deadly Stratification: The Role of Temperature on Limnic
 Eruptions*

Jenna Salvat 9th grade
 \$50, 1 mineral specimen, book, certificate
 Coronado High School Colorado Springs
*Sediment Injectites in Fault Zone Areas: An Investigation of
 Sedimentological Characteristics*

Colorado Mycological Society Excellence in Mycological Research Award

Sarah Duzenack 7th grade
 \$100, CMS honorary membership certificate, signed copy of
 Vera Evenson's "Rocky Mountain Mushrooms" (new edition)
 La Veta Schools La Veta
*A Comparison of Edomycorrhizae and Commercial Fertilizer
 on Blue Grass.*

Colorado Native Plant Society Excellence in Plant Science Award

Kathryn Kummel 7th grade
 \$50
 North Middle School Colorado Springs
*All Spruced Up: The Causes and Consequences of Spruce
 Invasion into Aspen Canopies*

Ruby Stith 8th grade
 \$50
 Skinner Middle School Denver
Type of Seed vs. Distance Dispersed by Wind

Colorado Scientific Society Excellence in Geology Award

Josef Perko 6th grade
 \$50
 Walt Clark Middle School Loveland
Effects of Sublimation of Dry Ice on Mars Geology

Appendix 2

Michaela Ravenkamp \$75 Genoa-Hugo School <i>Crop SOS: Do Crops Create Micro-climates?</i>	6th grade Hugo
Nathaniel Miner & Drake Ludgate \$75 Brush High School <i>Deadly Stratification: The Role of Temperature on Limnic Eruptions</i>	9th grade Brush
Wyatt Wiening \$100 Trinidad High School <i>Strength Exerted by Montmorillonite Clay</i>	10th grade Trinidad

Colorado State University College of Agricultural Sciences

Innovations in the Science of Agriculture Award

Sarah Duzenack \$500 La Veta Schools <i>A Comparison of Edomycorrhizae and Commercial Fertilizer on Blue Grass.</i>	7th grade La Veta
Patricia Todd \$500 Fairview High School <i>Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study</i>	11th grade Boulder

Colorado State University Department of Biochemistry & Molecular Biology Excellence in Biochemistry & Molecular Biology Award

Hari Sowrirajan \$100 Cherry Creek High School <i>Nanoparticle-Induced Alterations in Cellular Junctions and Possible Therapeutic Interventions</i>	10th grade Greenwood Village
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Colorado State University Department of Chemistry Excellence in Chemistry Award

Connor McCauley \$100, certificate Blessed Sacrament Catholic School <i>Vitamin C in Cooked Vegetables</i>	8th grade Denver
Kathryn Lawrence & Katherine Younglove \$100, certificate Fairview High School <i>The Effect of Carbon on Iron Nickel Bimetallic Nanoparticle Degradation of Orange G</i>	12th grade Boulder

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

Kammi Carson \$125 Resurrection Christian School <i>Soil vs. Coffee Beans</i>	6th grade Loveland
Sarah Duzenack \$125 La Veta Schools <i>A Comparison of Edomycorrhizae and Commercial Fertilizer on Blue Grass.</i>	7th grade La Veta
Chinmay Jayanty \$125 Sargent Elementary School <i>Healthy Potatoes</i>	6th grade Monte Vista
Ana Mayordomo \$125 Cherry Creek High School <i>Effects of Phosphorus and Nitrogen Levels in Soil on the Growth of Grass Under Drought Conditions</i>	10th grade Greenwood Village

Colorado State University Energy Institute Energy Achievement Award

Hannah Zhang \$500, certificate Fairview High School <i>Reducing Building Energy Consumption by Personal Thermal Regulation</i>	10th grade Boulder
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Colorado State University School of Biomedical Engineering Excellence in Biomedical Engineering Award

Ashley Gilmore & Sage Higbee goody bag of biomedical engineering stuff Lamar Middle School <i>What's in My Ear?</i>	7th grade Lamar
Anurag Golla goody bag of biomedical engineering stuff Fairview High School <i>Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting</i>	11th grade Boulder
Isaac Jordan \$50 gift card to the CSU Bookstore, goody bag of biomedical engineering stuff Animas High School <i>A New Twist on Artificial Muscle: Using Supercoiled Polymer Fibers to Power Robotics and Prosthetics</i>	10th grade Durango

Appendix 2

Colorado Veterinary Medical Association

Veterinary Science Award

Alex Roberts 7th grade
\$50 from CVMA, \$50 from CVMA Auxiliary, certificate
Challenge School Denver
Inexpensive Food Alternative From Microalgae Waste

Riley Meisner 10th grade
\$50 from CVMA, \$50 from CVMA Auxiliary, certificate
Sterling High School Sterling
The Effects of Fluctuating Barometric Pressure on Labor Induction in Pregnant Ewes

Colorado's Touchstone Energy Cooperatives

The Colorado EnergyWise Award

Mark Bloomfield 8th grade
\$250
Holmes Middle School Colorado Springs
The Heat Is On . . . Or Off: Smart Thermostat Design with a Raspberry Pi Computer

Hannah Zhang 10th grade
\$250
Fairview High School Boulder
Reducing Building Energy Consumption by Personal Thermal Regulation

Colorado-Wyoming Society of American Foresters

Excellence in Forestry Research Award

Kathryn Kummel 7th grade
\$100
North Middle School Colorado Springs
All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies

Breann Ritter 8th grade
\$100
St. Stephen's Catholic School Glenwood Springs
Leaf No Trace Behind

Comstock Family

Heather Comstock Memorial Award

Stephanie Zhang 10th grade
\$300
Fairview High School Boulder
DNA Packing and Diseases: Developing a Pipeline to Analyze Data Collected from ATAC-sequence

Constant Family

Award for Excellence in Computer Science

Sara Nehring 7th grade
\$100, certificate
Monte Vista Middle School Monte Vista
Do the Shuffle

Joyce Xu 11th grade
\$200, certificate
Fairview High School Boulder
Predictive Modeling of Optimal Cancer Therapies

Dairy Tech, Inc.

Dairy Tech Agricultural Focus Award

Kaitlyn Carson 11th grade
\$150
Windsor High School Windsor
Farm Fresh Eggs; A Backyard Bacteria Source

Riley Meisner 10th grade
\$250
Sterling High School Sterling
The Effects of Fluctuating Barometric Pressure on Labor Induction in Pregnant Ewes

Eppler Family

Eppler Family Award

Johnathan Pollard 8th grade
microprocessor kit & digital multimeter (valued at \$100)
The Classical Academy Colorado Springs
Making Biking Accessible to the Visually Impaired

Teegan Oatley 8th grade
microprocessor kit & digital multimeter (valued at \$100)
Flagstaff Academy Longmont
Hydroelectric Phone Charger

Fort Collins Conservation District

Conservation District Award

Scott Prieve 7th grade
\$50, plaque
North Middle School Colorado Springs
Saving the Slope: How Does the Orientation of Contour-felled Logs Affect Erosion on a Barren Slope?

Kyle Fridberg 10th grade
\$50, plaque
Fairview High School Boulder
Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams

Frank Armbruster Foundation

Armbruster Memorial Award

Kevyn Kelso 11th grade
\$100
The Classical Academy Colorado Springs
Building a High-Resolution Fused Deposition Modeling 3D Printer Out of a Bed Frame

Geological Society of America

GSA Awards in Environmental Geology

Josef Perko 6th grade
plaque, GSA membership, 2016 GSA calendar, GSA photo scale
Walt Clark Middle School Loveland
Effects of Sublimation of Dry Ice on Mars Geology

Wyatt Wiening 10th grade
plaque, GSA membership, 2016 GSA calendar, GSA photo scale, Rite in the Rain notebook, Rite in the Rain all weather pen
Trinidad High School Trinidad
Strength Exerted by Montmorillonite Clay

Appendix 2

Michaela Ravenkamp 6th grade
 plaque, GSA membership, 2016 GSA calendar, GSA photo
 scale, Rite in the Rain notebook, Rite in the Rain all weather
 pen, The Geoscientist Handbook
 Genoa-Hugo School Hugo
Grop SOS: Do Crops Create Micro-climates?

Gromko Family *Gerald Gromko Memorial Award*

Matthew Hileman 12th grade
 \$150
 The Classical Academy, College Colorado Springs
Reflected Laser Communications for Small Satellites

Human Factors & Ergonomics Society **Rocky Mountain Chapter** *Excellence in Human Factors & Ergonomics Award*

Sam Duarte 8th grade
 \$100
 Quest Academy Dacono
*The Perils of Practice: Noise Dosimetry, Pipers, Earplugs
 and Noise Induced Hearing Loss?*

Katelyn Anderson 11th grade
 \$100
 Edison High School Yoder
EMS App for Paramedic Training and Assistance

Institute of Electrical & Electronics Engineers **High Plains Section** *IEEE Award*

Benjamin Wilson 8th grade
 \$100, Arduino Experimenter's Kit
 The Classical Academy Colorado Springs
Aerostat Communication System

Matthew Hileman 12th grade
 \$150, Arduino Experimenter's Kit
 The Classical Academy, College Colorado Springs
Reflected Laser Communications for Small Satellites

Little Shop of Physics *Matthew McCausland Memorial Award*

Megan Goforth-Harmon 7th grade
 science equipment/instrument
 Morey Middle School Denver
*The Effect of Dropping Stitched Tomatoes and How Well They
 Hold*

Landon Tolsma 7th grade
 science equipment/instrument
 Sargent Jr/Sr High School Monte Vista
Can Water Be a Fuel?

Justin Wright 6th grade
 science equipment/instrument
 Walsh Elementary School Walsh
A Wing and a Prayer

Severn Young 12th grade
 science equipment/instrument
 Greeley West High School Greeley
Using Discharge in Freestyle to Swim the "Perfect Race"

Hunter Bostrom 12th grade
 science equipment/instrument
 Brush High School Brush
Unmanned Aerial Vehicles and Pollination
 Trent Martin 12th grade
 science equipment/instrument
 Cherry Creek High School Greenwood Village
Hydrologic Eddy Current Applications

Lockheed Martin *Lockheed Martin Aerospace Award*

Siddarth Ijju 8th grade
 \$50
 Challenge School Denver
*UAV-Emergency Response: Building an Autonomous Quad-
 copter for Emergency Response*
 Shepherd Kruse 11th grade
 \$100
 Home School Colorado Springs
*Spike Vectoring: Designing and Constructing a Maneuverable
 Aeropike Rocket Engine*

National Centers for Environmental Information *NCEI Award of Scientific Achievement*

Sophie Dellinger 8th grade
 \$50 money order, certificate
 Summit Charter Middle School Boulder
Capturing Sulfur Dioxide: Chemically or Biologically?

National Defense Industrial Association *NDIA STEM Excellence Award*

Rewa Raizada 6th grade
 \$100
 STEM School and Academy Highlands Ranch
The Effect of Blade Number and Length on a Windmill
 Sara Nehring 7th grade
 \$100
 Monte Vista Middle School Monte Vista
Do the Shuffle

Jacelynn Trujillo 8th grade
 \$100
 Corwin International Magnet School Pueblo
The Electric Hand

Justin Wright 6th grade
 \$200
 Walsh Elementary School Walsh
A Wing and a Prayer

Breana Sinclair 7th grade
 \$200
 Lamar Middle School Lamar
Geomagnetic Storms

Krithik Ramesh 8th grade
 \$200
 Challenge School Aurora
Turbo Pulse: A Hybrid Pulsating Turbo Engine

Appendix 2

National Renewable Energy Laboratory
NREL Energy Award

Hannah Zhang 10th grade
\$100
Fairview High School Boulder
Reducing Building Energy Consumption by Personal Thermal Regulation

Rocky Mountain Association of Geologists
Excellence in Earth Science Award

Jenna Salvat 9th grade
cash award
Coronado High School Colorado Springs
Sediment Injectites in Fault Zone Areas: An Investigation of Sedimentological Characteristics

Nathaniel Miner & Drake Ludgate 9th grade
cash award
Brush High School Brush
Deadly Stratification: The Role of Temperature on Limnic Eruptions

Logan Kilgroe 8th grade
cash award
Turner Middle School Berthoud
Tsunami!

Rocky Mountain Water Environment Association
Water Research Award

Jaycee LaGow & Lena Noordik 8th grade
\$200
La Veta Schools La Veta
Plastic Soup in Our Waterways

Emhyr Subramanian 8th grade
\$400
Challenge School Denver
An Attempt to Create a Hydrophobic, Biodegradable, Super-Absorbent Polymer That Can Extract Waste

Casey Shaw 10th grade
\$200
Liberty School Joes
P. denitrificans-Based Remediation Techniques vs. Levels of Nitrate & Oxygen in Freshwater Environs

Michelle Kummel 10th grade
\$400
Palmer High School Colorado Springs
Modeling Transport in Creeks by Approximating Partial Differential Equations

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

Victoria O'Hare 7th grade
\$50
Good Shepherd Catholic School Denver
Walking on Thin Ice: The Impact of Common vs Alternative De-Icers on Roadside Vegetation

Sachi Rohilla 8th grade
\$50
The Classical Academy Colorado Springs
Dirty Is the New Way to Clean

Shaleese Romero 10th grade
Julian Salazar 11th grade
\$50
Central High School Pueblo
Bacteria Hysteria

Sergio Estrada 11th grade
\$50
Northridge High School Greeley
The Worm Squirm: Identifying the Effects of Frequency on Lubricus Terrestri's Environment

Science Toy Magic
Physics Classroom Demonstration Award

Sam Christensen 8th grade
\$50
Fort Morgan Middle School Fort Morgan
Dancing Ferrofluid

Skyler Kranjcec 7th grade
\$100
Boulder Country Day School Boulder
Let's Solve Levitation with a Sine Wave Situation

Isaac Jordan 10th grade
\$50
Animas High School Durango
A New Twist on Artificial Muscle: Using Supercoiled Polymer Fibers to Power Robotics and Prosthetics

Renae Michael 12th grade
\$100
Cherry Creek High School Greenwood Village
Door-Mant No More!

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

Sophie Dellinger 8th grade
\$100, plaque
Summit Charter Middle School Boulder
Capturing Sulfur Dioxide: Chemically or Biologically?

Sam Duarte 8th grade
\$200, plaque
Quest Academy Dacono
The Perils of Practice: Noise Dosimetry, Pipers, Earplugs and Noise Induced Hearing Loss?

Liam Foster 10th grade
\$200, plaque
Animas High School Durango
A Novel Early Warning and Monitoring System for Mine Blowouts

Wyeth Rossi 11th grade
\$400, plaque
Home School Durango
Lead Remediation: Applications of Algae in Fresh Water

Appendix 2

**Society of Manufacturing Engineers
Colorado Chapter 354
Andy Keller Memorial Award**

Kevyn Kelso	11th grade
\$100, recognition by the local chapter	
The Classical Academy	Colorado Springs
<i>Building a High-Resolution Fused Deposition Modeling 3D Printer Out of a Bed Frame</i>	
Shepherd Kruse	11th grade
\$150, recognition by local chapter	
Home School	Colorado Springs
<i>Spike Vectoring: Designing and Constructing a Maneuverable Aerospike Rocket Engine</i>	
Jayden Edson & Jonathan Belcher	9th grade
\$200, recognition by local chapter	
West Grand High School	Kremmling
<i>Engineering a Wind Rover Processed with Python</i>	

**Society of Women Engineers
Rocky Mountain Section
SWE Award**

Jacelynn Trujillo	8th grade
\$75	
Corwin International Magnet School	Pueblo
<i>The Electric Hand</i>	
Teegan Oatley	8th grade
\$100	
Flagstaff Academy	Longmont
<i>Hydroelectric Phone Charger</i>	
Julianna O'Clair & Michelle Ren	9th grade
\$75	
Brush High School	Brush
<i>The Production of Methane Gas in Waste Biomass</i>	
Kylie Hunter	10th grade
\$100	
Cherry Creek High School	Greenwood Village
<i>Wastewater Sourceflow and Its Effect on Energy Output in a Pressure Retarded Osmosis System</i>	

**Soil & Water Conservation Society
Colorado Chapter
Natural Resource Conservation Award**

Michaela Ravenkamp	6th grade
\$100, certificate	
Genoa-Hugo School	Hugo
<i>Crop SOS: Do Crops Create Micro-climates?</i>	
Cassidy Plane	11th grade
\$100, certificate	
Alamosa High School	Alamosa
<i>Is a Forester's Trash a Farmer's Treasure?</i>	

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

Tarra Miller	6th grade
\$50	
Genoa-Hugo School	Hugo
<i>Does Different Eye Colors Affect the Way Someone Sees in the Dim Light</i>	
Camille Holland	7th grade
\$100	
Mancos Middle School	Mancos
<i>Laser Jell-O Reflection/Refraction</i>	
William Dienstfrey	8th grade
\$150	
Summit Charter Middle School	Boulder
<i>Optical Illusions: Contrast Induced Asynchrony</i>	
Matthew Radzihovsky	12th grade
\$100	
Boulder High School	Boulder
<i>Buffer Gas Cooling in Molecular Spectroscopy</i>	
Matthew Hileman	12th grade
\$150	
The Classical Academy, College	Colorado Springs
<i>Reflected Laser Communications for Small Satellites</i>	
Jaden Hoechstetter	10th grade
\$250	
Fairview High School	Boulder
<i>Modulation of Laser Beam Using a Digital Micromirror Device</i>	

**The Aquaponic Source
Innovation in Aquaponics Award**

Maison Echols	7th grade
Aquaponicals aquaponic growing system (\$150 value)	
Cortez Middle School	Cortez
<i>Aquaponics vs. Soil</i>	

**The Inventor's Roundtable
Inventors' Roundtable Award**

Leighton Burt	11th grade
\$100, free patent search (valued at \$400)	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue, Part 2</i>	

**Trout Unlimited
TU River Conservation Award**

Liam Foster	10th grade
\$75	
Animas High School	Durango
<i>A Novel Early Warning and Monitoring System for Mine Blowouts</i>	
Shannon Bland	11th grade
\$125	
Lamar High School	Lamar
<i>Stop That Flood Part (V)</i>	

Appendix 2

Nathaniel Brim 7th grade
 \$200
 The Classical Academy Colorado Springs
Effects of Zinc and Magnesium Dissolution in Cathodic Protection Systems on the Environment

United States Department of Commerce

Award for Excellence in Science and Engineering

Matthew Hileman 12th grade
 opportunity for summer employment with the Department of Commerce
 The Classical Academy, College Colorado Springs
Reflected Laser Communications for Small Satellites

United States Geological Survey

USGS Excellence in Geological or Water Research Award

Josef Perko 6th grade
 reference book, mineral specimen
 Walt Clark Middle School Loveland
Effects of Sublimation of Dry Ice on Mars Geology
 Kyle Fridberg 10th grade
 reference book, mineral specimen
 Fairview High School Boulder
Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams

University of Colorado, Denver

Medical Scientist Training Program Award

Laura Clark 8th grade
 \$50
 St. Columba Catholic School Durango
Human Microbiome: Medical Ecology and the Effect of Behavior on Human Microflora

Hari Sowrirajan 10th grade
 \$50
 Cherry Creek High School Greenwood Village
Nanoparticle-Induced Alterations in Cellular Junctions and Possible Therapeutic Interventions

University of Northern Colorado

MAST Institute

Mathematics and Science Teaching Institute

Sara Nehring 7th grade
 \$50
 Monte Vista Middle School Monte Vista
Do the Shuffle
 Merritt Singley & Kami Sweenie 12th grade
 \$50
 Brush High School Brush
A Toast to Murphy's Law

Vaughan Web Works, LLC

Glissmann Family Award for Best Use of Computer Program Development

Sara Nehring 7th grade
 \$50
 Monte Vista Middle School Monte Vista
Do the Shuffle

Joyce Xu 11th grade
 \$100
 Fairview High School Boulder
Predictive Modeling of Optimal Cancer Therapies

Wilkins Family

Young Entrepreneur's Award

Leighton Burt 11th grade
 \$500
 Sargent Jr/Sr High School Monte Vista
Life Saving Locating: Developing Autonomous Avalanche Rescue, Part 2

Wojtaszek Family

Paul Wojtaszek Memorial Award

Eileen Xia 11th grade
 \$200 (The winning team or individual is asked to send a letter of appreciation to Mary Wojtaszek, the mother of Paul Wojtaszek.)
 Cherry Creek High School Greenwood Village
Mechanism for How PI3K p110a Isoform Inhibits CSR Through AID Expression

Women in Physics

Colorado State University Chapter

Promising Young Woman in Science Award

Skyler Kranjcec 7th grade
 \$50
 Boulder Country Day School Boulder
Let's Solve Levitation with a Sine Wave Situation

Yale Science & Engineering Association

Outstanding Achievement in Science & Engineering Award

Anurag Golla 11th grade
 certificate
 Fairview High School Boulder
Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting

Joyce Xu 11th grade
 certificate
 Fairview High School Boulder
Predictive Modeling of Optimal Cancer Therapies

Zonta Club of Boulder County

Amelia Earhart Award

Amy Dang Nguyen & Katherine Tran 8th grade
 \$100, certificate
 DSST: College View Middle School Denver
How Hot Is Too Hot? The Effect of Water Temperature on Fuel Cell Car Performance

Appendix 2

Scholarships

Adams State University

Adams State University Scholarship

Patricia Todd	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Fairview High School	Boulder
<i>Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study</i>	
Tyree Jones	9th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Walsh Jr/Sr High School	Walsh
<i>Rapid Recognition Recall</i>	
Obbrianna Blea	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Central High School	Pueblo
<i>Flaming Candy</i>	
Wyatt Wining	10th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
<i>Strength Exerted by Montmorillonite Clay</i>	
Alia Kraxberger	9th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Genoa-Hugo School	Hugo
<i>Open or Covered vs. Aerodynamics</i>	
Parker Randolph	9th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Monte Vista High School	Monte Vista
<i>Polymer Enhanced Passive Cooling: Designing a Thin Film Material to Remove Thermal Energy and Avert Incoming Solar Radiation</i>	
Cassidy Plane	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Alamosa High School	Alamosa
<i>Is a Forester's Trash a Farmer's Treasure?</i>	
Deyanira Flores	12th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Brush High School	Brush
<i>Happy Birthday to You . . . and You . . . and You</i>	
Eileen Xia	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Cherry Creek High School	Greenwood Village
<i>Mechanism for How PI3K p110a Isoform Inhibits CSR Through AID Expression</i>	
Kaitlyn Carson	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Windsor High School	Windsor
<i>Farm Fresh Eggs; A Backyard Bacteria Source</i>	
Adrienne Jones	10th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Trinidad High School	Trinidad
<i>Amateur Radio Astronomy</i>	
Mitchell Fosdick	11th grade
one-year resident tuition and fees scholarship (~value \$9,000)	
Fowler High School	Fowler
<i>Phase IV: Optimizing Algal Growth for Real World Application</i>	

Kaitlin Wells ¹	10th grade
Kaybree Keating ²	9th grade
certificate, nomination to enter the SJWP state competition	
¹ Fort Morgan High School	Fort Morgan
² Weldon Valley School	
<i>Washing Away Vital Elements of Our Environment: A Bioassay Investigation with Daphnia and Detergents</i>	

Colorado College

Colorado College, Summer Session Merit Scholarship

Colorado College awarded all of the Senior Division 1st through 4th place winners a \$500 merit scholarship to attend Colorado College summer 2016 as a pre-college student. Please see the Grand Awards listing for those winners.

Colorado School of Mines

Colorado School of Mines Scholarship

Christoph Cikraji	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Durango High School	Durango
<i>Applications of Magnetic Fields for Induction of Artificial Gravity</i>	
Joyce Xu	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Fairview High School	Boulder
<i>Predictive Modeling of Optimal Cancer Therapies</i>	
Wyeth Rossi	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Home School	Durango
<i>Lead Remediation: Applications of Algae in Fresh Water</i>	
Katie Fromm	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Greeley West High School	Greeley
<i>The Effect of Rocker Ratio on Calculated vs. Experimental Lift</i>	
Leighton Burt	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Sargent Jr/Sr High School	Monte Vista
<i>Life Saving Locating: Developing Autonomous Avalanche Rescue, Part 2</i>	
Anurag Golla	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Fairview High School	Boulder
<i>Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting</i>	
Sirisha Gudavalli	11th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree	
Fairview High School	Boulder
<i>Assembly of the CDK8 Kinase Module</i>	

Appendix 2

Kevyn Kelso	11th grade	Jayden Edson & Jonathan Belcher	9th grade
\$1,000 CSM scholarship renewable for up to 3 additional years for use towards an undergraduate degree		\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
The Classical Academy	Colorado Springs	West Grand High School	Kremmling
<i>Building a High-Resolution Fused Deposition Modeling 3D Printer Out of a Bed Frame</i>		<i>Engineering a Wind Rover Processed with Python</i>	
Colorado State University		Kyle Fridberg	10th grade
College of Natural Sciences		\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
<i>CSU, College of Natural Sciences Scholarship</i>		Fairview High School	Boulder
Isani Singh	10th grade	<i>Effect of Inorganic Nitrogen and Phosphorus on Benthic Algal Biomass in Colorado Streams</i>	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Joyce Xu	11th grade
Cherry Creek High School	Greenwood Village	\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
<i>Studying the Effects of a Missing X Chromosome on the Liver</i>		Fairview High School	Boulder
Joyce Xu	11th grade	<i>Predictive Modeling of Optimal Cancer Therapies</i>	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Isani Singh	10th grade
Fairview High School	Boulder	\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
<i>Predictive Modeling of Optimal Cancer Therapies</i>		Cherry Creek High School	Greenwood Village
Rebecca Bloomfield	11th grade	<i>Studying the Effects of a Missing X Chromosome on the Liver</i>	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Rebecca Bloomfield	11th grade
Palmer High School	Colorado Springs	\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
<i>GASP!: Growth Advantage in Stationary Phase in Acinetobacter baylyi</i>		Palmer High School	Colorado Springs
Trevor Jordan	12th grade	<i>GASP!: Growth Advantage in Stationary Phase in Acinetobacter baylyi</i>	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Amanda Li	10th grade
Animas High School	Durango	\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
<i>A Wing of the Future: Part III</i>		Fairview High School	Boulder
Colorado State University, Fort Collins		<i>Determining Protein Unfolding Times Through Analysis of Single Molecule Force Spectroscopy Data</i>	
<i>Colorado State University, Fort Collins Scholarship</i>		Ana Mayordomo	10th grade
Patricia Todd	11th grade	\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Cherry Creek High School	Greenwood Village
Fairview High School	Boulder	<i>Effects of Phosphorus and Nitrogen Levels in Soil on the Growth of Grass Under Drought Conditions</i>	
<i>Simulating Inbreeding Depression Probability in Devils Hole Pupfish: A Proof of Concept Study</i>		Colorado State University, Pueblo	
Benjamin Morris	12th grade	<i>Colorado State University, Pueblo Scholarship</i>	
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		Anurag Golla	11th grade
Fairview High School	Boulder	\$1,000 scholarship to attend Colorado State University, Pueblo	
<i>The Extent and Severity of the Impostor Phenomenon Amongst College Prep, AP, and IB Students</i>		lo	
Avi Swartz	11th grade	Fairview High School	Boulder
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		<i>Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting</i>	
Cherry Creek High School	Greenwood Village	University of Colorado, Boulder	
<i>Quantifying Spliceosomal Components Using Heavy Labeled Peptide Concatemers</i>		<i>College of Engineering and Applied Science Scholarships</i>	
Michelle Kummel	10th grade	Kimberly Blough	8th grade
\$1,000 scholarship to attend CSU, renewable for up to 3 additional semesters		4-year \$500 conditional engineering scholarship	
Palmer High School	Colorado Springs	Turner Middle School	Berthoud
<i>Modeling Transport in Creeks by Approximating Partial Differential Equations</i>		<i>Breaking Bridges</i>	

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Molly Nehring 4-year \$500 conditional engineering scholarship Monte Vista High School <i>Python Cubed</i>	9th grade Monte Vista	Adrienne Jones certificate Trinidad High School <i>Amateur Radio Astronomy</i>	10th grade Trinidad
American Psychological Association			
<i>Outstanding Achievement in Psychological Sciences Award</i>			
Michelle Kummel 4-year \$500 conditional engineering scholarship Palmer High School <i>Modeling Transport in Creeks by Approximating Partial Differential Equations</i>	10th grade Colorado Springs	Evelyn Bodoni certificate Challenge School <i>The Lure of Distraction</i>	8th grade Denver
Joyce Xu 4-year \$1,000 conditional engineering scholarship Fairview High School <i>Predictive Modeling of Optimal Cancer Therapies</i>	11th grade Boulder	Benjamin Morris certificate Fairview High School <i>The Extent and Severity of the Impostor Phenomenon Amongst College Prep, AP, and IB Students</i>	12th grade Boulder
Christoph Cikraji 4-year \$1,000 conditional engineering scholarship Durango High School <i>Applications of Magnetic Fields for Induction of Artificial Gravity</i>	11th grade Durango	Arizona State University	
Anurag Golla 4-year \$1,000 conditional engineering scholarship Fairview High School <i>Actuated Controlled Motion of a Pulsatile Hydrogel with Anisotropic Friction: A Novel Bio-Engineered Approach to Medical Targeting</i>	11th grade Boulder	<i>Rob & Melani Walton Sustainability Solutions Initiative Award</i>	
Elyssa Hofgard 4-year \$1,000 conditional engineering scholarship Fairview High School <i>A Historical Analysis of the Current California Drought</i>	11th grade Boulder	Michelle Kummel certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2017 Sustainability Solutions Festival) Palmer High School <i>Modeling Transport in Creeks by Approximating Partial Differential Equations</i>	10th grade Colorado Springs
Sergio Estrada 4-year \$1,000 conditional engineering scholarship Northridge High School <i>The Worm Squirm: Identifying the Effects of Frequency on Lubricus Terrestri's Environment</i>	11th grade Greeley	Hunter Bostrom certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2017 Sustainability Solutions Festival) Brush High School <i>Unmanned Aerial Vehicles and Pollination</i>	12th grade Brush
Intel			
<i>Ryan Patterson Scholarship</i>			
Trevor Jordan \$2,000 nonrenewable scholarship Animas High School <i>A Wing of the Future, Part III</i>	12th grade Durango	Eric Bear certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2017 Sustainability Solutions Festival) Colorado Academy <i>Hybrid Water Treatment with Slow Biosand Filter and Solar-Powered Electrolysis Chlorine Producing Unit</i>	10th grade Denver
SSP			
American Meteorological Society			
<i>Outstanding Achievement in Atmospheric Sciences Award</i>			
Kael Mattics certificate Olathe Middle School <i>Mathematics of a Tsunami Wave</i>	6th grade Olathe	Cassidy Plane certificate, nomination to enter the Rob & Melani Walton Sustainability Solutions Initiative Grand Prize (a trip to Arizona for the 2017 Sustainability Solutions Festival) Alamosa High School <i>Is a Forester's Trash a Farmer's Treasure?</i>	11th grade Alamosa
Jacob Isley certificate Turner Middle School <i>Measuring Radiation From the Sun</i>	8th grade Berthoud	ASM Materials Education Foundation	
Elyssa Hofgard certificate Fairview High School <i>A Historical Analysis of the Current California Drought</i>	11th grade Boulder	<i>Outstanding Achievement in Materials Science Award</i>	
Nathaniel Brim certificate The Classical Academy <i>Effects of Zinc and Magnesium Dissolution in Cathodic Protection Systems on the Environment</i>			
7th grade Colorado Springs			

Appendix 2

Associate for Women Geoscientists

Outstanding Achievement in Geosciences Award

Michelle Kummel 10th grade
 certificate
 Palmer High School Colorado Springs
Modeling Transport in Creeks by Approximating Partial Differential Equations

Charlotte Heeley 8th grade
 certificate
 Summit Charter Middle School Boulder
The Earth Moving the Waves

Broadcom

Broadcom MASTERS Nomination

Alex Roberts 7th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Challenge School Denver
Inexpensive Food Alternative From Microalgae Waste

Jonathan Haerr 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 The Classical Academy Colorado Springs
Circumstantial Morality

Madeleine Nagle 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Summit Charter Middle School Boulder
Cost and Effectiveness of Sunscreens

Charlotte Heeley 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Summit Charter Middle School Boulder
The Earth Moving the Waves

Mark Bloomfield 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Holmes Middle School Colorado Springs
The Heat Is On . . . Or Off: Smart Thermostat Design with a Raspberry Pi Computer

Chase Cromwell 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Lamar Middle School Lamar
Music on Demand

Sophie Dellinger 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Summit Charter Middle School Boulder
Capturing Sulfur Dioxide: Chemically or Biologically?

Anudeep Golla 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Southern Hills Middle School Boulder
Seeking Predictability Trapped in the Midst of the Chaos of the Mandelbrot Set

Nathan Panzer 7th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 North Arvada Middle School Arvada
The Effects of a Granulocyte-Colony Stimulating Factor on White Blood Cells

Alyssa Keirn 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Blevins Middle School Fort Collins
Solar Powered Decontaminator Testing

Adam Vagle 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Stanley British Primary School Denver
The Three Body Problem and the Search for Intelligent Life

Kathryn Kummel 7th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 North Middle School Colorado Springs
All Spruced Up: The Causes and Consequences of Spruce Invasion into Aspen Canopies

Makenzy Dreher 7th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Frontier Academy Secondary School Greeley
Butterflies: Hot & Cold - Study How Temperature Variations Affect the Metamorphosis of Cynthia Vaness

Evelyn Bodoni 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Challenge School Denver
The Lure of Distraction

Emhyr Subramanian 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Challenge School Denver
An Attempt to Create a Hydrophobic, Biodegradable, Super-Absorbent Polymer That Can Extract Waste

Michaela Ravenkamp 6th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 Genoa-Hugo School Hugo
Crop SOS: Do Crops Create Micro-climates?

Nicholas Huber 6th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 St. Columba Catholic School Durango
Hot or Not

Benjamin Wilson 8th grade
 nomination to compete in the Broadcom MASTERS national
 competition (deadline to enter is June 15, 2016)
 The Classical Academy Colorado Springs
Aerostat Communication System

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Nathaniel Brim 7th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

The Classical Academy Colorado Springs
*Effects of Zinc and Magnesium Dissolution in Cathodic Pro-
tection Systems on the Environment*

Sara Nehring 7th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

Monte Vista Middle School Monte Vista
Do the Shuffle

Georgia Mynatt 7th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

Miller Middle School Durango
Does the Shirt on Your Back Stop the Sun's Attack?

Eliot Wright 7th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

Miller Middle School Durango
*Proteomic Approach to UV/HNO₃ Deamination Mutagenesis
in Antibiotic-Resistant Monera*

Xander Duvall 6th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

Banning Lewis Ranch Academy Colorado Springs
*How Does Atmosphere Affect the Amount of Subatomic Parti-
cles?*

Logan DeGraaf 7th grade
nomination to compete in the Broadcom MASTERS national
competition (deadline to enter is June 15, 2016)

Evangelical Christian Academy Colorado Springs
Venus Fly Trap Response Time

Intel Corporation

Intel Excellence in Computer Science Award

Molly Nehring 9th grade

\$200 (to be mailed), certificate

Monte Vista High School Monte Vista
Python Cubed

Tyler Giallanza 11th grade

\$200 (to be mailed), certificate

Cherry Creek High School Greenwood Village
*Novel Applications of Stochastic Global Optimization Algo-
rithms to the Shortest Common Superstring Problem*

Mu Alpha Theta

Outstanding Achievement in Mathematics

Deyanira Flores 12th grade
certificate

Brush High School Brush
Happy Birthday to You . . . and You . . . and You

Joyce Xu 11th grade
certificate

Fairview High School Boulder
Predictive Modeling of Optimal Cancer Therapies

NASA

Outstanding Achievement in Earth Systems Science Award

Michaela Ravenkamp 6th grade
certificate

Genoa-Hugo School Hugo
Crop SOS: Do Crops Create Micro-climates?

Jenna Salvat 9th grade
certificate

Coronado High School Colorado Springs
*Sediment Injectites in Fault Zone Areas: An Investigation of
Sedimentological Characteristics*

National Oceanic & Atmospheric Administration

Taking the Pulse of the Planet Award

Ellie Clark 6th grade
certificate, medal

St. Columba Catholic School Durango
*Eco-Friendly Parking: Pervious, Permeable, Porous Paving
Materials*

Elyssa Hofgard 11th grade
certificate, medal

Fairview High School Boulder
A Historical Analysis of the Current California Drought

Ricoh

Ricoh Sustainability Development Award

Nathaniel Brim 7th grade
certificate

The Classical Academy Colorado Springs
*Effects of Zinc and Magnesium Dissolution in Cathodic Pro-
tection Systems on the Environment*

Casey Shaw 10th grade
certificate

Liberty School Joes
*P. denitrificans-Based Remediation Techniques vs. Levels of
Nitrate & Oxygen in Freshwater Environs*

Society for In Vitro Biology

Outstanding Achievement in In Vitro Biology Award

Samyuktha Senthikumar 11th grade
certificate

Douglas County High School Castle Rock
*Regulation of PGC-11 by LSD1 and Its Implications for FXR
Transactivation in the Liver*

Jessalyn Bay-Voit 11th grade
certificate

Mancos High School Mancos
The Effects of Giardia on the Ecosystem of a Farm

United States Metric Association

Outstanding Achievement in the Use of the Interna- tional System Award

Sophie Dellinger 8th grade
certificate

Summit Charter Middle School Boulder
Capturing Sulfur Dioxide: Chemically or Biologically?

Appendix 2

Rebecca Bloomfield
 certificate
 Palmer High School
GASP!: Growth Advantage in Stationary Phase in Acinetobacter baylyi

11th grade

Colorado Springs

Trent Martin
 certificate, nomination to enter the SJWP state competition
 Cherry Creek High School
Hydrologic Eddy Current Applications

12th grade

Greenwood Village

Water Environment Federation
Stockholm Junior Water Prize

Michelle Kummel
 certificate, nomination to enter the SJWP state competition
 Palmer High School
Modeling Transport in Creeks by Approximating Partial Differential Equations

10th grade

Colorado Springs

Casey Shaw
 certificate, nomination to enter the SJWP state competition
 Liberty School
P. denitrificans-Based Remediation Techniques vs. Levels of Nitrate & Oxygen in Freshwater Environs

10th grade

Joes

Kaitlin Wells¹
 Kaybree Keating²
 certificate, nomination to enter the SJWP state competition
¹Fort Morgan High School
²Weldon Valley School
Washing Away Vital Elements of Our Environment: A Bioassay Investigation with Daphnia and Detergents

10th grade

9th grade

Fort Morgan

Teacher

Lockheed Martin
CSEF Teacher of the Year Award

Linda Niccoli
 \$3,000, plaque
 Liberty School

Joes

SparkFun Electronics
SparkFun's Thank You to Educators Award

Linda Niccoli
 SparkFun Inventor's kit (valued at \$99)
 Liberty School
 John Wiley
 SparkFun Inventor's kit (valued at \$99)
 Challenge School

Joes

Denver

Appendix 3
2015/2016 Expense Report
September 1, 2015 - August 31, 2016

Category Descriptions	Budget	Actual	Difference
INCOME			
Sponsorships	\$59,700.00	48,500.29	(\$11,199.71)
Contributions	\$6,900.00	\$5,005.00	(\$1,895.00)
General Income			
<i>Interest</i>	\$50.00	\$67.50	\$17.50
<i>Matching Gifts</i>	\$750.00	\$858.76	\$108.76
<i>RSF Outreach Funds</i>	\$10,000.00	\$10,000.00	\$0.00
<i>Sales</i>	\$1,500.00	\$1,283.00	(\$217.00)
<i>Scholarships/Special Awards</i>	\$6,150.00	\$5,875.00	(\$275.00)
<i>Teacher of the Year Award</i>	<u>\$3,000.00</u>	<u>\$0.00</u>	<u>(\$3,000.00)</u>
TOTAL General Income	\$21,450.00	\$18,084.26	(\$3,365.74)
Grants	\$0.00	\$0.00	\$0.00
In-Kind	\$19,000.00	\$12,649.07	(\$6,350.93)
Registrations	\$15,600.00	\$14,960.00	(\$640.00)
TOTAL INCOME	\$122,650.00	\$99,198.62	(\$23,451.38)



Category Descriptions	Appendix 3 Budget	Actual	Difference
EXPENSES			
Awards			
CSEF Special Awards	\$400.00	\$500.00	(\$100.00)
Grand Awards	\$10,875.00	\$9,275.00	\$1,600.00
Non-Cash Awards	\$2,650.00	\$1,663.56	\$986.44
Other Special Awards	<u>\$9,150.00</u>	<u>\$9,025.00</u>	<u>\$125.00</u>
TOTAL Awards	\$23,075.00	\$20,463.56	\$2,611.44
Board Expenses			
Communications	\$500.00	\$756.12	(\$256.12)
Meetings	\$3,000.00	\$749.55	\$2,250.45
Operations	<u>\$9,145.20</u>	<u>\$8,391.10</u>	<u>\$754.10</u>
TOTAL Board Expenses	\$12,645.20	\$9,896.77	\$2,748.43
Category Description	Budget	Actual	Difference
ISEF			
Affiliation	\$870.00	\$870.00	\$0.00
Travel	<u>\$9,390.00</u>	<u>\$6,319.36</u>	<u>\$3,070.64</u>
TOTAL ISEF	\$10,260.00	\$7,189.36	\$3,070.64
Outreach	\$12,000.00	\$11,113.97	\$886.03
CSEF Expenses			
Adult Sponsors	\$500.00	\$240.71	\$259.29
Advisory Council	\$100.00	\$34.70	\$65.30
Finalist Activities	\$7,850.00	\$8490.26	(\$640.26)
Finalist Registration	\$12,875.00	\$12,156.16	\$718.84
Fund Raising	\$500.00	\$467.23	\$32.77
Judging	\$9,000.00	\$8,513.94	\$468.06
Personnel	\$9,352.80	\$9,538.40	(\$185.60)
Publications	\$3,400.00	\$2,290.06	\$1,109.94
Regional Fair Directors	\$150.00	\$125.52	\$24.48
Scientific Review Committee	\$850.00	\$135.86	\$714.14
Supplies	\$650.00	\$893.16	(\$243.16)
Volunteers	<u>\$2,700.00</u>	<u>\$2,958.59</u>	<u>(\$258.59)</u>
TOTAL CSEF Expenses	\$47,927.80	\$45,862.59	\$2,065.21
TOTAL EXPENSES	\$105,908.00	\$94,526.25	\$11,381.75
OVERALL TOTAL	\$16,742.00	\$4,672.37	(\$12,069.63)