

Colorado Science and

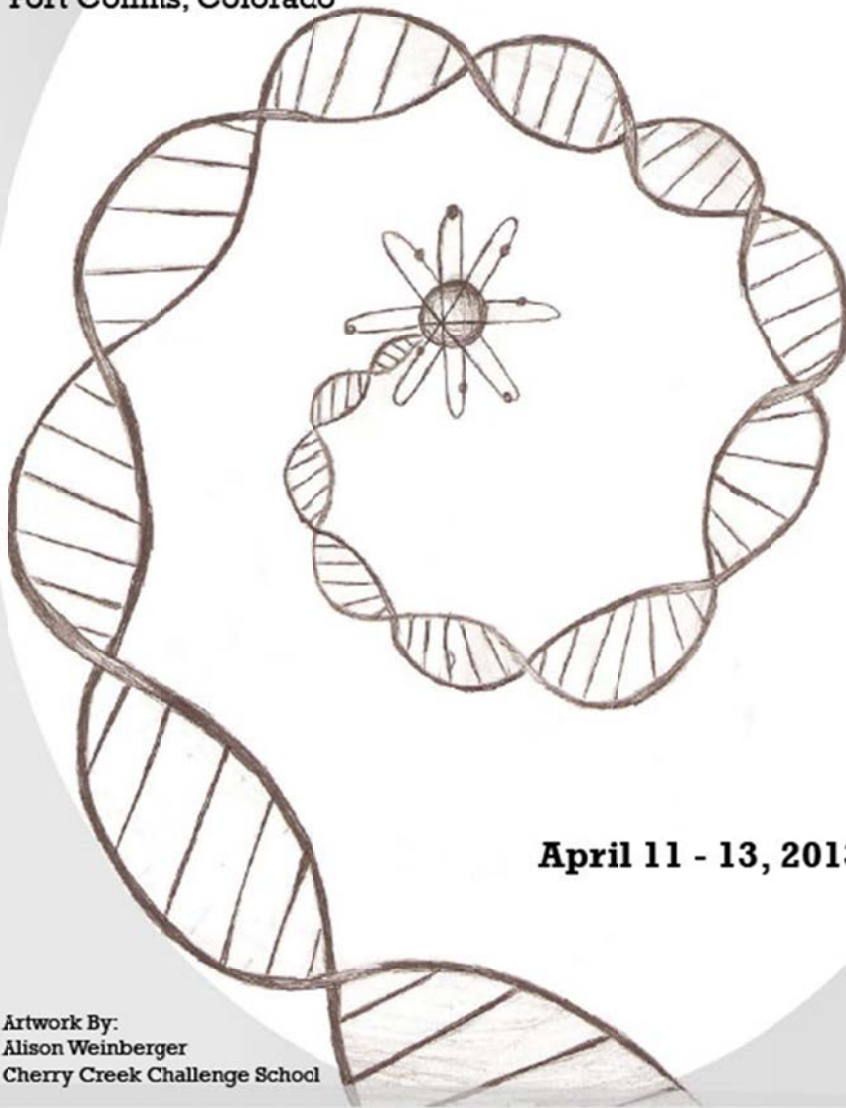
Hosted By:

College of Natural Sciences Education & Outreach Center
for Colorado Students in Grades 6 - 12

at Colorado State University

Fort Collins, Colorado

Engineering Fair



April 11 - 13, 2013

Artwork By:
Alison Weinberger
Cherry Creek Challenge School

Colorado State Science Fair, Inc.

2013 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. 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 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, 2013
Colorado State Science Fair, Inc.
College of Natural Sciences
Education & Outreach Center
Colorado State University
Campus Delivery 1802
Fort Collins, CO 80523-1802
Tel (970) 498-4121
Fax (970) 491-2005
e-mail: csef@lamar.colostate.edu
<http://www.csef.colostate.edu>

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

2013 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 three thousand students participate in science fair programs statewide. 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; Earth and Space Sciences; Energy & Transportation, Engineering; Environmental Sciences; Mathematics and Computer Sciences; Medicine & Health; Microbiology; 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 three 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.

2013 COLORADO SCIENCE AND ENGINEERING FAIR

The fifty-eighth Colorado Science and Engineering Fair was held at the Lory Student Center on the Colorado State University campus on April 11 – 13, 2013.

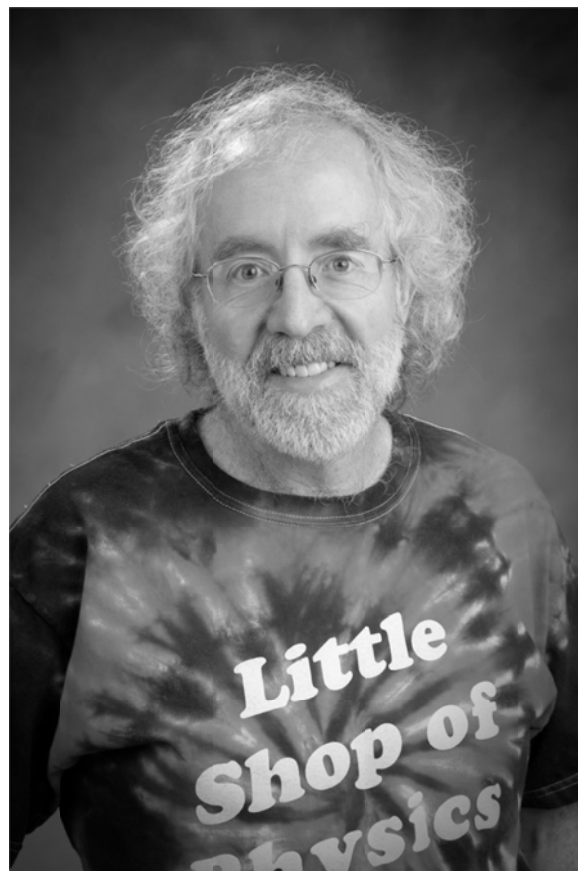
This year, CSEF winners were chosen from among 258 projects represented by 295 finalists from 111 schools and 13 regions. More than 150 professional scientists, engineers and mathematicians interviewed the students and evaluated their projects before selecting the Grand Award winners. In addition, over 50 businesses, professional societies, government agencies and individuals provided more than 160 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 2013 Colorado Science and Engineering Fair had 20 sponsors. Sponsors included 2 Diamond Sponsors (providing over \$10,000), 4 Platinum Sponsors (providing between \$5,000 - \$9,999), 5 Gold Sponsors (providing between \$2,500 - \$4,999), 2 Silver Sponsor (providing between \$1,000 - \$2,4999), 2 Bronze Sponsors (providing between \$750 - \$999) and 6 Copper Sponsors (providing between \$500 - \$749). In addition, there were 15 Contributors (less than \$500 each).

Scholarships from several Colorado universities were also presented. Adams State University awarded fourteen one-year full resident tuition and fees scholarships. The Colorado School of Mines awarded four \$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 three \$1,000 tuition scholarships to each of the Senior Division CSEF Best Project award winners. Colorado State University-Pueblo awarded two \$1,000 tuition scholarships. The University of Colorado, Boulder awarded three \$500 renewable scholarships and five \$1,000 renewable scholarships. 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 Brian Jones from Colorado State University's Little Shop of Physics as the guest speaker.



(See Appendix 1 – 2013 CSEF Schedule)

2013 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 – 49%
Female – 51%

Percentage of Awards

Male – 45%
Female – 55%

Percentage of Projects by Category

Animal Sciences

Male – 18%
Female – 82%

Behavioral & Social Sciences

Male – 13%
Female – 87%

Chemistry

Male – 36%
Female – 64%

Earth & Space Sciences

Male – 47%
Female – 53%

Energy & Transportation

Male – 94%
Female – 6%

Engineering

Male – 74%
Female – 26%

Environmental Sciences

Male – 33%
Female – 67%

Mathematics & Computer Sciences

Male – 60%
Female – 40%

Medicine & Health

Male – 43%
Female – 57%

Microbiology

Male – 47%
Female – 53%

Physics

Male – 75%
Female – 25%

Plant Sciences

Male – 37%
Female – 63%

Percentage of Awards by Category

Animal Sciences

Male – 21%
Female – 79%

Behavioral & Social Sciences

Male – 23%
Female – 77%

Chemistry

Male – 55%
Female – 45%

Earth & Space Sciences

Male – 32%
Female – 68%

Energy & Transportation

Male – 76%
Female – 24%

Engineering

Male – 77%
Female – 23%

Environmental Sciences

Male – 26%
Female – 74%

Mathematics & Computer Sciences

Male – 68%
Female – 32%

Medicine & Health

Male – 43%
Female – 57%

Microbiology

Male – 44%
Female – 56%

Physics

Male – 66%
Female – 34%

Plant Sciences

Male – 17%
Female – 83%

2013 CSEF ETHNICITY RATIOS

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

Percentage of Projects

Caucasian – 66%
Hispanic – 12%
Asian – 7%
African American – 1%
Other/Unknown – 14%

Percentage of Awards

Caucasian – 67%
Hispanic – 7%
Asian – 6%
African American – 0%
Other/Unknown – 20%

2013 CSEF GRADE LEVEL RATIOS

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

Percentage of Students

Junior Division – 56%
6th grade – 12%
7th grade – 20%
8th grade – 24%
Senior Division – 44%
9th grade – 14%
10th grade – 6%
11th grade – 12%
12th grade – 12%

Percentage of Projects

Junior Division – 59%
6th grade – 12%
7th grade – 20%
8th grade – 27%
Senior Division – 41%
9th grade – 13%
10th grade – 7%
11th grade – 12%
12th grade – 9%

Percentage of Grand Awards per Division

Junior Division – 56%
6th grade – 13%
7th grade – 32%
8th grade – 55%
Senior Division – 44%
9th grade – 25%
10th grade – 18%
11th grade – 36%
12th grade – 21%

Percentage of Students Winning Grand Awards

Junior Division – 49%
6th grade – 31%
7th grade – 45%
8th grade – 61%
Senior Division – 43%
9th grade – 39%
10th grade – 56%
11th grade – 61%
12th grade – 41%

Percentage of Special Awards per Division

Junior Division – 46%
6th grade – 10%
7th grade – 14%
8th grade – 23%
Senior Division – 54%
9th grade – 7%
10th grade – 8%
11th grade – 28%
12th grade – 11%

Percentage of Students Winning Special Awards

Junior Division – 43%
6th grade – 33%
7th grade – 43%
8th grade – 47%
Senior Division – 43%
9th grade – 32%
10th grade – 58%
11th grade – 64%
12th grade – 26%

2013 COLORADO SCIENCE AND ENGINEERING FAIR TOP AWARDS

The top three 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 12 - 17, 2013. First place went to **Cole Hugelmeyer**, Boulder High School in Boulder, grade 12, for the project *Discretization of Infinite Dimensional Geodisics*. Second place went to **Easton LaChappelle**, Mancos High School in Mancos, grade 11, for the project *Fine Motor Skills: Using Neural Activated Biomechanical Prosthesis*. Third place went to **Logan Collins**, Fairview High School in Boulder, grade 10, for the project *Testing Artificial Genes Designed to Inhibit the Growth of E. coli as an Alternative to Traditional Antibiotics*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Logan Collins** from Fairview High School, grade 10, for the project *Testing Artificial Genes Designed to Inhibit the Growth of E. coli as an Alternative to Traditional Antibiotics*.

The winner of the Senior Division Student Choice Award was **Lexi Thompson**, Otis Jr/Sr High School in Otis, grade 12, for the project *Creation of a Yield Probability Calculator*. The Junior Division Student Choice winner was **Alyssa Frager**, The Classical Academy in Colorado Springs, grade 7, for the project *It's a Kick*.

The winner of the Poster Art Contest was **Haley Ballard**, Pueblo South High School in Pueblo.

The winners of the Pioneers of Science Awards were **Danae Beaprez**, Otis Elementary School in Otis, grade 6, for the project *Wormy Maze*; **Sarah Wong**, Banning Lewis Ranch Academy in Colorado Springs, grade 8, for the project *Are You Smarter Than A 5th Grader?*; **Tate Hinger**, Pagosa Springs Middle School, grade 7 for the project *Cheater, Cheater*; **Loretta Avis**, Trinidad Middle School in Trinidad, grade 7, for the project *Do All Household Substances Form Crystals?*; **Molly Nehring**, Monte Vista Middle School in Monte Vista, grade 6, for the project *Have You Been Mooned?*; **Ben Bleichrodt**, West Jefferson Middle School in Conifer, grade 6, for the project *Don't Rock the Boat*; **Hayden Ballard**, Beulah School of Natural Sciences in Beulah, grade 8, for the project *Steel vs. Obsidian: Which Makes the Cut?*; **Emily Nicol**, Louisville Middle School in Louisville, grade 8, for the project *Slurry Fury*; **Jamison White**, Blevins Middle School in Fort Collins, grade 6, for the project *Golf Ball vs. Mathematics*; **Quinn Luthy**, Miller Middle School in Durango, grade 7, for the project *Plague, Inc.*; **Jessalyn Bay-Voit**, Mancos Middle School in Mancos, grade 8, for the project *Bites*; **Cierra Ruybal**, Pueblo School for Arts & Sciences in Pueblo, grade 7, for the project *Bacteria Age Rage*; **Connor Voss**, Beulah School of Natural Sciences in Beulah, grade 6, for the project *Space vs. Sheep: Which is Warmer?*; **Sean Smith**, Cherry Creek Challenge School in Denver, grade 8, for the project *Seeing Sound: A Study of Cymatics in Two Dimensions*; **Talor Saffer**, Arriba-Flagler School in Flagler, grade 8, for the project *Too Much of a Good Thing? Part 2*.

2013 COLORADO SCIENCE AND ENGINEERING FAIR

SCHOLARSHIP AWARDS

ADAMS STATE COLLEGE

Montana Cook, Walsh Jr/Sr High School, Walsh, grade 9, for the project *Artificial Insemination: Comparing Methods of Thawing Bull Semen*

Rebecca Dillon, West Grand High School, Kremmling, grade 9, for the project *Comprehension!?*

Alanna Chacon, Center High School, Center, grade 11, for the project *Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?*

Jacob Nichols, Brush High School, Brush, grade 11, for the project *A Two-Dimensional Investigation of Hydraulic Fracturing Principles*

Cody Laxton, Connections Academy, Engelwood, grade 10, for the project, *Testing Drafting Over Two Vehicles*

Colton Shannon, Trinidad High School, Trinidad, grade 9, for the project *Artificial Light vs. Natural Light*

Devon Enke, La Veta High School, La Veta, grade 11, for the project *Mycroremediation: A Solution to Runoff Pollution?*

Stephen Parish, Home School, Colorado Springs, grade 10, for the project *Seeing the Big Picture: A Target-Oriented Approach to Optimization*

Abigail Krause, Lone Star School, Otis, grade 11, for the project *Eat the Hull Cracker: A Palatability Study for the Ingestion of Wheat Hull*

Tara Cook, Sterling High School, Sterling, grade 11, for the project *A Study of Bacterial Resistance in Agricultural Livestock and Soil*

Kevin Garcia, Center High School, Center, grade 11, for the project *Field Force Braking: Using an Electrical Induced Current to Stop an Object*

Hinal Rathi, Alamosa High School, Alamosa, grade 11, for the project *Love-Hate Bond Amongst Tubers and Elements*

Blake Filkins and **Alyssa Pedri**, Primero School, Weston, grade 11, for their project *Wireless Robotics*

COLORADO SCHOOL OF MINES

Rachel Rossi, Durango High School, Durango, grade 11, for the project *Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi*

Nurul MohdReza, Union Colony Preparatory School, Greeley, grade 11, for the project *Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell*

Alanna Chacon, Center High School, Center, grade 11, for the project *Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?*

Kevin Garcia, Center High School, Center, grade 11, for the project *Field Force Braking: Using an Electrical Induced Current to Stop an Object*

COLORADO STATE UNIVERSITY

Montana Cook, Walsh Jr/Sr High School, Walsh, grade 9, for the project *Artificial Insemination: Comparing Methods of Thawing Bull Semen*

Audra Burke and **Jason Mackay**, Edison High School, Yoder, grade 11, for the project *Half Full or Half Empty: A study of the Overall Effects of Optimism & Pessimism on Group Performance*

Elizabeth Walker, Springfield High School, Springfield, grade 10, for the project *Easy as Pie: Testing the Viscosity of Starch at Different Temperatures*

Brisha Wakasugi, Alamosa High School, Alamosa, grade 12, for the project *The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera*

Nurul MohdReza, Union Colony Preparatory School, Greeley, grade 11, for the project *Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell*

Rachel Rossi, Durango High School, Durango, grade 11, for the project *Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi*

Cole Hugelmeyer, Boulder High School, Boulder, grade 12, for the project *Discretization of Infinite Dimensional Geodesics*

Shelly Steinert, Sargent High School, Monte Vista, grade 9, for the project *Polymerase Chain Reaction Analysis on Gene GLI3, Causing Polydactyly in 3 DNA Generations*

Logan Collins, Fairview High School, Boulder, grade 10, for the project *Testing Artificial Genes Designed to Inhibit the Growth of E. coli as an Alternative to Traditional Antibiotics*

Ilse Meiler, Peak to Peak Charter School, Lafayette, grade 9, for the project *CSI: Liquid Lie*

Hinal Rathi, Alamosa High School, Alamosa, grade 11, for the project *Love-Hate Bond Amongst Tubers and Elements*

COLORADO STATE UNIVERSITY

CSU – COLLEGE OF NATURAL SCIENCES

Cole Hugelmeyer, Boulder High School, Boulder, grade 12, for the project *Discretization of Infinite Dimensional Geodesics*

Easton LaChappelle, Mancos High School, Mancos, grade 11, for the project *Fine Motor Skills: Using Neural Activated Biomechanical Prosthesis*

Logan Collins, Fairview High School, Boulder, grade 10, for the project *Testing Artificial Genes Designed to Inhibit the Growth of E. coli as an Alternative to Traditional Antibiotics*

COLORADO STATE UNIVERSITY - PUEBLO

Cameron Crandall, Brush High School, Brush, grade 12, for the project *The Solar Powered Stirling Engine*

Stephen Parish, Home School, Colorado Springs, grade 10, for the project *Seeing the Big Picture: A Target-Oriented Approach to Optimization*

UNIVERSITY OF COLORADO, BOULDER

Lauren Foerster, Blevins Middle School, Fort Collins, grade 8, for the project *Walking on Eggshells: Renewable Bio-composite*

Matthew Hileman, Classical Academy College Pathways, Colorado Springs, grade 9, for the project *Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications*

Kai Kloepper, Fairview High School, Boulder, grade 10, for the project *Biometric Electromechanical Firearm Safety*

Nurul MohdReza, Union Colony Preparatory School, Greeley, grade 11, for the project *Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell*

Rachel Rossi, Durango High School, Durango, grade 11, for the project *Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi*

Hope Weinstein, Fairview High School, Boulder, grade 11, for the project *Zero Valent Iron Nanoparticle Embedded Polyethersulfone Membranes for Water Filtration and Remediation*

Easton LaChappelle, Mancos High School, Mancos, grade 11, for the project *Fine Motor Skills: Using Neural Activated Biomechanical Prosthesis*

Sydney Anderson, Edison High School, Yoder, grade 11, for the project *Engineering Personal Protective Equipment to Detect Dangerous Levels of Carbon Monoxide*

RYAN PATTERSON SCHOLARSHIP

The Ryan Patterson Scholarship is named in honor of the Intel ISEF top winner of 2001. This year's winner was **Brisha Wakasugi**, Alamosa High School, Alamosa, grade 12, for the project *The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera*.

The experience of ISEF is thrilling and humbling. Just entering the vast exhibit hall, lined with hundreds of blue-trimmed project booths, buzzing with thousands of people busily setting up their displays, was enough to make me feel both proud and inadequate! We finalists got some other amazing opportunities: wonderful workshops and talks, specially catered events such as a question/answer session with Nobel Laureates (which was my personal favorite)!

Of course, getting to walk up to the huge stage under lights and cameras to receive an award and shake the hand of a Nobel prize-winning researcher was a huge highlight of the experience! But best of all was the chance I got to meet and share research with so many amazing young scientists, from all over the world--people who, like me, care about science, love to conduct experiments, and enjoying sharing their passion with others.

Each year I have been at ISEF, I have been astounded by the level of research: the quality of work, the time investment, the brilliant innovation. As an eighth grader I had decided that my ambition for high school would be to win the chance just to go to ISEF, simply because I had heard so much about how wonderful the experience was. Now that I have been three times, I can honestly say that each time was even better than my expectations!

However, ISEF's true value lies not in how wonderful the week of the event itself is. Rather, it is the opportunity it and fairs like CSEF provide to people like me, students who love science but wouldn't otherwise have the opportunity to engage in a true scientific question. Outside of the setting that the fairs provide, I would never have had the chance and inspiration to conduct meaningful research and get a grasp of what real science is - and without CSEF and ISEF, I might not have discovered my calling for a career in biochemical research.

Sara Volz, Colorado Springs, CO

(See Appendix 2 – CSEF Press Release)

2013 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 64th Intel ISEF held in Phoenix, AZ, May 12 – 17, 2013.

GRAND AWARDS

Michael Chen from Boulder, CO won \$3,000 (1st Place) in Chemistry.

Kai Kloepfer from Boulder, CO won \$3,000 (1st Place) in Electrical & Mechanical Engineering.

Logan Collins from Boulder, CO won \$1,500 (2nd Place) in Microbiology.

Nurul MohdReza from Greeley, CO won \$1,500 (2nd Place) in Microbiology.

Rachel Rossi from Durango, CO won \$1,500 (2nd Place) in Environmental Management.

Lawrence Zhang from Boulder, CO won \$1,500 (2nd Place) in Cellular & Molecular Biology.

Matthew Hileman from Colorado Springs, CO won \$1,000 (3rd Place) in Electrical & Mechanical Engineering.



SPECIAL AND GOVERNMENT AWARDS

Michael Chen from Boulder, CO won a four-year scholarship (worth \$8,000/year) and a one-time \$2,500 research award from Arizona State University. Michael also won \$1,000 (3rd Place) from the National Aeronautics and Space Administration.

Matthew Hileman from Colorado Springs, CO won a four-year scholarship (worth \$8,000/year) and a one-time \$2,500 research award from Arizona State University.

Kai Kloepfer from Boulder, CO won \$1,500 (1st Place) from the International Council on Systems Engineering.

Easton LaChappelle from Mancos, CO won \$150 (2nd Place) from the Patent and Trademark Office Society. Easton also won a four-year scholarship from West Virginia University.

Jacob Nichols from Brush, CO won a four-year scholarship from West Virginia University.

Tayler Rocha from Monte Vista, CO won \$750 (2nd Place) from the American Geosciences Institute. Tayler also won a full tuition scholarship (worth \$150,000) from Drexel University.

Rachel Rossi from Durango, CO won a full tuition scholarship (worth \$150,000) from Drexel University.

Sara Stalcup from Delta, CO won a full tuition scholarship (worth \$150,000) from Drexel University.

Dr. Paul Strode, a teacher at Fairview High School in Boulder, CO won the Agilent Technologies Teacher Award of \$5,000.

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 \$10,00 in support of CSEF)

Colorado State University
Office of the Provost
College of Natural Sciences
College of Natural Sciences Education &
Outreach Center
Intel Foundation

PLATINUM SPONSORS

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

Lockheed Martin
US Department of Commerce/NOAA
US Department of Commerce/NTIA
Xcel Energy

GOLD SPONSORS

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

CoBank
Colorado Dental Association
Seagate Technology
Society of Petroleum Engineers
CU Boulder Engineering

Silver SPONSORS

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

AREVA Federal Services
Colorado Medical Society

BRONZE SPONSORS

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

Galvanic Engineering
Picosecond Pulse Labs

COPPER SPONSORS

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

Colorado Engineering Council
ICAT Managers
IEEE High Plains Section
Optimal Schedule
San Luis Valley Regional Science Fair
Sundyne Corporation

COMPANY CONTRIBUTORS

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

Colorado Science Teachers Association
King Soopers
Kristi Mountain Sports
Pro-Sports
Villa Pizza & Butler Pizza Company

INDIVIDUAL CONTRIBUTORS

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

Ed & Lucy Adams
Sam & Eileen Bartlett
Al Bedard Jr.
Michael Bemski
Matthew Bruehl
Russell & Patty Chadwick
Nancy Glissmann
David & Vonda Holm
Robert Lamperuer
Patrice & Douglas Seitz
Wayne Seltzer

DOOR PRIZE CONTRIBUTORS

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CSU College of Natural Sciences
CSU Bookstore
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Pueblo Zoo
Rocky Mountain Dinosaur Resource Center
Spark UCAR Science Education
SparkFun Electronics
Texas Instruments
The Wildlife Experience
Ward's Natural Science
Wings Over the Rockies

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

Colorado Dental Association

Carol Morrow – President
Regular Member since 2002

US Department of Commerce/NOAA

Russell Chadwick – Vice President
Alternate Member since 2009

Galvanic Engineering

Ryan Patterson - Secretary
Regular Member since 2004

AREVA Federal Services

Mike Bemski - Treasurer
Regular Member since 2002

Colorado Engineering Council

Sam Bartlett – Immediate Past President
Regular Member since 2001

US Department of Commerce/NOAA

Al Bedard
Alternate Member since 1996

Elemer Bernath - Historian
Associate Member since 2002

AREVA Federal Services

Gwyneth Glissmann
Regular Member since 2013

Nancy Glissmann – Grand Awards Judging
Associate Member since 2011

San Luis Valley Regional Science Fair, Inc.

David Holm
Regular Member since 1997

Colorado Medical Society

Dean Holzkamp
Regular Member since 2003

Galvanic Engineering

Katlin Hornig
Regular Member since 2012

IEEE High Plains Section

Paul Janke
Regular Member since 2012

Lockheed Martin

Larry Knauer
Regular Member since 2011

US Department of Commerce/NOAA

Dan Kowal
Regular Member since 2007

Colorado Dental Association

Bob Morrow
Regular Member since 1995

Colorado State University

Jan Nerger
Regular Member since 2003

San Luis Valley Regional Science Fair, Inc.

Jody Oaks
Alternate Member since 2010

Covidien

Joe Paulus
Regular Member since 2010

Optimal Schedule

Brian Scriber
Regular Member since 2013

Doug Steward – SRC Chair
Associate Member since 2006

San Luis Valley Regional Science Fair, Inc.

Larry Sveum
Regular Member since 2007

ICAT Managers

Jeremy Teiber
Regular Member since 2010

Colorado State University

Andrew Warnock
Regular Member since 2011

US Department of Commerce/NTIA

Amy Weich
Regular Member since 2000

REGIONAL FAIR DIRECTORS

Arkansas Valley Regional Science Fair
Wayne Beadles

Boulder Valley Regional Science Fair
Jennifer Barr and Marlys Lietz

Denver Metro Regional Science Fair
Kristina Wenzel and Beth Ingram

East Central Regional Science Fair
Marguerite Yowell and William Mallory

Longs Peak Regional Science Fair
Lori Ball

Morgan/Washington Regional Science Fair
Darline Miner

Northeast Regional Science Fair
Penny Propst and Andrew Fritzler

Pikes Peak Regional Science Fair
Georgia Matteson

San Juan Basin Regional Science Fair
Lynne Schneider

San Luis Valley Regional Science Fair
Lucy Adams

Southeast Regional Science Fair
Terri Lira and Robin Staker

Southern Colorado Regional Science Fair
Lori Leyh and Corrine Solano

Western Regional Science Fair
Kevin Hoskin and Sandy Cruz

MEMBERS AT LARGE

David Clark	Doug Everett
Nancy Gettman	Joel Gray
Jennifer Hellier	Steve Iona
Ron Kollars	John McConnell
Kim Melville-Smith	Candus Muir
Amanda Parker	Judy Prester
Katie Propst	Rod Simpson
Jim Sites	Jim Stevens
Laura Ussery	

PAST 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
1981 – 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
1998 – 1999

Courtney Butler
1999 – 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), a science teacher, 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
58th Annual Colorado Science and Engineering Fair

Lory Student Center	CSEF Headquarters: Registration Booth, 2 nd Floor	Colorado State University
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Thursday, April 11, 2013

Finalist Schedule

8:30 a.m. – 11:00 a.m.	Tour Ticket Pick-Up/Sales	Room 213/215
8:30 a.m. – 11:30 a.m.	SRC Interviews – <i>Interviews must be completed BEFORE a project may be set up.</i>	Room 203/205
9:00 a.m. – 11:30 a.m.	Junior Division Finalist Check-In	Registration Booth
9:00 a.m. – 11:00 a.m.	Senior Division Finalist Check-In	North Ballroom
<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>		
1:30 p.m. – 5:00 p.m.	Judging – <i>Students must be at their exhibits for interviews.</i>	Main Ballroom & North Ballroom

Adult Schedule

1:30 p.m. – 2:30 p.m.	ISEF Rules Update & Discussion	Room 203/205
3:00 p.m. – 4:45 p.m.	Teach Engineering: Resources and Hands-on Workshop for Teachers and Parents	Room 203/205
<i>Teachers and parents are invited to attend this informal workshop where resources will be provided that can be used to make applied science, math and engineering come alive in K-12 settings.</i>		
<i>Hosted by Dr. Mindy Zarske and Amanda Parker from CU Boulder Engineering.</i>		

Judging Schedule

9:15 a.m. – 10:00 a.m.	Grand Awards Judge Captains' Briefing	CSU Theater Green Room
10:15 a.m. – 11:15 a.m.	Grand Awards Judges' Briefing	CSU Theater
11:15 a.m. – 12:00 noon	Grand Awards Judges' Luncheon	CSU Theater Lobby
12:15 p.m. – 12:30 p.m.	Special Awards Judges' Briefing	Room 228
12:00 noon – 5:00 p.m.	Junior Division Judging	Main Ballroom
12:00 noon – 5:00 p.m.	Senior Division Judging	North Ballroom
12:00 – 1:30 p.m.	<u>Judges only</u> in the exhibit room.	
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 12, 2013

10:30 a.m. – 5:00 p.m.	CSEF Finalist Exhibits Open to the Public and the Media	Main Ballroom & North Ballroom
8:30 a.m. – 9:30 a.m.	Guest Speaker – Brian Jones, Little Shop of Physics	CSU Theater
10:00 a.m. – 3:00 p.m.	Wings Over the Rockies Air & Space Museum KidSpace	Rooms 214/216
10:00 a.m. – 3:00 p.m.	Muscles Alive! Human Electromyography	Duhesa Lounge
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 13, 2013

9:00 a.m. – 11:00 a.m.	CSEF Finalist Exhibits Open to the Public and the Media	Main Ballroom & North Ballroom
<i>Finalists MUST be at their projects for interaction with the public.</i>		
9:00 a.m. – 11:00 a.m.	Advisory Council & Regional Fair Directors Meeting – <i>open to all</i>	Room 213/215
11:00 a.m. – 12:00 noon	Pizza Party - <i>Finalists, adult sponsors, family members and judges are invited.</i>	Serving in Room 228
<i>Finalists must be present to win door prizes!</i>		
12:00 noon – 1:00 p.m.	Exhibit Dismantling - <i>Everything must be removed by 1:00 p.m.</i>	Main Ballroom
12:00 noon – 2:00 p.m.	Board of Directors Meeting – <i>open to all</i>	Room 213/215

The upcoming Intel International Science and Engineering Fair will be in Phoenix, AZ May 12 – 17, 2013.
 Next year's Colorado Science and Engineering Fair will be April 10 – 12, 2014 at the Hilton Fort Collins.

(Dates are subject to change.)

2013 Colorado Science and Engineering Fair Grand Awards Press Release

Junior Division Best CSEF Project

First Place

Rebecca Bloomfield 8th grade
*A Slippery Slope: The Effects of Slope and Remediation
 Treatments on Post-Fire Sedimentation*
 North Middle School Colorado Springs

Second Place

Michelle Kummel 7th grade
*Cute, But in Control: Prairie Dogs and the Short-Grass
 Prairie*
 North Middle School Colorado Springs

Third Place

Evan Savage 8th grade
*Artificial Selection of Microalgae Using Heat Stress:
 Improving Algae Biodiesel*
 Boulder Country Day School Boulder

Senior Division Best CSEF Project

First Place

Cole Hugelmeyer 12th grade
Discretization of Infinite Dimensional Geodesics
 Boulder High School Boulder

Second Place

Easton LaChappelle 11th grade
*Fine Motor Skills Using Neural Activated Biomechanical
 Prosthesis*
 Mancos High School Mancos

Third Place

Logan Collins 10th grade
*Testing Artificial Genes Designed to Inhibit the Growth
 of E. coli As an Alternative to Traditional Antibiotics*
 Fairview High School Boulder

Junior Division Animal Sciences

First Place

Riley Meisner 7th grade
Does Feeding Time Affect Lambing Time?
 Sterling Middle School Sterling

Second Place

Miranda Coldren 7th grade
What Variables Affect Aggressive Behavior in Birds?
 Kinard Core Knowledge Middle School Fort Collins

Third Place

Paige Beckman 8th grade
Aquatic Plants vs. Nitrates
 Buchanan Middle School Wray

Fourth Place

Alyssa Rawinski 6th grade
*Just A Spoonful of Sugar Helps the Nectar Go Down: Do
 Hummingbirds Prefer Homemade or Store-bought Nec-
 tar?*
 Monte Vista Middle School Monte Vista

Honorable Mention

Haleigh Prosser 7th grade
*Preventing Infections: Does Side Dominance Lower In-
 fection Rate in Cattle?*
 Wiley Jr/Sr High School Wiley

Senior Division Animal Sciences

First Place

Montana Cook 9th grade
*Artificial Insemination: Comparing Methods of Thawing
 Bull Semen*
 Walsh Jr/Sr High School Walsh

Second Place

Natalie Griffin 10th grade
*Inhibitory Bacteria of the Chytrid Fungus Batrachomy-
 chytrium dendrobatidis*
 Fairview High School Boulder

Third Place

Elizabeth Manfredi 12th grade
Wild Horse Hoof vs. Domestic Horse Hoof
 Hoehne High School Hoehne

Fourth Place

Apoorva Krishnan 9th grade
*Effect of Dietary Habits and Environmental Conditions
 on Health Factors in Golden Retrievers*
 Cherry Creek High School Greenwood Village

Junior Division Behavioral & Social Sciences

First Place

Alea Hardesty 8th grade
Pep Up Your Brain
 Buchanan Middle School Wray

Second Place

Emma Carter 6th grade
Cell Phone Safety
 Boulder Country Day School Boulder

Third Place

Kaitlyn Dumm 8th grade
*Leaping Forward: A Comparison of Learning Using
 Virtual and Traditional Frog Dissection Methods*
 Windsor Charter Academy Windsor

Fourth Place

Tate Hinger 7th grade
Cheater, Cheater
 Pagosa Springs Middle School Pagosa Springs

Honorable Mention

Sarah Wong 8th grade
Are You Smarter Than A 5th Grader?
 Banning Lewis Ranch Academy Colorado Springs

Honorable Mention

Kaybree Keating 6th grade
 Aubrey Wells 8th grade
 Kaitlin Wells 7th grade
Workout Your Eyes
 Fort Morgan Middle School Fort Morgan

**Senior Division
 Behavioral & Social Sciences**

First Place

Audra Burke & Jason Mackay 11th grade
*Half Full or Half Empty: A Study of the Overall Effects
 of Optimism & Pessimism on Group Performance*
 Edison High School Yoder

Second Place

Taryn Book 9th grade
*Psycho-Cybernetics: Mental Imagery and Athletic Per-
 formance Connection*
 Genoa-Hugo School Hugo

Third Place

Rose Meyerhofer & Jenna Edwards 12th grade
How Does Horror Media Affect the Body?
 Dolores Huerta Preparatory High School Pueblo

Fourth Place

Sebastian Rowe 9th grade
*Analysis of Data Collected on the Performance of Teen-
 agers Receiving Feedback in a Testing Environment*
 Edison High School Yoder

Honorable Mention

Marcus Padia 11th grade
The Front Range Perception on Wind Energy
 Rocky Mountain High School Fort Collins

Honorable Mention

Neya Manavalan 9th grade
Reliable Testimony
 Cherry Creek High School Greenwood Village

**Junior Division
 Chemistry**

First Place

Peter Woodham 8th grade
*Molybdenum Disulfide as a Catalyst in Hydrogen Fuel
 Cells*
 Summit Charter Middle School Boulder

Second Place

Cameron Keel 8th grade
Investigating Genetically Modified Foods
 Summit Charter Middle School Boulder

Third Place

Nadja de Sa 8th grade
What's in Your Water?
 The Classical Academy Colorado Springs

Fourth Place

Nainoa Umbhau 6th grade
*Fire Hazard: Testing Combustibility Rates to Determine
 Shelter Material Cover*
 Miller Middle School Durango

Honorable Mention

A J Keever 7th grade
Bioplastic to Dye For
 Eaton Middle School Eaton

Honorable Mention

Terra Hall 8th grade
Get the Lead Out
 Pueblo School for Arts and Sciences Pueblo

**Senior Division
 Chemistry**

First Place

Elizabeth Walker 10th grade
*Easy as Pie: Testing the Viscosity of Starch at Different
 Temperatures*
 Springfield High School Springfield

Second Place

Michael Chen 11th grade
*The Effects of Operating Conditions on Gas Transport
 Mechanisms through SAPO-34 Zeolite Membranes*
 Fairview High School Boulder

Third Place

Alanna Chacon 11th grade
*Arsenic Contaminated Water: How Can Concentration
 Levels Be Lowered to Promote Safe Human Consump-
 tion?*
 Center High School Center

Appendix 2

Fourth Place

Wesley Hileman 12th grade
Predicting Rust: Modeling the Electrochemical Deterioration of Iron
 Classical Academy College Pathways Colorado Springs

Honorable Mention

Brianna Nall 9th grade
Fashion vs. Fire: How Flammable Is Your Attire?
 Genoa-Hugo School Hugo

Junior Division Earth & Space Sciences

First Place

Rebecca Bloomfield 8th grade
A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation
 North Middle School Colorado Springs

Second Place

Chloe Bleak 7th grade
Effects of Crop Residue, Wind, Radiation, and Temperatures on Surface Soil Water Evaporation
 Otis Jr/Sr High School Otis

Third Place

Melody Shellman 8th grade
Can Fracking Cause Earthquakes? Investigating the Possible Effects of Fracking Fluids on Earthquakes
 Cherry Creek Challenge School Denver

Fourth Place

Mark McKenna 8th grade
Hot Rocks
 St. John the Evangelist School Loveland

Honorable Mention

Emily Hartlaub 7th grade
Fin Configuration & the Coefficient of Drag
 Monument Academy Monument

Honorable Mention

Amanda Avila 6th grade
Are Your Stars Different?
 Monte Vista Middle School Monte Vista

Senior Division Earth & Space Sciences

First Place

Brisha Wakasugi 12th grade
The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera
 Alamosa High School Alamosa

Second Place

Jacob Nichols 11th grade
A Two-Dimensional Investigation of Hydraulic Fracturing Principles
 Brush High School Brush

Third Place

Ronald Duran 12th grade
Relationship of Moon and the Tides
 Central High School Pueblo

Fourth Place

Kale Alton 9th grade
Magic Sticks: Comparing Wooden Dowsing Rods and Copper Rods to Find Water
 Walsh Jr/Sr High School Walsh

Junior Division Energy & Transportation

First Place

Evan Savage 8th grade
Artificial Selection of Microalgae Using Heat Stress: Improving Algae Biodiesel
 Boulder Country Day School Boulder

Second Place

Tal Sneh 8th grade
Starch Polystyrene: The Bigger Bead the Better?
 Summit Charter Middle School Boulder

Third Place

Will McCloskey & Tristan Smith 8th grade
SAAPBR: Semi-automated Algae Photo Bio Reactor
 Flagstaff Academy Longmont

Fourth Place

Rahul Ramesh 8th grade
Constructing a Microbial Desalination Fuel Cell to Generate Electricity from Anaerobic Wastewater Sludge and Reduce Conductivity of Salt Water
 Cherry Creek Challenge School Denver

Honorable Mention

Zander Graham 8th grade
Gaussian Cannon
 Quest Academy Dacono

Honorable Mention

George Liu 8th grade
Evaluating the Effect of Humidity on Insulation
 The Classical Academy Colorado Springs

Appendix 2

Senior Division Energy & Transportation	
First Place	
Nurul MohdReza	11th grade
<i>Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell</i>	
Union Colony Preparatory School	Greeley
Second Place	
Riley Rodenburg & Justin Rodenburg	12th grade
<i>Prolonging the Service Life of Lithium Ion Batteries in Electric Vehicles (EV) Using Double Layer Capacitors (EDLC)</i>	
Peak to Peak Charter School	Lafayette
Third Place	
Cody Laxton	10th grade
<i>Testing Drafting Over Two Vehicles</i>	
Connections Academy	Englewood
Fourth Place	
Michael Brady	11th grade
<i>A Microbial Fuel Cell for People without Direct Access to Electricity</i>	
Cherry Creek High School	Greenwood Village
Honorable Mention	
Liam Fogerty & Cannon Braggs	9th grade
<i>The Effects of Wind Power</i>	
Estes Park High School	Estes Park

Junior Division Engineering	
First Place	
Daniel Culver	8th grade
<i>Improved Indoor Biomass Cook Stove</i>	
Columbine Middle School	Montrose
Second Place	
Lauren Sommer	7th grade
<i>Would Newton Have Preferred a Non-Newtonian Bumper?</i>	
The Classical Academy	Colorado Springs
Third Place	
Johann Kailey-Steiner	8th grade
<i>Rocket Design Part 3: Exploring How Vortex Generators Affect Boundary Layer Airflow</i>	
Grant Beacon Middle School	Denver
Fourth Place	
Leighton Burt	8th grade
<i>Slick or Stick: Investigating μ (μ) of Sandboarding</i>	
Sargent Junior High School	Monte Vista

Honorable Mention	
Cristian Granados	6th grade
<i>Making the Switch: Do I Really Save Energy By Turning Off My Lights?</i>	
North Middle School	Colorado Springs
Honorable Mention	
Riley Schaefer	7th grade
<i>Which Insulation Will Keep Your House the Warmest for the Longest Period of Time?</i>	
Sterling Middle School	Sterling

Senior Division Engineering	
First Place	
Easton LaChappelle	11th grade
<i>Fine Motor Skills Using Neural Activated Biomechanical Prosthesis</i>	
Mancos High School	Mancos
Second Place	
Kai Kloepfer	10th grade
<i>Biometric Electromechanical Firearm Safety</i>	
Fairview High School	Boulder
Third Place	
Connor Sendel	10th grade
<i>iPad Cases for Autism</i>	
Cherry Creek High School	Greenwood Village
Fourth Place	
Matthew Hileman	9th grade
<i>Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications</i>	
Classical Academy College Pathways	Colorado Springs
Honorable Mention	
Timothy Lyne	12th grade
<i>Friction-Reducing Ferromagnetic Fluid</i>	
Brush High School	Brush
Honorable Mention	
Sydney Anderson	11th grade
<i>Engineering Personal Protective Equipment to Detect Dangerous Levels of Carbon Monoxide</i>	
Edison High School	Yoder
Honorable Mention	
Maxx Helfer	10th grade
<i>Impervious</i>	
Palmer High School	Colorado Springs

Appendix 2

**Junior Division
Environmental Sciences**

First Place

Hannah Fischer 8th grade
*Pharmaceutical and Personal Care Products (PPCP's):
Understanding the Effects on Stream and Aquatic Life*
Sierra Grande Junior High School Fort Garland

Second Place

Hari Sowrirajan 7th grade
*Can Using Cyanobacteria Reduce CO₂ Emissions from
Cars?*
Cherry Creek Challenge School Denver

Third Place

Hannah deKay & Raelen Barr 8th grade
How Does Temperature Affect the pH of Cement Creek
Silverton School Silverton

Fourth Place

Lenka Doskocil 8th grade
The Water, the Waste and the Wetland
Bayfield Middle School Bayfield

Honorable Mention

Cortnie Hunter 8th grade
*An Assessment of Coliform and Pathogenic Bacteria on
the Upper Rio Grande River (San Luis Valley) in
Colorado*
Monte Vista Middle School Monte Vista

Honorable Mention

Daniel Wolff 8th grade
*Smoke on the Water: Measuring the Effects of Wildfire
Ash on a Fresh Water Stream*
Orchard Mesa Middle School Grand Junction

Honorable Mention

Max Markuson 7th grade
Mapping Air Pollution: Pueblo, Colorado
Pueblo School for Arts and Sciences Pueblo

**Senior Division
Environmental Sciences**

First Place

Rachel Rossi 11th grade
*Endocrine Disrupter Remediation in Water: Exploration
of Mycoremediation Capabilities of Fungi*
Durango High School Durango

Second Place

Hope Weinstein 11th grade
*Zero Valent Iron Nanoparticle Embedded Polyethersul-
fone Membranes for Water Filtration and Remediation*
Fairview High School Boulder

Third Place

Taylor Rocha 11th grade
*Sucesional Sequence of Water Quality and Macroinver-
tebrates in a Playa Wetland System*
Monte Vista High School Monte Vista

Fourth Place

Devon Enke 11th grade
Mycoremediation: A Solution to Runoff Pollution?
La Veta Jr/Sr High School La Veta

Honorable Mention

Hannah Keller 9th grade
*The Effects of Organic and Inorganic Fertilizers on the
Growth Percentage of Anabaena*
Cherry Creek High School Greenwood Village

**Junior Division
Mathematics & Computer Sciences**

First Place

Alby Musaelian 8th grade
Up or Down: Investigating Decision Procedures
Stanley British Primary School Denver

Second Place

Cassandra Blew 6th grade
A-Mazing-Robots
La Veta Elementary School La Veta

Third Place

Avi Swartz 8th grade
An Attempted Polynomial Solution to an NP Problem
Cherry Creek Challenge School Denver

Fourth Place

Johnny Valdez 7th grade
Becoming a Gamer!
Ignacio Junior High School Ignacio

Honorable Mention

Karli Buchanan 8th grade
Mile High Advantage
Buchanan Middle School Wray

**Senior Division
Mathematics & Computer Sciences**

First Place

Cole Hugelmeyer 12th grade
Discretization of Infinite Dimensional Geodesics
Boulder High School Boulder

Second Place

Stephen Parish 10th grade
*Seeing the Big Picture: A Target-Oriented Approach to
Optimization*
Home School Colorado Springs

Third Place

Simon Schaefer 11th grade
Reflective Properties of Mathematical Curves
 Monte Vista High School Monte Vista

Fourth Place

Jessica Constant 12th grade
*Computer Modeling VI: A Study Into Cloud Formation
 and the Effects on Particulate Scavenging*
 Poudre High School Ft. Collins

Honorable Mention

Lexi Thompson 12th grade
Creation of a Yield Probability Calculator
 Otis Jr/Sr High School Otis

**Junior Division
 Medicine & Health**

First Place

Ellie Mackintosh 8th grade
Simply Mouthwatering
 Good Shepherd Catholic School Denver

Second Place

Duncan Lester 8th grade
Dim the Lights to Keep Food Nice
 Summit Charter Middle School Boulder

Third Place

Lindsey Warren 7th grade
*Is Organic Really Healthier? A Redox Titration of Vita-
 min C in Organic & Conventional Citrus Fruit*
 The Classical Academy Colorado Springs

Fourth Place

Theodore Dumont 8th grade
*Modified Body Mass Index: An Attempt to More Accu-
 rately Represent Health Risk with Regard to Weight*
 Estes Park Middle School Estes Park

Honorable Mention

Casey Shaw 8th grade
*The Science of Sourdough: The Effect of Lactobacillus
 Bacteria on Wheat Gluten Degradation*
 Liberty School Joes

Honorable Mention

Ty Harrison 8th grade
What's Really on the Menu?
 Sargent Junior High School Monte Vista

Honorable Mention

Anna Connell 7th grade
Simply Oranges
 The Classical Academy Colorado Springs

**Senior Division
 Medicine & Health**

First Place

Shelly Steinert 9th grade
*Polymerase Chain Reaction Analysis on Gene GLI3,
 Causing Polydactyly in 3 DNA Generations*
 Sargent High School Monte Vista

Second Place

Lawrence Zhang 11th grade
*miRNA and Cancer - Phase II: Constructing a Bidirec-
 tional Cassette to Identify miRNA Regulators*
 Fairview High School Boulder

Third Place

Abigail Krause 11th grade
*Eat the Hull Cracker: A Palatability Study for the Inges-
 tion of Wheat Hull*
 Lone Star School Otis

Fourth Place

Olivia Sayer 12th grade
*Beehive Propolis: The Effects of Caffeic Acid Phenethyl
 Ester on Cancer Cell Proliferation and Its Complimen-
 tary Use with Chemotherapeutic Agents*
 Warren Tech Lakewood

Honorable Mention

Vishal Krishnan 11th grade
*Validation of Microfluidic-based Platelet Rolling Assay
 to Characterize Von Willebrand Disease*
 Cherry Creek High School Greenwood Village

Honorable Mention

Jenna Hartley 10th grade
*Pseudomonas a. Infections in the Cystic Fibrosis Lung:
 The Inhibition of Bio-encapsulated Pathogens*
 Palmer High School Colorado Springs

**Junior Division
 Microbiology**

First Place

Max Popkin 8th grade
*The Effects of Pesticides and Vegetable Wash on Green
 Leaf Lettuce Bacterial Colonies*
 North Middle School Colorado Springs

Second Place

Brady Miller 7th grade
Should You Share That Water?
 The Classical Academy Colorado Springs

Third Place

Roger Nakagawa 7th grade
*Laundering Money: The Effect of Different Methods for
 Sanitizing Microorganisms on Money*
 Hill Campus of Arts and Sciences Denver

Appendix 2

Fourth Place

Kaitlyn Carson 8th grade
The Effect of Class IV Laser on Methicillin-Resistant Staphylococcus aureus & Pseudomonas aeriginosa
 Preston Middle School Fort Collins

Honorable Mention

Jeannette Lehr 8th grade
Do Magazines in Doctor's Offices Act As Formites?
 La Veta Jr/Sr HighSchool La Veta

**Senior Division
 Microbiology**

First Place

Logan Collins 10th grade
Testing Artificial Genes Designed to Inhibit the Growth of E. coli As an Alternative to Traditional
 Fairview High School Boulder

Second Place

Kelsey Lindbloom 9th grade
Fueling the Future Phase 2: An Investigative Look into the Use of Substrates in a Microbial Fuel Cell
 Salida High School Salida

Third Place

Kymbre Mitchell 11th grade
The Effects of Capture LFR on the Nitrogen-Fixing Bacterium Rhodospirillum rubrum in Reference to Corn Production
 Sterling High School Sterling

**Junior Division
 Physics**

First Place

Anton Milliken 6th grade
How Do Fiber Optics Bend Light?
 Corwin International Magnet School Pueblo

Second Place

Dylan Lucko 8th grade
Blowin' in the Ionic Wind
 St. John the Baptist School Longmont

Third Place

Sean Smith 8th grade
Seeing Sound: A Study of Cymatics in Two Dimensions
 Cherry Creek Challenge School Denver

Fourth Place

Leah Fattor 8th grade
Is Your Guitar Too Hot To Handle?
 Summit Charter Middle School Boulder

Honorable Mention

Nathanael LoBosco 6th grade
GeoChutes!!!
 Monument Academy Monument

Honorable Mention

Vanessa VanCamp 7th grade
Aim . . . Fire!
 The Classical Academy Colorado Springs

Honorable Mention

Neil Baker 7th grade
Truth is Stranger Than Friction
 The Classical Academy Colorado Springs

Honorable Mention

Alyssa Frager 7th grade
It's a Kick
 The Classical Academy Colorado Springs

**Senior Division
 Physics**

First Place

Ilse Meiler 9th grade
CSI: Liquid Lie
 Peak to Peak Charter School Lafayette

Second Place

Kevin Garcia 11th grade
Field Force Braking: Using a Electrical Induced Current to Stop an Object
 Center High School Center

Third Place

Tucker Leavitt 12th grade
Liberating Energy from Water? Investigating Anomalous Water Arc Explosions
 Animas High School Durango

Fourth Place

Bethany Hibbs 9th grade
Does Height Affect Impact?
 Pioneer Christian School Rocky Ford

**Junior Division
 Plant Sciences**

First Place

Michelle Kummel 7th grade
Cute, But in Control: Prairie Dogs and the Short-Grass Prairie
 North Middle School Colorado Springs

Second Place

Callie Matteson & Ashley Vitti 7th grade
The Great Climate Debate: The Affects of Varying Temperature and CO2 on Plant Growth
 North Middle School Colorado Springs

Third Place

Hayes Witherow & Gabriel Wright 6th grade
From the Ashes: Questioning the Fertility and Sterility of Waldo Canyon Fire Soil
 North Middle School Colorado Springs

Appendix 2

Fourth Place

Julia Jackson 7th grade
Ashes, Ashes, Will We All Grow?
Notre Dame Catholic School Denver

Honorable Mention

Kayleen Saffer 7th grade
The Scoop on Poop
Arriba-Flagler School Flagler

Honorable Mention

Talor Saffer 8th grade
Too Much of a Good Thing? 2
Arriba-Flagler School Flagler

Honorable Mention

Bridget Goddard 8th grade
Does Hydroponics, Aquaponics, or Planting Soil Affect Plant Growth?
Bayfield Middle School Bayfield

Honorable Mention

Kalten Mattics 7th grade
Effect on Plant Growth from Gravity, Electricity and Color of Light
Olathe Middle School Olathe

Senior Division Plant Sciences

First Place

Hinal Rathi 11th grade
Love- Hate Bond Amongst Tubers and Elements
Alamosa High School Alamosa

Second Place

Emma Scholz 10th grade
Studying the Effects of Gliadin Protein Levels in Hybrid Wheats on the Regeneration in Lumbriculus
Sterling High School Sterling

Third Place

Faith Sears 11th grade
The Current Growing Conditions of and Effects of Growth Hormones on Corn/Wheat
Union Colony Preparatory School Greeley

Fourth Place

Jonathan Xu 9th grade
The Effect of Low Power Microwaves on Plant Growth
Cherry Creek High School Greenwood Village

2013 Colorado Science and Engineering Fair Special Awards Press Release

Colorado Science and Engineering Fair

Ralph Desch Memorial Technical Writing Award

Logan Collins 10th grade
\$100, certificate
Fairview High School Boulder
Testing Artificial Genes Designed to Inhibit the Growth of E. coli As an Alternative to Traditional Antibiotics

Student Choice Award

Alyssa Frager 7th grade
\$100, certificate, trophy
The Classical Academy Colorado Springs
It's a Kick

Lexi Thompson 12th grade
\$100, certificate, trophy
Otis Jr/Sr High School Otis
Creation of a Yield Probability Calculator

Poster Art Contest

Haley Ballard
\$100, certificate
Pueblo South High School Pueblo

Pioneers of Science - Edward Teller

Sean Smith 8th grade
\$30, certificate
Cherry Creek Challenge School Denver
Seeing Sound: A Study of Cymatics in Two Dimensions

Pioneers of Science - Edwin Hubble

Molly Nehring 6th grade
\$30, certificate
Monte Vista Middle School Monte Vista
Have You Been Mooned?

Pioneers of Science - G V Black

Quinn Luthy 7th grade
\$30, certificate
Miller Middle School Durango
Plague, Inc.

Pioneers of Science - Georges Cuvier

Danae Beauprez 6th grade
\$30, certificate
Otis Elementary School Otis
Wormy Maze

Pioneers of Science - Grace Hopper

Jamison White 6th grade
\$30, certificate
Blevins Middle School Fort Collins
Golf Ball vs. Mathematics

Pioneers of Science - James Joule

Ben Bleichrodt 6th grade
\$30, certificate
West Jefferson Middle School Conifer
Don't Rock the Boat

Pioneers of Science - John Salk

Jessalyn Bay-Voit 8th grade
\$30, certificate
Mancos Middle School Mancos
Bites?

Pioneers of Science - Louis Pasteur

Cierra Ruybal 7th grade
\$30, certificate
Pueblo School for Arts and Sciences Pueblo
Bacteria Age Rage

Pioneers of Science - Luther Burbank

Talor Saffer 8th grade
\$30, certificate
Arriba-Flagler School Flagler
Too Much of a Good Thing? 2

Pioneers of Science - Margaret Mead

Sarah Wong 8th grade
\$30, certificate
Banning Lewis Ranch Academy Colorado Springs
Are You Smarter Than A 5th Grader?

Pioneers of Science - Marie Curie

Loretta Avis 7th grade
\$30, certificate
Trinidad Middle School Trinidad
Do All Household Substances Form Crystals?

Pioneers of Science - Max Planck

Connor Voss 6th grade
\$30, certificate
Beulah School of Natural Sciences Beulah
Space vs. Sheep: Which is Warmer?

Pioneers of Science - Nicola Tesla

Hayden Ballard 8th grade
\$30, certificate
Beulah School of Natural Sciences Beulah
Steel vs. Obsidian: Which Makes the Cut?

Pioneers of Science - Rachel Carson

Emily Nicol 8th grade
\$30, certificate
Louisville Middle School Louisville
Slurry Fury

Pioneers of Science - Sigmund Freud

Tate Hinger 7th grade
\$30, certificate
Pagosa Springs Middle School Pagosa Springs
Cheater, Cheater

Military

United States Air Force

Matthew Hileman 9th grade
certificate, laptop backpack, personal lunch bag, 3-in-1 calculator-picture frame-LCD digital clock, helicopter pen
The Classical Academy College Pathways Colorado Springs
Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications

Kevin Garcia 11th grade
certificate, laptop backpack, personal lunch bag, 3-in-1 calculator-picture frame-LCD digital clock, helicopter pen
Center High School Center
Field Force Braking: Using an Electrical Induced Current to Stop an Object

Trevor Jordan 9th grade
certificate, laptop backpack, personal lunch bag, 3-in-1 calculator-picture frame-LCD digital clock, helicopter pen
Grace Preparatory Academy Durango
How Wing Design Affects Lift

Simon Schaefer 11th grade
certificate, laptop backpack, personal lunch bag, 3-in-1 calculator-picture frame-LCD digital clock, helicopter pen
Monte Vista High School Monte Vista
Reflective Properties of Mathematical Curves

United States Army*US Army Research Laboratory Award*

Kai Kloepfer 10th grade
\$25, certificate
Fairview High School Boulder
Biometric Electromechanical Firearm Safety

Easton LaChappelle 11th grade
\$25, certificate
Mancos High School Mancos
Fine Motor Skills Using Neural Activated Biomechanical Prosthesis

Riley Rodenburg & Justin Rodenburg 12th grade
\$25, certificate
Peak to Peak Charter School Lafayette
Prolonging the Service Life of Lithium Ion Batteries in Electric Vehicles (EV) Using Double Layer Capacitors (EDLC)

Cameron Crandall 12th grade
\$25, certificate
Brush High School Brush
The Solar Powered Stirling Engine

Timothy Lyne 12th grade
\$50, certificate, medallion
Brush High School Brush
Friction-Reducing Ferromagnetic Fluid

United States Navy & Marine Corps*Academy of Applied Science & Office of Naval Research Award*

Rahul Ramesh 8th grade
certificate
Cherry Creek Challenge School Denver
Constructing a Microbial Desalination Fuel Cell to Generate Electricity from Anaerobic Wastewater Sludge and Reduce Conductivity of Salt Water

Dylan Lucko 8th grade
certificate
St. John the Baptist School Longmont
Blow in' in the Ionic Wind

Bridget Goddard 8th grade
certificate
Bayfield Middle School Bayfield
Does Hydroponics, Aquaponics, or Planting Soil Affect Plant Growth?

Cameron Keel 8th grade
certificate
Summit Charter Middle School Boulder
Investigating Genetically Modified Foods

Stephen Parish 10th grade
\$75 gift certificate, certificate
Home School Colorado Springs
Seeing the Big Picture: A Target-Oriented Approach to Optimization

Wesley Hileman 12th grade
\$75 gift certificate, certificate
The Classical Academy College Colorado Springs
Predicting Rust: Modeling the Electrochemical Deterioration of Iron

Kai Kloepfer 10th grade
\$75 gift certificate, certificate
Fairview High School Boulder
Biometric Electromechanical Firearm Safety

Organizational

**Air & Waste Management Association
Rocky Mountain States Section**

Daniel Wolff 8th grade
\$50
Orchard Mesa Middle School Grand Junction
Smoke on the Water: Measuring the Effects of Wildfire Ash on a Fresh Water Stream

Daniel Culver 8th grade
\$100
Columbine Middle School Montrose
Improved Indoor Biomass Cook Stove

Appendix 2

Jessica Constant 12th grade
 \$100
 Poudre High School Ft. Collins
Computer Modeling VI: A Study Into Cloud Formation and the Effects on Particulate Scavenging

American Association of University Women *AAUW Award for Women in STEM*

Alanna Chacon 11th grade
 \$200
 Center High School Center
Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?

American Chemical Society **Colorado Local Section**

Peter Woodham 8th grade
 certificate, \$100
 Summit Charter Middle School Boulder
Molybdenum Disulfide as a Catalyst in Hydrogen Fuel Cells

Michael Chen 11th grade
 certificate, \$100
 Fairview High School Boulder
The Effects of Operating Conditions on Gas Transport Mechanisms through SAPO-34 Zeolite Membranes

American Institute of Chemical Engineers **Rocky Mountain Section**

Max Markuson DiPrince 7th grade
 \$75
 Pueblo School for Arts and Science Pueblo
Mapping Air Pollution: Pueblo, Colorado

George Liu 8th grade
 \$100
 The Classical Academy Colorado Springs
Evaluating the Effect of Humidity on Insulation

Michael Brady 11th grade
 \$75
 Cherry Creek High School Greenwood Village
A Microbial Fuel Cell for People without Direct Access to Electricity

Nurul MohdReza 11th grade
 \$100
 Union Colony Preparatory School Greeley
Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell

American Meteorological Society **Denver/Boulder Chapter** *AMS Award for Excellence in Atmospheric Sciences Research*

Connor Zitzmann 7th grade
 certificate, \$50
 The Classical Academy Colorado Springs
F5 Live

Ryan Davis & David Rush 9th grade
 certificate, \$50
 Arriba-Flagler School Flagler
Hot Headed

American Public Power Association **Demonstration of Energy Efficient Developments** *DEED Energy & Efficiency Innovation Award*

George Liu 8th grade
 \$50
 The Classical Academy Colorado Springs
Evaluating the Effect of Humidity on Insulation

Michael Brady 11th grade
 \$75
 Cherry Creek High School Greenwood Village
A Microbial Fuel Cell for People without Direct Access to Electricity

DEED Environmental Innovation Award

Evan Savage 8th grade
 \$50
 Boulder Country Day School Boulder
Artificial Selection of Microalgae Using Heat Stress: Improving Algae Biodiesel

Nurul MohdReza 11th grade
 \$75
 Union Colony Preparatory School Greeley
Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell

American Statistical Association **Colorado/Wyoming Chapter** *David Young Memorial Award*

Michelle Kummel 7th grade
 \$150, student membership in the American Statistical Association, acknowledgement at the chapter spring meeting and on the chapter website
 North Middle School Colorado Springs
Cute, But in Control: Prairie Dogs and the Short-Grass Prairie

Appendix 2

Rebecca Bloomfield 8th grade
 \$150, student membership in the American Statistical Association, acknowledgement at the chapter spring meeting and on the chapter website
 North Middle School Colorado Springs
A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation

American Vacuum Society Rocky Mountain Chapter

Lauren Foerster 8th grade
 \$50, \$50 matching award to sponsor
 Blevins Middle School Fort Collins
Walking on Eggshells: Renewable Bio-composit

Lauren Sommer 7th grade
 \$100, \$100 matching award to sponsor
 The Classical Academy Colorado Springs
Would Newton Have Preferred a Non-Newtonian Bumper?

Tucker Leavitt 12th grade
 \$50, \$50 matching award to sponsor
 Animas High School Durango
Liberating Energy from Water? Investigating Anomalous Water Arc Explosions

Easton LaChappelle 11th grade
 \$100, \$100 matching award to sponsor
 Mancos High School Mancos
Fine Motor Skills Using Neural Activated Biomechanical Prosthesis

American Water Works Association Rocky Mountain Section & Rocky Mountain Water Environment Association

Lenka Doscocil 8th grade
 certificate, \$200
 Bayfield Middle School Bayfield
The Water, the Waste and the Wetland

Rahul Ramesh 8th grade
 certificate, \$400
 Cherry Creek Challenge School Denver
Constructing a Microbial Desalination Fuel Cell to Generate Electricity from Anaerobic Wastewater Sludge and Reduce Conductivity of Salt Water

Rachel Rossi 11th grade
 certificate, \$200
 Durango High School Durango
Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi

Hope Weinstein 11th grade
 certificate, \$400
 Fairview High School Boulder
Zero Valent Iron Nanoparticle Embedded Polyethersulfone Membranes for Water Filtration and Remediation

ASM International

ASM Materials Education Foundation Award

Timothy Lyne 12th grade
 \$100
 Brush High School Brush
Friction-Reducing Ferromagnetic Fluid

Wesley Hileman 12th grade
 \$150
 The Classical Academy College Colorado Springs
Predicting Rust: Modeling the Electrochemical Deterioration of Iron

Colorado Association of Meat Processors

Tara Cook 11th grade
 \$65, certificate
 Sterling High School Sterling
A Study of Bacterial Resistance in Agricultural Livestock and Soil

Colorado Association of Science Teachers

CAST Award

Lindsey Warren 7th grade
 \$75
 The Classical Academy Colorado Springs
Is Organic Really Healthier? A Redox Titration of Vitamin C in Organic & Conventional Citrus Fruit

Bridget Goddard 8th grade
 \$75
 Bayfield Middle School Bayfield
Does Hydroponics, Aquaponics, or Planting Soil Affect Plant Growth?

Taylor Rocha 11th grade
 \$75
 Monte Vista High School Monte Vista
Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System

Kelsey Lindbloom 9th grade
 \$75
 Salida High School Salida
Fueling the Future Phase 2: An Investigative Look into the Use of Substrates in a Microbial Fuel Cell

Gerald Gromko Memorial Award

Michael Chen 11th grade
 \$150
 Fairview High School Boulder
The Effects of Operating Conditions on Gas Transport Mechanisms through SAPO-34 Zeolite Membranes

Colorado Biology Teachers' Association

CBTA Best Biology Project Award

Michelle Kummel 7th grade
 certificate, \$75
 North Middle School Colorado Springs
Cute, But in Control: Prairie Dogs and the Short-Grass Prairie

Appendix 2

Natalie Griffin
certificate, \$75
Fairview High School
Inhibitory Bacteria of the Chytrid Fungus Batrachomyxium dendrobatidis

10th grade
Boulder

Rachel Rossi
\$150, framed certificate, invitation to exhibit at the CEHA Annual Educational Conference (\$400 value)
Durango High School
Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi

11th grade
Durango

Colorado Chemistry Teachers' Association

A J Keever
\$100
Eaton Middle School
Bioplastic to Dye For

7th grade
Eaton

Wesley Hileman
\$100
The Classical Academy College
Predicting Rust: Modeling the Electrochemical Deterioration of Iron

12th grade
Colorado Springs

Colorado Foundation for Agriculture *Agriculture in the Classroom Award*

Callie Matteson & Ashley Vitti
certificate, \$50
North Middle School
The Great Climate Debate: The Affects of Varying Temperature and CO₂ on Plant Growth

7th grade
Colorado Springs

Riley Meisner
certificate, \$50
Sterling Middle School
Does Feeding Time Affect Lambing Time?

7th grade
Sterling

Colorado Dental Association

Cierra Ruybal
\$50
Pueblo School for Arts and Science
Bacteria Age Rage

7th grade
Pueblo

Rebecca Morgan
certificate, \$50
Victory Christian Academy
Some Like It Hot; Cold Has More Value: DNA Analysis of Raw vs. Cooked Food

11th grade
Falcon

Ellie Mackintosh
\$100
Good Shepherd Catholic School
Simply Mouthwatering

8th grade
Denver

Tara Cook
certificate, \$50
Sterling High School
A Study of Bacterial Resistance in Agricultural Livestock and Soil

11th grade
Sterling

Jessalyn Bay-Voit
\$50
Mancos Middle School
Bites?

8th grade
Mancos

Colorado Geographic Alliance *Colorado Geographic Alliance Application of Geography Award*

Ashlyn Loflin
\$100
Springfield High School
Effect of Tooth Decay

9th grade
Springfield

Max Markuson DiPrince
\$100
Pueblo School for Arts and
Mapping Air Pollution: Pueblo, Colorado

7th grade
Pueblo

Colorado Division of Reclamation Mining & Safety

Outstanding Earth Science Award

Joe Pope
\$75
St. Columba Catholic School
Got Oil? A Study of Oil Absorption in Rocks

6th grade
Durango

Taylor Rocha
\$100
Monte Vista High School
Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System

11th grade
Monte Vista

Devon Enke
\$75
La Veta Jr/Sr High School
Mycoremediation: A Solution to Runoff Pollution?

11th grade
La Veta

Colorado Medical Society

Colorado Environmental Health Association

Hannah Fischer
\$75, framed certificate
Sierra Grande Junior High School
Pharmaceutical and Personal Care Products (PPCP's): Understanding the Effects on Stream and Aquatic Life

8th grade
Fort Garland

Ellie Mackintosh
\$100, invitation to the winners and their parents to exhibit at the Colorado Medical Society Annual Meeting and attendance at the Presidential Inaugural Dinner with a paid overnight stay
Good Shepherd Catholic School
Simply Mouthwatering

8th grade
Denver

Jenna Hartley
\$100, invitation to the winners and their parents to exhibit at the Colorado Medical Society Annual Meeting and attendance at the Presidential Inaugural Dinner with a paid overnight stay
Palmer High School
Pseudomonas a. Infections in the Cystic Fibrosis Lung: The Inhibition of Bio-encapsulated Pathogens

10th grade
Colorado Springs

Appendix 2

Colorado Mineral Society

Joe Pope	6th grade
\$25, 2 mineral specimens, book, certificate St. Columba Catholic School <i>Got Oil? A Study of Oil Absorption in Rocks</i>	Durango
Melody Shellman	8th grade
\$40, 2 mineral specimens, book, certificate Cherry Creek Challenge School <i>Can Fracking Cause Earthquakes? Investigating the Possible Effects of Fracking Fluids on Earthquakes</i>	Denver
Jacob Nichols	11th grade
\$25, 2 mineral specimens, book, certificate Brush High School <i>A Two-Dimensional Investigation of Hydraulic Fracturing Principles</i>	Brush
Brisha Wakasugi	12th grade
\$40, 2 mineral specimens, book, certificate Alamosa High School <i>The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera</i>	Alamosa

Colorado Mycological Society

Rachel Rossi	11th grade
CMS honorarium membership, certificate, \$50, Vera Even-son's book Durango High School <i>Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi</i>	Durango

Colorado Scientific Society

Joe Pope	6th grade
\$50 St. Columba Catholic School <i>Got Oil? A Study of Oil Absorption in Rocks</i>	Durango
Melody Shellman	8th grade
\$75 Cherry Creek Challenge School <i>Can Fracking Cause Earthquakes? Investigating the Possible Effects of Fracking Fluids on Earthquakes</i>	Denver
Jennifer Jones	10th grade
Mason Anderson	9th grade
Garret Anderson	10th grade
\$75 Union Colony Preparatory School <i>Air Today - Gone Tomorrow: A Comprehensive Study of the Effect of Hydraulic Fracturing on Air Quality, Phase I</i>	Greeley
Brisha Wakasugi	12th grade
\$100 Alamosa High School <i>The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera</i>	Alamosa

Colorado State University Clean Energy Supercluster

Clean Energy Achievement Award

Riley Rodenburg & Justin Rodenburg	12th grade
certificate, invitation to present research at the annual Cenergy Expo, April 18, 2013 at Colorado State University (travel expenses reimbursed up to \$500) Peak to Peak Charter School	Lafayette
<i>Prolonging the Service Life of Lithium Ion Batteries in Electric Vehicles (EV) Using Double Layer Capacitors (EDLC)</i>	

Colorado State University College of Agricultural Sciences

Innovations in the Science of Agriculture Award

Haleigh Prosser	7th grade
\$500 Wiley Jr/Sr High School	Wiley
<i>Preventing Infections: Does Side Dominance Lower Infection Rate in Cattle?</i>	
Tara Cook	11th grade
\$500 Sterling High School	Sterling
<i>A Study of Bacterial Resistance in Agricultural Livestock and Soil</i>	

Colorado State University Dept. of Biochemistry & Molecular Biology

Lawrence Zhang	11th grade
\$100, certificate Fairview High School	Boulder
<i>miRNA and Cancer - Phase II: Constructing a Bidirectional Cassette to Identify miRNA Regulators</i>	

Colorado State University Department of Chemistry

A J Keever	7th grade
certificate, \$100 Eaton Middle School	Eaton
<i>Bioplastic to Dye For</i>	
Wesley Hileman	12th grade
certificate, \$100 The Classical Academy College	Colorado Springs
<i>Predicting Rust: Modeling the Electrochemical Deterioration of Iron</i>	

Colorado State University Dept. of Horticulture & Landscape Architecture

Callie Matteson & Ashley Vitti	7th grade
\$100 North Middle School	Colorado Springs
<i>The Great Climate Debate: The Affects of Varying Temperature and CO2 on Plant Growth</i>	

Appendix 2

Bridget Goddard \$100 Bayfield Middle School <i>Does Hydroponics, Aquaponics, or Planting Soil Affect Plant Growth?</i>	8th grade Bayfield
Julia Baroth \$100 Stanley British Primary School <i>Does "Joe" Help Plants Grow?</i>	8th grade Denver
Hinal Rathi \$100 Alamosa High School <i>Love- Hate Bond Amongst Tubers and Elements</i>	11th grade Alamosa

Colorado Veterinay Medical Association & CVMA Auxilary

Riley Meisner certificate, \$50 from CVMA and \$50 from CVMA Auxilary Sterling Middle School <i>Does Feeding Time Affect Lambing Time?</i>	7th grade Sterling
Montana Cook certificate, \$50 from CVMA and \$50 from CVMA Auxilary Walsh Jr/Sr High School <i>Artificial Insemination: Comparing Methods of Thawing Bull Semen</i>	9th grade Walsh

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

George Liu \$250 The Classical Academy <i>Evaluating the Effect of Humidity on Insulation</i>	8th grade Colorado Springs
Cristian Granados \$250 North Middle School <i>Making the Switch: Do I Really Save Energy By Turning Off My Lights?</i>	6th grade Colorado Springs
Nurul MohdReza \$250 Union Colony Preparatory School <i>Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell</i>	11th grade Greeley
Kelsey Lindbloom \$250 Salida High School <i>Fueling the Future Phase 2: An Investigative Look into the Use of Substrates in a Microbial Fuel Cell</i>	9th grade Salida

Colorado-Wyoming Society of American Foresters

Rebecca Bloomfield \$100 North Middle School <i>A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation</i>	8th grade Colorado Springs
Sarah Stalcup \$100 Delta High School <i>Riparian Area Multiple Indicator Monitoring</i>	11th grade Delta

Comstock Family

Heather Comstock Memorial Award

Jenna Hartley \$200 Palmer High School <i>Pseudomonas a. Infections in the Cystic Fibrosis Lung: The Inhibition of Bio-encapsulated Pathogens</i>	10th grade Colorado Springs
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Eppler Family

Cristian Granados microprocessor kit and digital multimeter (\$100 value) North Middle School <i>Making the Switch: Do I Really Save Energy By Turning Off My Lights?</i>	6th grade Colorado Springs
Keena Murphy microprocessor kit and digital multimeter (\$100 value) Pagosa Springs <i>Taking the Suspense Out of Bridges</i>	7th grade Pagosa Springs

Fort Collins Conservation District

Julia Jackson \$50, plaque Notre Dame Catholic School <i>Ashes, Ashes, Will We All Grow?</i>	7th grade Denver
Scott Rosas \$50, plaque Sterling High School <i>Agricultural Runoff and How it Affects Algae in Wetlands Habitats</i>	11th grade Sterling

Frank Armbruster Memorial

Frank Armbruster Memorial Award

Shania Pribble & T aylor Samora \$100 Mancos Middle School <i>Adaptive Snowboard</i>	6th grade Mancos
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Institute of Electrical and Electronics Engineers

Alexa Tena \$100 Buchanan Middle School <i>Does a Cell Phone Conversation Affect Reaction Time?</i>	7th grade Wray
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Appendix 2

Easton LaChappelle
\$150
Mancos High School
Fine Motor Skills Using Neural Activated Biomechanical Prosthesis

11th grade
Mancos

Eric Oestman
\$100, trophy
Buchanan Middle School
Wray
Zariah Mason
\$50, trophy
Branson School
Branson
Mind Games

Little Shop of Physics *Matthew McCausland Memorial Award*

Shania Pribble & Taylor Samora
\$100
Mancos Middle School
Adaptive Snowboard

6th grade
Mancos

Jodi Doherty
\$100, trophy
Branson School
Branson

Keelin Savage
\$100
Grace Preparatory Academy
Aiming True

9th grade
Durango

Hannah deKay & Raelen Barr
certificate, cash award
Silverton School
Silverton
How Does Temperature Affect the pH of Cement Creek?

Lockheed Martin

Emily Hartlaub
\$50
Monument Academy
Fin Configuration & the Coefficient of Drag

7th grade
Monument

Molly Nehring
certificate, cash award
Monte Vista Middle School
Monte Vista
Have You Been Mooned?

Matthew Hileman
\$100
The Classical Academy College
Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications

9th grade
Colorado Springs

Joe Pope
certificate, cash award
St. Columba Catholic School
Durango
Got Oil? A Study of Oil Absorption in Rocks

National Geophysical Data Center

Rebecca Bloomfield
certificate, plaque, \$50 money order
North Middle School
A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation

8th grade
Colorado Springs

Brisha Wakasugi
certificate, cash award
Alamosa High School
Alamosa
The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera

SACNAS, Colorado State University Chapter *Daniel & Doreen Suchman Award*

Leighton Burt
\$50
Sargent Junior High School
Monte Vista
Slick or Stick: Investigating μ (Mu) of Sandboarding

Hale Laybourn Memorial Award

Taylor Rocha
\$50
Monte Vista High School
Monte Vista
Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System

Nicholas Holland
\$50
Bromley East Charter School
Brighton
Magnetized!

Anton Milliken
certificate, token issue and 1-year subscription to Discover Magazine

6th grade

Corwin International Magnet
How Do Fiber Optics Bend Light?

Pueblo

Simon Schaefer
certificate, token issue and 1-year subscription to Discover Magazine

11th grade

Monte Vista High School
Reflective Properties of Mathematical Curves

Monte Vista

Rawat Family

Champion of Scientific Innovation Award

Andrew Anderson
\$50, trophy
Buchanan Middle School
Is Your Water Charged?

7th grade
Wray

SACNAS Colorado State University Award

Marcus Padia
\$50
Rocky Mountain High School
Fort Collins
The Front Range Perception on Wind Energy

Appendix 2

Science Toy Magic, LLC

Cristian Granados \$50 North Middle School <i>Making the Switch: Do I Really Save Energy By Turning Off My Lights?</i>	6th grade Colorado Springs
Madison Beckner \$100 Buchanan Middle School <i>Electric: A Study of the Most Efficient Way to Generate Static Electricity</i>	8th grade Wray
Eric Lyne \$50 Brush High School <i>Purifying Water with Solar Energy</i>	10th grade Brush
Kevin Garcia \$100 Center High School <i>Field Force Braking: Using an Electrical Induced Current to Stop an Object</i>	11th grade Center

Society for Mining, Metallurgy and Exploration Colorado Section

Hannah deKay & Raelen Barr \$100, plaque Silverton School <i>How Does Temperature Affect the pH of Cement Creek?</i>	8th grade Silverton
Lenka Dorskocil \$200, plaque Bayfield Middle School <i>The Water, the Waste and the Wetland</i>	8th grade Bayfield
Sydney Anderson \$100, plaque Edison High School <i>Engineering Personal Protective Equipment to Detect Dangerous Levels of Carbon Monoxide</i>	11th grade Yoder
Brisha Wakasugi \$200, plaque Alamosa High School <i>The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera</i>	12th grade Alamosa

Society of Manufacturing Engineers Colorado Chapter 354

Andy Keller Memorial Award

Easton LaChappelle scholarship awards valued as much as \$600 and recognition by the chapter Mancos High School <i>Fine Motor Skills Using Neural Activated Biomechanical Prosthesis</i>	11th grade Mancos
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Will McCloskey & Tristan Smith
scholarship awards valued as much as \$600 and recognition by the chapter
Flagstaff Academy
SAAPBR: Semi-automated Algae Photo Bio Reactor

Maxx Helfer
scholarship awards valued as much as \$600 and recognition by the chapter
Palmer High School
Impervious

Society of Women Engineers Rocky Mountain Section

Shania Pribble & Taeylor Samora
certificate, \$75
Mancos Middle School
Adaptive Snowboard

Lauren Sommer
certificate, \$100
The Classical Academy
Would Newton Have Preferred a Non-Newtonian Bumper?

Nurul MohdReza
certificate, \$75
Union Colony Preparatory School
Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell

Hope Weinstein
certificate, \$100
Fairview High School
Zero Valent Iron Nanoparticle Embedded Polyethersulfone Membranes for Water Filtration and Remediation

SPiE - The International Society for Optics and Photonics

SPiE Optics and Photonics Award

Molly Nehring
\$100
Monte Vista Middle School
Have You Been Mooned?

Zach Mast
\$150
The Classical Academy
Green Light: Recycling the Light Around Us

Anton Milliken
\$250
Corwin International Magnet
How Do Fiber Optics Bend Light?

Cameron Crandall
\$100
Brush High School
The Solar Powered Stirling Engine

Appendix 2

Alanna Chacon 11th grade
 \$150
 Center High School Center
Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?

Wesley Hileman 12th grade
 \$250
 The Classical Academy College Colorado Springs
Predicting Rust: Modeling the Electrochemical Deterioration of Iron

The Inventor's Roundtable

Connor Sendel 10th grade
 \$100, free patent search (\$499 value)
 Cherry Creek High School Greenwood Village
iPad Cases for Autism

Trout Unlimited

Trout Unlimited River Conservation Award

Sarah Stalcup 11th grade
 \$50 savings bond, 2nd alternate to attend Colorado Trout Unlimited's River Conservation and Fly Fishing Youth
 Delta High School Delta
Riparian Area Multiple Indicator Monitoring

Tayler Rocha 11th grade
 \$75 savings bond, 1st alternate to attend Colorado Trout Unlimited's River Conservation and Fly Fishing Youth
 Monte Vista High School Monte Vista
Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System

Rachel Rossi 11th grade
 \$100 savings bond, scholarship to attend Colorado Trout Unlimited's River Conservation and Fly Fishing Youth
 Durango High School Durango
Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi

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

Cole Hugelmeyer 12th grade
 alternate for opportunity of summer employment with the Department of Commerce
 Boulder High School Boulder
Discretization of Infinite Dimensional Geodesics

Tucker Leavitt 12th grade
 opportunity of summer employment with the Department of Commerce
 Animas High School Durango
Liberating Energy from Water? Investigating Anomalous Water Arc Explosions

United States Geological Survey

USGS Excellence in Geological or Water Research Award

Joe Pope 6th grade
 reference book, mineral specimen, certificate
 St. Columba Catholic School Durango
Got Oil? A Study of Oil Absorption in Rocks

Tayler Rocha 11th grade
 reference book, mineral specimen, certificate
 Monte Vista High School Monte Vista
Successional Sequence of Water Quality and Macroinvertebrates in a Playa Wetland System

University of Colorado, Denver

Medical Scientist Training Program Award

Logan Collins 10th grade
 \$50
 Fairview High School Boulder
Testing Artificial Genes Designed to Inhibit the Growth of E. coli As an Alternative to Traditional Antibiotics

Lawrence Zhang 11th grade
 \$50
 Fairview High School Boulder
miRNA and Cancer - Phase II: Constructing a Bidirectional Cassette to Identify miRNA Regulators

University of Northern Colorado

MAST Institute Award

Avi Swartz 8th grade
 \$50
 Cherry Creek Challenge School Denver
An Attempted Polynomial Solution to an NP Problem

Connor Sendel 10th grade
 \$50
 Cherry Creek High School Greenwood Village
iPad Cases for Autism

Wojtaszek Family

Paul Wojtaszek Memorial Award

Lawrence Zhang 11th grade
 \$300
 Fairview High School Boulder
miRNA and Cancer - Phase II: Constructing a Bidirectional Cassette to Identify miRNA Regulators

Women in Physics, Colorado State University Chapter

Promising Young Woman in Science Award

Leah Fattor 8th grade
 certificate
 Summit Charter Middle School Boulder
Is Your Guitar Too Hot To Handle?

Appendix 2

Madison Beckner 8th grade
 \$50
 Buchanan Middle School Wray
Electric: A Study of the Most Efficient Way to Generate Static Electricity

Yale Science and Engineering Association Most Outstanding 11th Grade Project Award

Michael Chen 11th grade
 certificate, pewter medallion (to be mailed)
 Fairview High School Boulder
The Effects of Operating Conditions on Gas Transport Mechanisms through SAPO-34 Zeolite Membranes

Zonta Club of Boulder County Amelia Earhart Award

Molly Nehring 6th grade
 \$100
 Monte Vista Middle School Monte Vista
Have You Been Mooned?

Scholarships

Adams State University Adams State University Scholarship

Montana Cook 9th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Walsh Jr/Sr High School Walsh
Artificial Insemination: Comparing Methods of Thawing Bull Semen

Rebecca Dillon 9th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 West Grand High School Kremmling
Comprehension!?

Alanna Chacon 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Center High School Center
Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?

Jacob Nichols 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Brush High School Brush
A Two-Dimensional Investigation of Hydraulic Fracturing Principles

Cody Laxton 10th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Connections Academy Englewood
Testing Drafting Over Two Vehicles

Colton Shannon 9th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Trinidad High School Trinidad
Artificial Light vs. Natural Light

Devon Enke 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 La Veta Jr/Sr High School La Veta
Mycoremediation: A Solution to Runoff Pollution?

Stephen Parish 10th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Home School Colorado Springs
Seeing the Big Picture: A Target-Oriented Approach to Optimization

Abigail Krause 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Lone Star School Otis
Eat the Hull Cracker: A Palatability Study for the Ingestion of Wheat Hull

Tara Cook 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Sterling High School Sterling
A Study of Bacterial Resistance in Agricultural Livestock and Soil

Kevin Garcia 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Center High School Center
Field Force Braking: Using an Electrical Induced Current to Stop an Object

Hinal Rathi 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Alamosa High School Alamosa
Love- Hate Bond Amongst Tubers and Elements

Blake Filkins & Alyssa Pedri 11th grade
 certificate, scholarship valued as the equivalent to one-year
 resident tuition and fees (approximately \$5,000)
 Primero School Weston
Wireless Robotics

Colorado School of Mines Colorado School of Mines Scholarship

Rachel Rossi 11th grade
 \$1,000 CSM scholarship, renewable for up to 3 additional
 years for use towards an undergraduate degree
 Durango High School Durango
Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi

Appendix 2

Nurul MohdReza \$1,000 CSM scholarship, renewable for up to 3 additional years for use towards an undergraduate degree Union Colony Preparatory School <i>Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell</i>	11th grade Greeley	Rachel Rossi \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Durango High School <i>Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi</i>	11th grade Durango
Alanna Chacon \$1,000 CSM scholarship, renewable for up to 3 additional years for use towards an undergraduate degree Center High School <i>Arsenic Contaminated Water: How Can Concentration Levels Be Lowered to Promote Safe Human Consumption?</i>	11th grade Center	Cole Hugelmeyer \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Boulder High School <i>Discretization of Infinite Dimensional Geodesics</i>	12th grade Boulder
Kevin Garcia \$1,000 CSM scholarship, renewable for up to 3 additional years for use towards an undergraduate degree Center High School <i>Field Force Braking: Using a Electrical Induced Current to Stop an Object</i>	11th grade Center	Shelly Steinert \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Sargent High School <i>Polymerase Chain Reaction Analysis on Gene GLI3, Causing Polydactyly in 3 DNA Generations</i>	9th grade Monte Vista
Colorado State University <i>Colorado State University Scholarship</i>		Logan Collins \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Fairview High School <i>Testing Artificial Genes Designed to Inhibit the Growth of E. coli As an Alternative to Traditional Antibiotics</i>	10th grade Boulder
Montana Cook \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Walsh Jr/Sr High School <i>Artificial Insemination: Comparing Methods of Thawing Bull Semen</i>	9th grade Walsh	Ilse Meiler \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Peak to Peak Charter School <i>CSI: Liquid Lie</i>	9th grade Lafayette
Audra Burke & Jason Mackay \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Edison High School <i>Half Full or Half Empty: A Study of the Overall Effects of Optimism & Pessimism on Group Performance</i>	11th grade Yoder	Hinal Rathi \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Alamosa High School <i>Love- Hate Bond Amongst Tubers and Elements</i>	11th grade Alamosa
Colorado State University College of Natural Sciences <i>Colorado State University</i> <i>College of Natural Sciences Scholarship</i>		Cole Hugelmeyer \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Boulder High School <i>Discretization of Infinite Dimensional Geodesics</i>	12th grade Boulder
Elizabeth Walker \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Springfield High School <i>Easy as Pie: Testing the Viscosity of Starch at Different Temperatures</i>	10th grade Springfield	Easton LaChappelle \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Mancos High School <i>Fine Motor Skills Using Neural Activated Biomechanical Prosthesis</i>	11th grade Mancos
Brisha Wakasugi \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Alamosa High School <i>The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera</i>	12th grade Alamosa	Logan Collins \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Fairview High School <i>Testing Artificial Genes Designed to Inhibit the Growth of E. coli As an Alternative to Traditional Antibiotics</i>	10th grade Boulder
Nurul MohdReza \$1,000 scholarship to attend CSU, renewable for up to 3 additional years Union Colony Preparatory School <i>Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell</i>	11th grade Greeley		

Appendix 2

Colorado State University-Pueblo

Colorado State University-Pueblo Scholarship

Cameron Crandall 12th grade
\$1,000 scholarship to attend Colorado State University, Pueblo
Brush High School Brush
The Solar Powered Stirling Engine

Stephen Parish 10th grade
\$1,000 scholarship to attend Colorado State University, Pueblo
Home School Colorado Springs
Seeing the Big Picture: A Target-Oriented Approach to Optimization

University of Colorado, Boulder

CU Boulder Scholarship

Lauren Foerster 8th grade
4-year \$500/year scholarship to attend CU Boulder
Blevins Middle School Fort Collins
Walking on Eggshells: Renewable Bio-composite

Matthew Hileman 9th grade
4-year \$500/year scholarship to attend CU Boulder
Classical Academy College Pathways Colorado Springs
Ion Propulsion: Electrostatic Thruster Design and Optimization for Space Applications

Kai Kloepfer 10th grade
4-year \$500/year scholarship to attend CU Boulder
Fairview High School Boulder
Biometric Electromechanical Firearm Safety

Nurul MohdReza 11th grade
4-year \$1,000/year scholarship to attend CU Boulder
Union Colony Preparatory School Greeley
Optimizing Energy Production through Wastewater Treatment: The Utilization of a Mediator-Less, Single Celled Microbial Fuel Cell

Rachel Rossi 11th grade
4-year \$1,000/year scholarship to attend CU Boulder
Durango High School Durango
Endocrine Disrupter Remediation in Water: Exploration of Mycoremediation Capabilities of Fungi

Hope Weinstein 11th grade
4-year \$1,000/year scholarship to attend CU Boulder
Fairview High School Boulder
Zero Valent Iron Nanoparticle Embedded Polyethersulfone Membranes for Water Filtration and Remediation

Easton LaChappelle 11th grade
4-year \$1,000/year scholarship to attend CU Boulder
Mancos High School Mancos
Fine Motor Skills Using Neural Activated Biomechanical Prosthesis

Sydney Anderson 11th grade
4-year \$1,000/year scholarship to attend CU Boulder
Edison High School Yoder
Engineering Personal Protective Equipment to Detect Dangerous Levels of Carbon Monoxide

Intel Foundation

Ryan Patterson Scholarship

Brisha Wakasugi 12th grade
\$2,000 scholarship to a school of the student's choosing
Alamosa High School Alamosa
The Minnie Lynch: A Comparative Study in the Affects of Parent Material on Water Quality in Ephemera

SSP

American Psychological Association

Outstanding Research in Psychological Science Award

Taryn Book 9th grade
certificate
Genoa-Hugo School Hugo
Psycho-Cybernetics: Mental Imagery and Athletic Performance Connection

Association for Women Geoscientists

AWG Geoscience Excellence Award

Rebecca Bloomfield 8th grade
certificate
North Middle School Colorado Springs
A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation

Broadcom

Broadcom MASTERS Competition Nomination

Riley Meisner 7th grade
certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition
Sterling Middle School Sterling
Does Feeding Time Affect Lambing Time?

Alea Hardesty 8th grade
certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition
Buchanan Middle School Wray
Pep Up Your Brain

Peter Woodham 8th grade
certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition
Summit Charter Middle School Boulder
Molybdenum Disulfide as a Catalyst in Hydrogen Fuel Cells

Appendix 2

Rebecca Bloomfield certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition North Middle School <i>A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation</i>	8th grade Colorado Springs	Michelle Kummel certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition North Middle School <i>Cute, But in Control: Prairie Dogs and the Short-Grass Prairie</i>	7th grade Colorado Springs
Evan Savage certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Boulder Country Day School <i>Artificial Selection of Microalgae Using Heat Stress: Improving Algae Biodiesel</i>	8th grade Boulder	Miranda Coldren certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Kinard Core Knowledge Middle School <i>What Variables Affect Aggressive Behavior in Birds?</i>	7th grade Fort Collins
Daniel Culver certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Columbine Middle School <i>Improved Indoor Biomass Cook Stove</i>	8th grade Montrose	Emma Carter certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Boulder Country Day School <i>Cell Phone Safety</i>	6th grade Boulder
Hannah Fischer certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Sierra Grande Junior High School <i>Pharmaceutical and Personal Care Products (PPCP's): Understanding the Effects on Stream and Aquatic Life</i>	8th grade Fort Garland	Cameron Keel certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Summit Charter Middle School <i>Investigating Genetically Modified Foods</i>	8th grade Boulder
Alby Musaelian certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Stanley British Primary School <i>Up or Down: Investigating Decision Procedures</i>	8th grade Denver	Chloe Bleak certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Otis Jr/Sr High School <i>Effects of Crop Residue, Wind, Radiation, and Temperatures on Surface Soil Water Evaporation</i>	7th grade Otis
Ellie Mackintosh certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Good Shepherd Catholic School <i>Simply Mouthwatering</i>	8th grade Denver	Tal Sneh certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Summit Charter Middle School <i>Starch Polystyrene: The Bigger Bead the Better?</i>	8th grade Boulder
Max Popkin certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition North Middle School <i>The Effects of Pesticides and Vegetable Wash on Green Leaf Lettuce Bacterial Colonies</i>	8th grade Colorado Springs	Lauren Sommer certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition The Classical Academy <i>Would Newton Have Preferred a Non-Newtonian Bumper?</i>	7th grade Colorado Springs
Anton Milliken certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Corwin International Magnet School <i>How Do Fiber Optics Bend Light?</i>	6th grade Pueblo	Hari Sowrirajan certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition Cherry Creek Challenge School <i>Can Using Cyanobacteria Reduce CO₂ Emissions from Cars?</i>	7th grade Denver
		Cassandra Blew certificate, nomination to compete in the Broadcom MASTERS national middle school science & engineering fair competition La Veta Elementary School <i>A-Mazing-Robots</i>	6th grade La Veta

Appendix 2

Duncan Lester 8th grade
certificate, nomination to compete in the Broadcom MAS-
TERS national middle school science & engineering fair
competition
Summit Charter Middle School Boulder
Dim the Lights to Keep Food Nice

Brady Miller 7th grade
certificate, nomination to compete in the Broadcom MAS-
TERS national middle school science & engineering fair
competition
The Classical Academy Colorado Springs
Should You Share That Water?

Dylan Lucko 8th grade
certificate, nomination to compete in the Broadcom MAS-
TERS national middle school science & engineering fair
competition
St. John the Baptist School Longmont
Blow in' in the Ionic Wind

Callie Matteson & Ashley Vitti 7th grade
certificate, nomination to compete in the Broadcom MAS-
TERS national middle school science & engineering fair
competition
North Middle School Colorado Springs
*The Great Climate Debate: The Affects of Varying Tempera-
ture and CO₂ on Plant Growth*

Intel Corporation

Intel Excellence in Computer Science Award

Jessica Constant 12th grade
certificate, cash award (to be mailed)
Poudre High School Ft. Collins
*Computer Modeling VI: A Study Into Cloud Formation and
the Effects on Particulate Scavenging*

National High School & Two-Year College Mathematics Honor Society

Mu Alpha Theta Award

Cole Hugelmeyer 12th grade
certificate
Boulder High School Boulder
Discretization of Infinite Dimensional Geodesics

National Society of Professional Engineers

Innovative Engineering Award

Kai Kloepfer 10th grade
certificate, lapel pin, entry into National Innovative Engineer-
ing Award competition (\$1,000)
Fairview High School Boulder
Biometric Electromechanical Firearm Safety

Ricoh Americas Corporation

Ricoh Sustainability Development Award

Evan Savage 8th grade
certificate
Boulder Country Day School Boulder
*Artificial Selection of Microalgae Using Heat Stress: Improv-
ing Algae Biodiesel*

Society for In Vitro Biology

Outstanding Achievement for Ability and Creativity in In Vitro Biology Award

Rachel Rossi 11th grade
certificate
Durango High School Durango
*Endocrine Disrupter Remediation in Water: Exploration of
Mycoremediation Capabilities of Fungi*

United States Department of Commerce

Taking the Pulse of the Planet

Jessica Constant 12th grade
certificate, medallion
Poudre High School Ft. Collins
*Computer Modeling VI: A Study Into Cloud Formation and
the Effects on Particulate Scavenging*

United States Department of Health & Human Services

Surgeon General's Award

Ty Harrison 8th grade
certificate, medallion
Sargent Junior High School Monte Vista
What's Really on the Menu?

United States Metric Association

Best Use of the International System of Units Award

Hope Weinstein 11th grade
certificate
Fairview High School Boulder
*Zero Valent Iron Nanoparticle Embedded Polyethersulfone
Membranes for Water Filtration and Remediation*

Water Environment Federation

Stokholm Junior Water Prize

Hope Weinstein 11th grade
certificate, nomination to the state SJWP competition – entry
deadline is April 15th
Fairview High School Boulder
*Zero Valent Iron Nanoparticle Embedded Polyethersulfone
Membranes for Water Filtration and Remediation*

Rachel Rossi 11th grade
certificate, nomination to the state SJWP competition – entry
deadline is April 15th
Durango High School Durango
*Endocrine Disrupter Remediation in Water: Exploration of
Mycoremediation Capabilities of Fungi*

Appendix 2

Nurul MohdReza 11th grade
 certificate, nomination to the state SJWP competition – entry
 deadline is April 15th
 Union Colony Preparatory School Greeley
*Optimizing Energy Production through Wastewater Treat-
 ment: The Utilization of a Mediator-Less, Single Celled
 Microbial Fuel Cell*

Teacher

Lockheed Martin
CSEF Teacher of the Year Award

Candus Muir
 \$3,000 grant, plaque
 The Classical Academy Colorado Springs

Professional Association of Colorado Teachers
PACE Teacher Award

Lindsey Vincent
 mug, \$20 gift certificate
 Walsh Jr/Sr High School Walsh

Angela Golding
 mug, \$20 gift certificate
 Edison High School Yoder

Van Walker
 mug, \$20 gift certificate
 Springfield Jr/Sr High School Springfield

Judy Lopez
 mug, \$20 gift certificate
 Rio Grande Watershed Conservation District Center

Cathy Hoyt
 mug, \$20 gift certificate
 Union Colony Preparatory School Greeley

Kelly Finlay
 mug, \$20 gift certificate
 Mancos High School Mancos

Dr. Laura Duncan
 mug, \$20 gift certificate
 Boulder High School Boulder

Matt Relyea
 mug, \$20 gift certificate
 Sargent Jr/Sr High School Monte Vista

Dr. Paul Strode
 mug, \$20 gift certificate
 Fairview High School Boulder

Kurt Schaefer
 mug, \$20 gift certificate
 Peak to Peak Charter School Lafayette

Katie Montague
 mug, \$20 gift certificate
 Alamosa High School Alamosa

SparkFun Electronics
SparkFun's Thank You to Educators Award

Candus Muir
 certificate, scholarship to attend SparkFun's Summer Semester
 (5 day class valued at \$500)
 The Classical Academy Colorado Springs

Angela Golding
 certificate, scholarship to attend SparkFun's Microcontroller
 for Educators class (2 day class valued at \$250)
 Edison High School Yoder

Linda Niccoli
 certificate, scholarship to attend SparkFun's Microcontroller
 for Educators class (2 day class valued at \$250)
 Fleming High School Fleming

Terri Paulson
 certificate, scholarship to attend SparkFun's Microcontroller
 for Educators class (2 day class valued at \$250)
 Sargent Jr/Sr High School Monte Vista

Appendix 3
2012/2013 Expense Report
September 1, 2012 - August 31, 2013

Category Descriptions	Budget	Actual	Difference
INCOME			
Sponsorships	\$29,350.00	\$30,100.00	\$750.00
Contributions	\$3,675.00	\$2,406.84	(\$1,268.16)
General Income			
<i>Interest</i>	\$100.00	\$47.82	(\$52.18)
<i>Matching Gifts</i>	\$100.00	\$130.73	\$30.73
<i>RSF Outreach Funds</i>	\$7,500.00	\$14,500.00	\$7,000.00
<i>Sales</i>	\$1,500.00	\$1,145.00	(\$355.00)
<i>Scholarships/Special Awards</i>	\$4,030.00	\$4,875.00	\$845.00
<i>Teacher of the Year Award</i>	<u>\$3,000.00</u>	<u>\$3,000.00</u>	<u>\$0.00</u>
TOTAL General Income	\$16,230.00	\$23,698.55	\$7,468.55
Grants	\$10,000.00	\$4,500.00	(\$5,500.00)
In-Kind	\$19,000.00	\$10,464.83	(\$8,535.17)
Registrations	\$11,235.00	\$10,575.00	(\$660.00)
TOTAL INCOME	\$89,490.00	\$81,745.22	(\$7,744.78)
EXPENSES			
Awards			
Best of CSEF Awards	\$350.00	\$350.00	\$0.00
CSEF Special Awards	\$400.00	\$400.00	\$0.00
Grand Awards	\$9,000.00	\$8,975.00	\$25.00
Non-Cash Awards	\$2,700.00	\$2,518.06	\$181.94
Other Special Awards	<u>\$7,030.00</u>	<u>\$7,865.00</u>	<u>(\$835.00)</u>
TOTAL Awards	\$19,480.00	\$20,108.06	(\$628.06)
Board Expenses			
Communications	\$350.00	\$352.81	(\$2.81)
Meetings	\$1,675.00	\$777.38	\$897.62
Operations	<u>\$7,630.20</u>	<u>\$7,444.04</u>	<u>\$186.16</u>
TOTAL Board Expenses	\$9,655.20	\$8,574.23	\$1,080.97

Category Description	Appendix 3 Budget	Actual	Difference
ISEF			
Affiliation	\$650.00	\$650.00	\$0.00
Travel	<u>\$6,600.00</u>	<u>\$3,128.84</u>	<u>\$3,471.16</u>
TOTAL ISEF	\$7,250.00	\$3,778.84	\$3,471.16
Outreach	\$9,500.00	\$12,416.58	(\$2,916.58)
CSEF Expenses			
Adult Sponsors	\$350.00	\$716.49	(\$366.49)
Advisory Council	\$100.00	\$89.32	\$10.68
Finalist Activities	\$7,100.00	\$7,627.74	(\$527.74)
Finalist Registration	\$16,850.00	\$8,185.91	\$8,664.09
Fund Raising	\$100.00	\$85.18	\$14.82
Judging	\$5,065.00	\$4,877.97	\$187.03
Personnel	\$8,122.80	\$8,930.94	(\$808.14)
Publications	\$1,850.00	\$1,917.84	(\$67.84)
Regional Fair Directors	\$450.00	\$72.50	\$377.50
Scientific Review Committee	\$700.00	\$553.90	\$146.10
Supplies	\$750.00	\$1,961.61	(\$1,211.61)
Volunteers	<u>\$1,900.00</u>	<u>\$2,142.11</u>	<u>(\$242.11)</u>
TOTAL CSEF Expenses	\$43,337.80	\$37,161.51	\$6,176.29
TOTAL EXPENSES	\$89,223.00	\$82,039.22	\$7,183.78
OVERALL TOTAL	\$267.00	(\$294.00)	

