

# Colorado Science and Engineering Fair

For Colorado Students in Grades 6 - 12

Hosted by the Center for Science, Mathematics & Technology Education

April 9 - 11, 2009  
in the Lory Student Center  
at Colorado State University  
Fort Collins, Colorado

Colorado State Science Fair, Inc.

# 2009 ANNUAL REPORT



The highly successful Colorado Science and Engineering Fair was enabled once again by the infrastructure, coordination, and management resources provided by the Center for Science, Mathematics, and Technology Education (CSMATE) of Colorado State University. CSMATE 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 CSMATE 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, 2009  
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## 2009 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 two thousand students participate in science fair programs state-wide. The purpose of the CSEF is to stimulate student interest and encourage students in science and engineering through recognition of their research knowledge, ability and achievement.

Each year, a number of experiences are made available to the student finalists who participate in the CSEF. Tours of university and local corporate research facilities provide opportunities for students and their families to see research in action. Additionally, the judges' interviews allow the finalists a chance to interact with professional scientists and engineers. Over the

years, many students have said that having the chance to meet and speak with their peers about their science projects is the most beneficial aspect of the Colorado Science and Engineering Fair.

In addition to getting the opportunity to interact with working scientists, CSEF finalists compete for awards in the categories of Animal Sciences; Behavioral & Social Sciences; Chemistry; 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 two Senior Division individual projects and the top Senior Division team project are awarded trips to compete at the Intel International Science and Engineering Fair (Intel ISEF).

*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.*

## 2009 COLORADO SCIENCE AND ENGINEERING FAIR

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The fifty-fourth Colorado Science and Engineering Fair was held at the Lory Student Center on the Colorado State University campus on April 9 - 11, 2009.

This year, CSEF winners were chosen from among 279 projects represented by 308 finalists from 104 schools and 13 regions within the state. More than 120 professional scientists, engineers and mathematicians interviewed the students and evaluated their projects before selecting the Grand Award winners. In addition, over 60 businesses, professional societies, and government agencies provided more than 150 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 2009 Colorado Science and Engineering Fair had 25 sponsors. Sponsors included 9 Platinum Sponsors (providing over \$2,500 of support each), 7 Gold Sponsors (\$1,000 or more of support each), 1 Silver Sponsor (\$750 or more of support each) and 8 Regular Sponsors (\$500 or more of support each). In addition, there were 14 Financial Contributors (less than \$500 each). Also, several individuals donated through the Denver Combined Federal Campaign.

Scholarships from Adams State College, and Colorado School of Mines were also presented. Adams State College awarded fourteen one-year full scholarships for resident tuition and fees.

The Colorado School of Mines awarded eight four-year 25% resident tuition scholarships.

This year, the CSEF was honored to have guest speaker Colorado State Representative Randy Fischer.

Representative Randy Fischer is serving his second term in the state legislature where he represents House District 53. His district includes most of the west side of Fort Collins, including the main campus of Colorado State University and the Larimer campus of Front Range Community College. He serves as vice-chair of the House Agriculture, Livestock and Natural Resources Committee and is also a member of the House Transportation and Energy Committee. In 2008, Representative Fischer was elected by his caucus to be the Deputy Majority Whip in the State House of Representatives.

Representative Fischer is a third-generation Coloradan and has lived in Fort Collins his entire life. He and his wife, Kathy, have lived in the same home in House District 53 for over 35 years. Representative Fischer earned his BS degree in Natural Resources Management from Colorado State University in 1976. He went on to receive a Master's degree in Civil Engineering, also from CSU. For the past 20 years, Representative Fischer has worked as a consulting engineer specializing in the reclamation and remediation of abandoned mine sites throughout the US and around the world.

During his time in the Colorado legislature, Representative Fischer has focused on issues related to the long-term sustainability of Colorado's economy and environment, such as water supply and water quality, natural resource conservation, and renewable energy. He has also championed educational issues, including many current issues around early childhood, K-12 and higher education.

Representative Fischer and Kathy enjoy spending their time outdoors, growing a big garden each year, hiking, mountaineering and watching wildlife.

(See Appendix 1 – 2009 CSEF Schedule)

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## 2009 CSEF GENDER RATIOS

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With this Annual Report, the CSSF, Inc. will begin 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 of the Team Leader.)

### Percentage of Projects

Male – 46%  
Female – 46%

### Percentage of Awards

Male – 48%  
Female – 52%

### Percentage of Projects by Category

#### Animal Sciences

Male – 31%  
Female – 69%

#### Behavioral & Social Sciences

Male – 31%  
Female – 69%

#### Chemistry

Male – 48%  
Female – 52%

#### Earth & Space Sciences

Male – 17%  
Female – 83%

#### Energy & Transportation

Male – 50%  
Female – 50%

#### Engineering

Male – 86%  
Female – 14%

#### Environmental Sciences

Male – 47%  
Female – 53%

#### Mathematics & Computer Sciences

Male – 57%  
Female – 43%

#### Medicine & Health

Male – 32%  
Female – 68%

#### Microbiology

Male – 18%  
Female – 82%

#### Physics

Male – 76%  
Female – 24%

#### Plant Sciences

Male – 44%  
Female – 56%

### Percentage of Awards by Category

#### Animal Sciences

Male – 35%  
Female – 65%

#### Behavioral & Social Sciences

Male – 27%  
Female – 73%

#### Chemistry

Male – 44%  
Female – 56%

#### Earth & Space Sciences

Male – 24%  
Female – 76%

#### Energy & Transportation

Male – 57%  
Female – 43%

#### Engineering

Male – 78%  
Female – 22%

#### Environmental Sciences

Male – 60%  
Female – 40%

#### Mathematics & Computer Sciences

Male – 47%  
Female – 53%

#### Medicine & Health

Male – 23%  
Female – 77%

#### Microbiology

Male – 19%  
Female – 81%

#### Physics

Male – 65%  
Female – 35%

#### Plant Sciences

Male – 48%  
Female – 52%

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## 2009 CSEF ETHNICITY RATIOS

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

### Percentage of Projects

Caucasian – 76%  
Hispanic – 8%  
Asian – 5%  
African American – 1%  
Other/Unknown – 10%

### Percentage of Awards

Caucasian – 77%  
Hispanic – 7%  
Asian – 6%  
African American – 1%  
Other/Unknown – 9%

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## 2009 CSEF GRADE LEVEL RATIOS

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

### Percentage of Students

Junior Division – 54%  
6<sup>th</sup> grade – 10%  
7<sup>th</sup> grade – 18%  
8<sup>th</sup> grade – 26%  
Senior Division – 46%  
9<sup>th</sup> grade – 11%  
10<sup>th</sup> grade – 14%  
11<sup>th</sup> grade – 10%  
12<sup>th</sup> grade – 11%

### Percentage of Projects

Junior Division – 57%  
6<sup>th</sup> grade – 11%  
7<sup>th</sup> grade – 19%  
8<sup>th</sup> grade – 27%  
Senior Division – 43%  
9<sup>th</sup> grade – 10%  
10<sup>th</sup> grade – 13%  
11<sup>th</sup> grade – 9%  
12<sup>th</sup> grade – 11%

### Percentage of Grand Awards per Division

Junior Division  
6<sup>th</sup> grade – 12%  
7<sup>th</sup> grade – 24 %  
8<sup>th</sup> grade – 64%  
Senior Division  
9<sup>th</sup> grade – 24%  
10<sup>th</sup> grade – 24%  
11<sup>th</sup> grade – 19%  
12<sup>th</sup> grade – 33%

### % of Students Winning Grand Awards

Junior Division – 42%  
6<sup>th</sup> grade – 29%  
7<sup>th</sup> grade – 32%  
8<sup>th</sup> grade – 54%  
Senior Division – 48%  
9<sup>th</sup> grade – 48%  
10<sup>th</sup> grade – 38%  
11<sup>th</sup> grade – 44%  
12<sup>th</sup> grade – 65%

### Percentage of Special Awards

Junior Division – 47%  
6<sup>th</sup> grade – 9%  
7<sup>th</sup> grade – 12%  
8<sup>th</sup> grade – 26%  
Senior Division – 53%  
9<sup>th</sup> grade – 9%  
10<sup>th</sup> grade – 15%  
11<sup>th</sup> grade – 16%  
12<sup>th</sup> grade – 13%

### % of Students Winning Special Awards

Junior Division – 46%  
6<sup>th</sup> grade – 48%  
7<sup>th</sup> grade – 43%  
8<sup>th</sup> grade – 47%  
Senior Division – 59%  
9<sup>th</sup> grade – 45%  
10<sup>th</sup> grade – 74%  
11<sup>th</sup> grade – 69%  
12<sup>th</sup> grade – 44%

## 2009 COLORADO SCIENCE AND ENGINEERING FAIR TOP AWARDS

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The top Senior Division individual project exhibitor of the 54<sup>th</sup> Colorado Science and Engineering Fair and winner of an all-expense paid trip to compete in the Intel International Science and Engineering Fair (Intel ISEF) was **David Wu**, Cherry Creek High School, Greenwood Village, grade 12, for the project *Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications*. Second place for best individual project, and also a winner of an all-expense paid trip to compete at the Intel ISEF was **Kelli Lynch**, Blevins Junior High School, Fort Collins, grade 9, for the project *Irradiation Extermination*. Awarded third place for best individual project was **Sarah Guthrie**, Boulder High School, Boulder, grade 12, for the project *Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans*. The first place Senior Division team project and winners of an all-expense paid trip to compete in the Intel ISEF were **Lorne Muir II** and **Nathan Weeks**, The Classical Academy, Colorado Springs, grade 9, for the project *The Effectiveness of Carbon Water Filters on E. coli and Pharmaceuticals*.

The winner of the Ralph F. Desch Memorial Technical Writing Award was **Sarah Guthrie**, Boulder High School, Boulder, grade 12, for the project *Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans*.

The winner of the Senior Division Student Choice Award was **Krista Garchar** and **Stephanie Williams**, Dolores High School, Dolores, grade 10, for the project *Can Carnations Smell Like Dead People? As a Trained K9*. The Junior Division Student Choice winner was **Kaley Kukus**, Woodlin School, Woodrow, grade 8, for the project *Art and Nature: It All Adds Up*.

The winner of the Poster Art Contest was **Kenna Brown**, East Middle School, Grand Junction.

The winner of the Lockheed Martin CSEF Teacher of the Year Award was **Dena Palser** of Lone Star School, Otis. Ms. Palser received a \$3,000 grant to use towards scientific research in her classroom and school.

The winners of the Pioneers of Science Awards were **Reilly Hilbert**, Blessed Sacrament Catholic School, Denver, grade 7; **Katelynn Lippitt**, Wiggins Middle School, Wiggins, grade 8; **Julia Siegel**, Herzel Rocky Mountain Hebrew Academy, Denver, grade 7; **Emma Reece**, North Middle School, Colorado Springs, grade 6; **Anthony Clark**, Eagle County Charter Academy, Edwards, grade 6; **Haley Foster**, The Classical Academy, Colorado Springs, grade 7; **Jordan Bushnell**, Irving Middle School, Colorado Springs, grade 7; **Lexi Thompson**, Otis Jr/Sr High School, Otis, grade 8; **Melissa Poet**, Arriba-Flagler School, Flagler, grade 8; **Alexandre Basagotia**, Sargent Jr/Sr High School, Monte Vista, grade 7; **Patrick Telck**, Mountain View Core Knowledge School, Canon City, grade 6; **Henry Kamp**, Denver School of the Arts and Sciences, Denver, grade 7; **Joel Lopez**, Woodlin School, Woodrow, grade 8; **Caleb Wright**, Yuma Middle School, Yuma, grade 7; **Tyler Meyer**, Mt. Garfield Middle School, Clifton, grade 7; **Dominic Carrese**, North Middle School, Colorado Springs, grade 6; **Hunter Sneller**, Lincoln Elementary School, Lamar, grade 6; **MacKenzie Renzelman**, Buchanan Middle School, Wray, grade 8; **Austin Zuniga**, Roncalli Middle School, Pueblo, grade 6; **Mackenzey Becker**, Monte Vista Middle School, Monte Vista, grade 7; **Andrew Perry**, Otis Jr/Sr High School, grade 8; **Wyatt Vick**, Genoa-Hugo School, Hugo, grade 6; **Aidan Mike**, North Middle School, Colorado Springs, grade 7; **Ashley Snyder**, Lincoln Elementary School, Lamar, grade 6; and **Josiah Higgins**, Genoa-Hugo School, Hugo, grade 7.

# 2009 COLORADO SCIENCE AND ENGINEERING FAIR

## SCHOLARSHIP AWARDS

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### ADAMS STATE COLLEGE

**Nakayla Lestina**, Dove Creek High School, Dove Creek, grade 9, for the project *Biological Control of Canada Thistle – Phase 3: Testing Local Crops for Damage by Canada Thistle Insects*

**Joshua Garcia**, Monte Vista High School, Monte Vista, grade 10, for the project *Brain Age: Conditioning the Human Brain in Minutes a Day!*

**Ashlynn Miller**, Lone Star School, Otis, grade 10, for the project *Investigating the Effects of Tissue Decay on the Underlying Soil Chemistry*

**Jerrica Cherry**, Springfield Jr/Sr High School, Springfield, grade 10, for the project *Feeling the Heat?*

**Christy Farnsworth**, Paonia Jr/Sr High School, Paonia, grade 11, for the project, *Electrifying the World, One Loop at a Time*

**Kelci Garcia**, Antonito Jr/Sr High School, Antonito, grade 10, for the project *Parabolic Solar Desalination for the Developing World*

**Samantha Enszt**, Hi-Plain Jr/Sr High School, Seibert, grade 10, for the project *Preventing Pollutants*

**Bethany Dilda**, Branson School, Branson, grade 11, for the project *The Golden Ratio: An Exploration of the Prevalence of Phi*

**Sage Thompson**, Walsh Jr/Sr High School, Walsh, grade 10, for the project *Warning! Consume at Your Own Risk*

**Jessie Haugen**, Sargent Jr/Sr High School, Monte Vista, grade 12, for the project *Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm*

**Donald Dutro**, Genoa-Hugo School, Hugo, grade 12, for the project *Identifying the Properties of Constructive and Destructive Interference*

**Haydn Christensen**, Sargent Jr/Sr High School, Monte Vista, grade 12, for the project *Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient*

**Antonia Lira**, grade 11 and **Susana Lira** grade 9, Lamar High School, Lamar, for their project *Analyzing High Energy Cosmic Rays*

### COLORADO SCHOOL OF MINES

**Emily Schnoor**, Sargent Jr/Sr High School, Monte Vista, grade 11, for the project *Catching the Electric Current*

**Caleb Kruse**, Home Schooled, Colorado Springs, grade 11, for the project *Researching Calcification and the Effects of Ocean Acidification on Marine Algae*

**Christy Farnsworth**, Paonia Jr/Sr High School, Paonia, grade 11, for the project *Electrifying the World, One Loop at a Time*

**Jesse Ellison**, Bayfield High School, Bayfield, grade 11, for the project *Plasma Propulsion III*

**William Leigh** and **Mark Seres**, Cherry Creek High School, Greenwood Village, grade 11, for the project *Phytoplankton and DMS: A Study of Environmental Alteration*

**Christopher Krause**, The Classical Academy, Colorado Springs, grade 11, for the project *Variograms: Forewarning Disaster*

**Antonia Lira**, Lamar High School, Lamar, grade 11, for the project *Analyzing High Energy Cosmic Rays*

### RYAN PATTERSON SCHOLARSHIP

The Ryan Patterson Scholarship is in honor of the Intel ISEF top winner of 2001. The 2009 winner was **Haydn Christensen**, Sargent Jr/Sr High School, Monte Vista, grade 12, for the project *Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient*.

### Medicine & Health Scholarship

**Jessie Haugen**, Sargent Jr/Sr High School, Monte Vista, grade 12, for the project *Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm*

### Moving Science Forward Scholarship

**David Wu**, Cherry Creek High School, Greenwood Village, grade 12, for the project *Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications*

**Kelli Lynch**, Blevins Junior High School, Fort Collins, grade 9, for the project *Irradiation Extermination*

(See Appendix 2 – CSEF Press Release)

## 2009 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 more than 50 countries to share ideas, showcase cutting-edge science and compete for over \$4 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 60 years by Society for Science & the Public (formerly Science Service) 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 60<sup>th</sup> Intel ISEF held in Reno, NV, May 10 – 15, 2009.

### GRAND AWARDS

**Katlin Hornig** from Alamosa, CO won \$3,000 (1<sup>st</sup> Place) in Behavioral & Social Sciences.

**Jesse Ellison** from Bayfield, CO won \$1,500 (2<sup>nd</sup> Place) in Electrical & Mechanical Engineering.

**Connie Liu** from Aurora, CO won \$1,500 (3<sup>rd</sup> Place) in Cellular & Molecular Biology.

**David Wu** from Aurora, CO won \$1,500 (3<sup>rd</sup> Place) in Energy & Transportation.

**Kelli Lynch** from Fort Collins, CO won \$1,000 (3<sup>rd</sup> Place) in Microbiology

**Ethan Hahn** from Colorado Springs, CO won \$1,000 (3<sup>rd</sup> Place) in Engineering: Materials & Bioengineering.

**Tonya Pavlenko & Laura Gudvangen** from Colorado Springs, CO won \$1,000 (3<sup>rd</sup> Place) in the Team Category.

**Tanya Petach** from Boulder, CO won \$500 (4<sup>th</sup> Place) in Earth & Planetary Sciences.

**Cole Kembel** from Brush, CO won \$500 (4<sup>th</sup> Place) in Electrical & Mechanical Engineering.

**Forrest Pieper & Matthew Bull** from Nederland, CO won \$500 (4<sup>th</sup> Place) in the Team Category.

### SPECIAL AND Government AWARDS

**Katlin Hornig** from Alamosa, CO won an \$8,000 scholarship from the Office of Naval Research on behalf of the US Navy and Marine Corps.

**Tanya Petach** from Boulder, CO won an \$8,000 scholarship from the Office of Naval Research on behalf of the US Navy and Marine Corps.

**Jesse Ellison** from Bayfield, CO won \$3,000 (1<sup>st</sup> Place) from the United States Air Force.

**Aarthi Shankar** from Colorado Springs, CO won \$1,500 (2<sup>nd</sup> Place) from the United States Air Force.

**Kelli Lynch** from Fort Collins, CO won \$250 (5<sup>th</sup> Place) and a one-year subscription to Microbe from the American Society for Microbiology.





## ORGANIZATION

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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

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*Colorado State Science Fair, Inc. honors excellence in science, engineering, and technology; 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

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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

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### **PLATINUM SPONSORS**

(Providing over \$2,500 in support of CSEF)

Colorado Dental Association

Colorado State University – Center for Science, Mathematics & Technology Education

Colorado State University – Office of the Provost/Senior Vice President

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### **SILVER SPONSORS**

(Providing \$750 - \$1,000 in support of CSEF)

IEEE Denver Section

### **REGULAR SPONSORS**

(Providing \$500 - \$750 in support of CSEF)

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San Luis Valley Regional Science Fair, Inc.

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### **CONTRIBUTORS**

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

Colorado Geological Survey

IEEE Centennial Subsection – Fort Collins

King Soopers

Kristi Mountain Sports

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Villa Pizza & Butler Pizza Company

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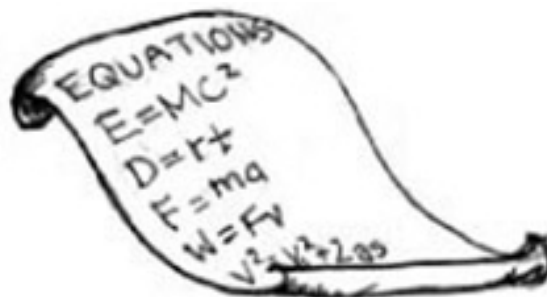
David & Vonda Holm

Robert Lamperuer

Dr. Robert Morrow

Radford Walker

Many federal employees also contributed through the Combined Federal Campaign



## CSEF ADVISORY COUNCIL

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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

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Regular Member since 2002

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*Western Regional Science Fair*  
Sandy Cruz and Stephanie Matlock-Cooley

## MEMBERS AT LARGE

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David Clark	Doug Everett
Nancy Gettman	Beth Ingram
Steve Iona	Charles Johnson
Ron Kollars	John McConnell
Beverly Meier	Kim Melville-Smith
Candus Muir	David Pfuhl
Judy Prester	Rod Simpson
Jim Sites	Doug Steward
Laura Ussery	Dan Van Gorp
Amber Wolf	

## 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

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### 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.





## 2009 Colorado Science and Engineering Fair Grand Awards Press Release

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### Junior Division Best Individual Project

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**First Place**

Sara Volz 8th grade  
*Making Biodiesel Greener*  
 Cheyenne Mountain Charter Academy Colorado Springs

**Second Place**

Casey Campbell 8th grade  
*Phytoremediation of Coal Bed Methane Produced Water*  
 La Veta Jr/Sr High School La Veta

**Third Place**

Wyatt Palser 8th grade  
*To Spin or Not to Spin: An Investigation of Fishing Lure Design*  
 Otis Jr/Sr High School Otis

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### Senior Division Best Individual Project

---

**First Place**

David Wu 12th grade  
*Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications*  
 Cherry Creek High School Greenwood Village

**Second Place**

Kelli Lynch 9th grade  
*Irradiation Extermination*  
 Blevins Junior High School Fort Collins

**Third Place**

Sarah Guthrie 12th grade  
*Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans*  
 Boulder High School Boulder

---

### Junior Division Best Team Project

---

**First Place**

Erin McLaughlin & Jessie McLaughlin 7th grade  
*The Seawall Solution*  
 Sacred Heart of Jesus School Boulder

**Second Place**

Allison Gudvangen & Claire Derr 8th grade  
*Toxic Waves*  
 North Middle School Colorado Springs

**Third Place**

Ryan Johnston & Maeva Allsup 8th grade  
*The Scent of Blood*  
 Dolores Middle School Dolores

**Honorable Mention**

Damien Ruybal & Brady Copeland 8th grade  
*Fruit: The Greener Cleaner*  
 Pueblo School for the Arts and Pueblo

---

### Senior Division Best Team Project

---

**First Place**

Lorne Muir II & Nathan Weeks 9th grade  
*The Effectiveness of Carbon Water Filters on E. coli and Pharmaceuticals*  
 The Classical Academy Colorado Springs

**Second Place**

Tonya Pavlenko & Laura Gudvangen 10th grade  
*The Internal Battle With Melanoma: Triggering an Immune Response Using Toll Ligands*  
 Palmer High School Colorado Springs

**Third Place**

William Leigh & Mark Seres 11th grade  
*Phytoplankton and DMS: A Study of Environmental Alteration*  
 Cherry Creek High School Greenwood Village

**Honorable Mention**

Ben Smith, Kasey Miles & Kyle Tallent 9th grade  
*Presenting the Champion or Maybe Not*  
 Hotchkiss High School Hotchkiss

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### Junior Division Animal Sciences

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**First Place**

Randi Timmons 8th grade  
*Giddy-Up Glucose*  
 Walsh Jr/Sr High School Walsh

**Second Place**

Trey Nestor 7th grade  
*Swimming With Ease Could Make You Wheeze The Effect Of Chlorine On The Respiratory System*  
 Merino Jr/Sr High School Merino

**Third Place**

Chandler Kolb 8th grade  
*My Horse's Ultimate Exercise: Dressage vs. Recovery Time*  
 Challenger Middle School Colorado Springs

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### Senior Division Animal Sciences

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**First Place**

Nakayla Lestina 9th grade  
*Biological Control of Canada Thistle-Phase 3: Testing Local Crops for Damage by Canada Thistle*  
 Dove Creek High School Dove Creek

**Second Place**

Michael Johnson 10th grade  
*Different Hunting Seasons and Their Effects on Deer and Elk Population*  
 Canon City High School Canon City

## Appendix 2

### Third Place

Abby Ney 9th grade  
*Moo...Gration*  
 Blevins Junior High School Fort Collins

### Team Nomination

Ben Smith, Kasey Miles & Kyle Tallent 9th grade  
*Presenting the Champion or Maybe Not*  
 Hotchkiss High School Hotchkiss

### Team Nomination

Charlie Smith & Jennifer Vero 12th grade  
*Need a Compass? Find a Horse*  
 Nederland Middle/Senior High School Nederland

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### Junior Division Behavioral & Social Sciences

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#### First Place

Taylor Phelps 8th grade  
*Now You See It Now You Don't*  
 The Classical Academy Colorado Springs

#### Second Place

Meghan Shanahan 8th grade  
*That Dam Rat*  
 Monte Vista Middle School Monte Vista

#### Third Place

Julia Siegel 7th grade  
*The Confusion of the Rainbow*  
 Herzel Rocky Mountain Hebrew Academy Denver

#### Honorable Mention

Carissa Harlow 6th grade  
*Call It Disaster: Cell Phone Use During Simulated Driving*  
 Mountain View Core Knowledge Canon City

#### Honorable Mention

Nick Fallentine 7th grade  
*Gone in 30 Seconds*  
 The Classical Academy Colorado Springs

#### Honorable Mention

Michael Seltzer 8th grade  
*Don't Think and Drive!*  
 Summit Middle School Boulder

#### Honorable Mention

Kristiana Longfield 7th grade  
*The Effects of Television on Children's Choices*  
 Hotchkiss K-8 School Hotchkiss

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### Senior Division Behavioral & Social Sciences

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#### First Place

Katlin Hornig 12th grade  
*The Effects of Equine Association on the Initial Beneficiary Benefactor*  
 Sargent Jr/Sr High School Monte Vista

### Second Place

Raylene Larson 12th grade  
*Stressed Out? The Effects of Extra Curricular Activities on the Corisol Levels of Teens*  
 Fleming High School Fleming

### Third Place

Emily Owens 10th grade  
*Sleep-Deprivation Won't Make You a Dope*  
 Merino Jr/Sr High School Merino

### Honorable Mention

Brynna Hasvold-Rickett 9th grade  
*Personality and Politics: Is There A Correlation Between Personality and Political Affiliation?*  
 Blevins Junior High School Fort Collins

### Honorable Mention

Alana Wilbee 10th grade  
*Do You See What I See?*  
 Palmer High School Colorado Springs

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### Junior Division Chemistry

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#### First Place

Belinda Pak 8th grade  
*Naturally Spotless*  
 Summit Middle School Boulder

#### Second Place

Tanner Dunivan 8th grade  
*Hazardous Herbicides*  
 Walsh Jr/Sr High School Walsh

#### Third Place

Gerri Roberts 8th grade  
*A Model Study of Drug Intake*  
 Turner Middle School Berthoud

#### Honorable Mention

Sophie Wright 8th grade  
*C What Happens to Your Vitamin C*  
 Stanley British Primary School Denver

#### Honorable Mention

Kole Van Treese 8th grade  
*A "Well" of A Problem*  
 Sargent Jr/Sr High School Monte Vista

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### Senior Division Chemistry

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#### First Place

Alan Bromwell 12th grade  
*An Alternative Application of the Sabatier Process for More Sustainable Transit*  
 Cherry Creek High School Greenwood Village

#### Second Place

Benjamin Hoffman 12th grade  
*Synthesis of 4-Bromo-2,2'-Bipyridine*  
 Fairview High School Boulder



## Appendix 2

### Third Place

Emily Schnoor 11th grade  
*Catching the Electric Current*  
 Sargent Jr/Sr High School Monte Vista

### Honorable Mention

Travis Zuniga 10th grade  
*Analysis of Fuel Composition by Gas Chromatography/  
 Mass Spectrometry (GC/MS)*  
 South High School Pueblo

### Junior Division Earth & Space Sciences

#### First Place

Linda Kolb 8th grade  
*Soaking It Up Soil Style*  
 Sargent Jr/Sr High School Monte Vista

#### Second Place

Sophia Schneider 7th grade  
*Neutralization Investigation: Battery Chemicals in  
 Landfills*  
 North Middle School Colorado Springs

#### Third Place

Taylor Volesky 7th grade  
*Acid Rain Effects on Cave Formation*  
 Cherry Creek Challenge School Denver

### Senior Division Earth & Space Sciences

#### First Place

Tanya Petach 10th grade  
*Mitigation of Soil Liquefaction with Magnetic Fields*  
 Fairview High School Boulder

#### Second Place

Sean Buck 12th grade  
*Reconstructing Paleoecosystems: Community Structure  
 Throughout the EECO*  
 Cherry Creek High School Greenwood Village

#### Third Place

Johanna Phillips 9th grade  
*Infested Forests and Evapotranspiration*  
 Monte Vista High School Monte Vista

#### Honorable Mention

Lisa Kant 12th grade  
*Soil Biogeochemical Development of the Mendenhall  
 Glacier Forelands*  
 Boulder High School Boulder

### Junior Division Energy & Transportation

#### First Place

Sara Volz 8th grade  
*Making Biodiesel Greener*  
 Cheyenne Mountain Charter Academy Colorado Springs

### Second Place

Grant Yowell 7th grade  
*Go Green with Thermal Energy*  
 Genoa-Hugo School Hugo

### Third Place

Drew Auburger 8th grade  
*H2O MPG: Does a Homemade Hydrogen Electrolyzer  
 Really Improve Fuel Mileage?*  
 Springfield Jr/Sr High School Springfield

### Senior Division Energy & Transportation

#### First Place

Stacey Lyne 12th grade  
*Improved Efficiency of Microbial Fuel Cells*  
 Brush High School Brush

#### Second Place

Grant Slinger 12th grade  
*H2O - Water or Fuel?*  
 Stratton High School Stratton

#### Third Place

Raleigh Burt 11th grade  
*Optimizing Energy Extraction and Water Conservation  
 of Geothermal Heating Systems*  
 Sargent Jr/Sr High School Monte Vista

#### Honorable Mention

Abbi Helfer 9th grade  
*Sun-Sational Solar*  
 Palmer High School Colorado Springs

### Junior Division Engineering

#### First Place

Wyatt Palser 8th grade  
*To Spin or Not to Spin: An Investigation of Fishing Lure  
 Design*  
 Otis Jr/Sr High School Otis

#### Second Place

Rachel Purswell 7th grade  
*Get a Grip*  
 The Classical Academy Colorado Springs

#### Third Place

Samir Berrada 6th grade  
*The Laser Car*  
 Cortez Middle School Cortez

#### Honorable Mention

Kenna Brown 8th grade  
*Safest Skyscraper Foundations*  
 East Middle School Grand Junction

#### Honorable Mention

Zachary Schoenherr 7th grade  
*How Does Your Spaghetti Hold Up?*  
 Weld Central Junior High School Keenesburg

## Appendix 2

### Honorable Mention

Zane Willburn 8th grade  
*Water Purification Off The Grid, Phase II*  
 Mancos Middle School Mancos

### Team Nomination

Erin McLaughlin & Jessie McLaughlin 7th grade  
*The Seawall Solution*  
 Sacred Heart of Jesus School Boulder

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### Senior Division Engineering

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#### First Place

Ethan Hahn 11th grade  
*Design and Construction of a Silent Magneto-hydrodynamic Propulsion System*  
 The Classical Academy Colorado Springs

#### Second Place

Jesse Ellison 11th grade  
*Plasma Propulsion III*  
 Bayfield High School Bayfield

#### Third Place

Ambrose Soehn 10th grade  
*Analyzing the Material "Fingerprint": The Relationship of Fundamental Frequency to Young's Modulus*  
 Boulder High School Boulder

#### Honorable Mention

Kelci Garcia 10th grade  
*Parabolic Solar Desalination for the Developing World*  
 Antonito Jr/Sr High School Antonito

#### Honorable Mention

Kyle Myhra 11th grade  
*Spotsucker Cleaning System*  
 Broomfield High School Broomfield

#### Honorable Mention

Cole Kembel 12th grade  
*Motion Sensored Controls: Advancement In A Higher Application*  
 Brush High School Brush

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### Junior Division Environmental Sciences

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#### First Place

Casey Campbell 8th grade  
*Phytoremediation of Coal Bed Methane Produced Water*  
 La Veta Jr/Sr High School La Veta

#### Second Place

Sydney Matteson 6th grade  
*Heads or Tails? The Effects of Antibiotics in Stream Water on Planaria Regeneration*  
 North Middle School Colorado Springs

#### Third Place

Sabine Lindler 6th grade  
*Natural Materials for Insulation vs. Fiberglass*  
 Miller Middle School Durango

### Honorable Mention

Logan Graham 6th grade  
*The Effects of Magnesium Chloride Road De-icer on Plants*  
 Miller Middle School Durango

### Honorable Mention

Ryan Tustin 7th grade  
*Waste Not! Watt Not!*  
 The Classical Academy Colorado Springs

### Honorable Mention

Joel Lopez 8th grade  
*It's A Dirty Job*  
 Woodlin School Woodrow

### Honorable Mention

Melissa Poet 8th grade  
*Feces to Fuel*  
 Arriba-Flagler School Flagler

### Honorable Mention

Amanda Coopersmith 8th grade  
*Snug as a Bug: Green Insulation*  
 Cherry Creek Challenge School Denver

### Team Nomination

Damien Ruybal & Brady Copeland 8th grade  
*Fruit: The Greener Cleaner*  
 Pueblo School for the Arts and Pueblo

### Team Nomination

Allison Gudvangen & Claire Derr 8th grade  
 Claire Derr 8th grade  
*Toxic Waves*  
 North Middle School Colorado Springs

---

### Senior Division Environmental Sciences

---

#### First Place

David Wu 12th grade  
*Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications*  
 Cherry Creek High School Greenwood Village

#### Second Place

Jeffrey Hibbert 10th grade  
*Quantitative Assay of Environmental Cs-137 in Oncorhynchus clarki pleuriticus and Oncorhynchus mykiss Muscle Tissue and Soil From Fallout in a Mountain Environment*  
 Lone Star School Otis

#### Third Place

Erik Schnaderbeck 10th grade  
*The Effect of Reservoir on the Biodiversity of Aquatic Invertebrates in Cold Water Fisheries*  
 Sargent Jr/Sr High School Monte Vista

## Appendix 2

### Honorable Mention

Molly Graber 9th grade  
*Manufactured Monster: Antibiotic Resistance in the Water of Colorado Springs*  
 Palmer High School Colorado Springs

### Honorable Mention

Alan Seltzer 11th grade  
*Carbon Sinks to Carbon Sources: A Soil Analysis of the Colorado Mountain Pine Beetle Infestation*  
 Fairview High School Boulder

### Team Nomination

William Leigh & Mark Seres 11th grade  
*Phytoplankton and DMS: A Study of Environmental Alteration*  
 Cherry Creek High School Greenwood Village

### Team Nomination

Lorne Muir II & Nathan Weeks 9th grade  
*The Effectiveness of Carbon Water Filters on E. coli and Pharmaceuticals*  
 The Classical Academy Colorado Springs

### Junior Division Math & Computer Sciences

#### First Place

Matthew Haney 8th grade  
*A Taste of Xcode: An Analysis of Security of the RSA Public-Key Encryption Algorithm*  
 American Academy Lone Tree

#### Second Place

Jessica Constant 8th grade  
*Your's, Mine and Our's II: A Further Study into Modeling the Spread of Pollutants in the Atmosphere*  
 Saint Joseph Catholic School Fort Collins

#### Third Place

Tucker Leavitt 8th grade  
*Predicting the Inferno*  
 Miller Middle School Durango

#### Honorable Mention

Kaley Kukus 8th grade  
*Art and Nature: It All Adds Up*  
 Woodlin School Woodrow

### Senior Division Math & Computer Sciences

#### First Place

Dominic Fuller-Rowell 12th grade  
*Dual Frequency GPS Accuracy with a Single Frequency Receiver*  
 Boulder High School Boulder

#### Second Place

Vikash Evans Hypio 9th grade  
*Voting Systems: An Outcome Analysis*  
 Hotchkiss High School Hotchkiss

### Third Place

Bethany Dilda 11th grade  
*The Golden Ratio: An Exploration of the Prevalence of Phi*  
 Branson School Branson

### Honorable Mention

Christopher Krause 11th grade  
*Variograms: Forewarning Disaster*  
 The Classical Academy Colorado Springs

### Junior Division Medicine & Health

#### First Place

Quint Mediate 8th grade  
*The Size Is Right: A Study in Food Servings*  
 The Classical Academy Colorado Springs

#### Second Place

Clay Patton 8th grade  
*Farm Fresh vs. Store Bought Eggs*  
 Genoa-Hugo School Hugo

#### Third Place

Mali Garrett-Mills 7th grade  
*The Effects of Various Liquids on Hydroxyapatite Calcium Tablets: An Inadequate Model for Tooth Decay*  
 Smiley Middle School Denver

#### Honorable Mention

Madison Dewey 7th grade  
*Polyvinyl Chloride, Polypropylene, Polystyrene - Pick your Poison?*  
 North Middle School Colorado Springs

### Senior Division Medicine & Health

#### First Place

Sarah Guthrie 12th grade  
*Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans*  
 Boulder High School Boulder

#### Second Place

Aarthi Shankar 11th grade  
*Proteomic Characterization of ECM to Identify Tumor Associated Biomolecules Part 2*  
 Rampart High School Colorado Springs

#### Third Place

Connie Liu 10th grade  
*Restoration of microRNA-200c: Effect on HEY Cancer Cell Behavior*  
 Cherry Creek High School Greenwood Village

#### Honorable Mention

Radhika Rawat 11th grade  
*Assaying Cellular Migration on A 2D Surface: A Comparative Approach to Cancer Metastasis*  
 Boulder High School Boulder

## Appendix 2

### Honorable Mention

Nathan Frantz 9th grade  
*A Depressing Diet? A Study of Food Additives and Clinical Depression*  
 Fleming High School Fleming

### Team Nomination

Tonya Pavlenko & Laura Gudvangen 10th grade  
*The Internal Battle With Melanoma: Triggering an Immune Response Using Toll Ligands*  
 Palmer High School Colorado Springs

### Junior Division Microbiology

#### First Place

Savannah Lyle 8th grade  
*Vitamin C: A Potential Treatment for Cold Sores?*  
 North Middle School Colorado Springs

#### Second Place

Jens Hybertson 8th grade  
*Modern Drugs from Ancient Medicine: Finding New Antibiotics in Native American Medicinal Plants*  
 Summit Middle School Boulder

#### Third Place

Dante Carter 7th grade  
*Your Kitchen Cleaners Might Kill E. coli But What Else Do They Kill?*  
 North Middle School Colorado Springs

### Honorable Mention

Rex Stowers 6th grade  
*Pure H<sub>2</sub>O: Will Solar Distillation Kill Bacteria?*  
 St. Columba School Durango

### Honorable Mention

Michelle Dworkin 8th grade  
*Antibacterial Soap vs. Regular Soap*  
 Blevins Junior High School Fort Collins

### Honorable Mention

Jennifer Jones 6th grade  
*Transfer of Bacteria from a Person to a Bottle of Water*  
 Hoff Elementary School Keenesburg

### Honorable Mention

Denvir Clarke 8th grade  
*Bacteria: What Products Kill the Most Bacteria?*  
 Bayfield Middle School Bayfield

### Honorable Mention

Avra Saslow 6th grade  
*Got Sour Milk?*  
 Miller Middle School Durango

### Honorable Mention

Malia Barca 6th grade  
*Water, Water, Everywhere, But Not a Drop to Drink: E. coli Dangers!*  
 Eagle County Charter Academy Edwards

### Senior Division Microbiology

#### First Place

Kelli Lynch 9th grade  
*Irradiation Extermination*  
 Blevins Junior High School Fort Collins

#### Second Place

Jessie Haugen 12th grade  
*Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm*  
 Sargent Jr/Sr High School Monte Vista

#### Third Place

Ryan Dewey 10th grade  
*Deadringing Copper: Amplifying the Bacteriicidal Properties of Copper and Cuprous Oxide*  
 Palmer High School Colorado Springs

### Junior Division Physics

#### First Place

Isabella Soehn 8th grade  
*Convection Cells: The Saline Effect*  
 Summit Middle School Boulder

#### Second Place

Srish Sharma 8th grade  
*An Investigation On How Applying Stress to a Fluid Effects the Fluids Ability to Disperse Force*  
 American Academy Lone Tree

#### Third Place

Kyle Harlow 8th grade  
*Hot Rods: Three Methods for Measuring the Expansion Coefficients of Metals*  
 Mountain View Core Knowledge Canon City

### Honorable Mention

Sydney Rohlwing 8th grade  
*Txt r' Tlk: A Comparison of the Electromagnetic Fields Produced by Cell Phones When Calling and Text Messaging*  
 American Academy Lone Tree

### Honorable Mention

Rachel Rossi 7th grade  
*Radio Wave Roundup*  
 Miller Middle School Durango

### Honorable Mention

Christopher Weyer 8th grade  
*"Higher" Performance Pinewood Car*  
 Creekside Middle School Monument

### Honorable Mention

John Cheslock 7th grade  
*Double Range With Double Counterweight*  
 Sargent Jr/Sr High School Monte Vista

Appendix 2

**Senior Division Physics**

<b>First Place</b>	
Layne Barrett	9th grade
<i>Wind Turbines And Bat Barotrauma</i>	
The Classical Academy	Colorado Springs
<b>Second Place</b>	
Isaac Brost	12th grade
<i>The Rotational Phenomenon of a Simple Wing</i>	
Brush High School	Brush
<b>Third Place</b>	
Donald Dutro	12th grade
<i>Identifying the Properties of Constructive and Destructive Interference</i>	
Genoa-Hugo School	Hugo
<b>Honorable Mention</b>	
Samuel Meaux	10th grade
<i>Pressure Induced Voltage Output in Piezoelectric Crystals</i>	
Faith Christian Academy	Arvada
<b>Honorable Mention</b>	
Shelby Messer	11th grade
<i>"That Sounds Suppressing" The Study of Acoustic Fire Suppression</i>	
Genoa-Hugo School	Hugo

**Junior Division Plant Sciences**

<b>First Place</b>	
Haley Matteson	7th grade
<i>HOT PLANTS: The Effects of Global Warming on Development of Plants, Blossoms, Seeds, and Seed</i>	
North Middle School	Colorado Springs
<b>Second Place</b>	
Beth Lenz	8th grade
<i>Does Carbon Dioxide Effect Zea mays and Phaseolus vulgaris Growth?</i>	
Buchanan Middle School	Wray
<b>Third Place</b>	
Brisha Wakasugi	8th grade
<i>Under Pressure: Stress Gene Response in Pressure Bruised Tubers</i>	
Sierra Grande Jr/Sr High School	Blanca
<b>Honorable Mention</b>	
Anna Tedstrom	8th grade
<i>Dog-Gone Yellow Spots</i>	
Eagle County Charter Academy	Edwards
<b>Team Nomination</b>	
Ryan Johnston & Maeva Allsup	8th grade
<i>The Scent of Blood</i>	
Dolores Middle School	Dolores

**Senior Division Plant Sciences**

<b>First Place</b>	
Haydn Christensen	12th grade
<i>Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient</i>	
Sargent Jr/Sr High School	Monte Vista
<b>Second Place</b>	
Jordan Lestina	10th grade
<i>Biodiesel from Sunflowers: Phase 2-An Analysis of Soil Moisture Content and Sunflower Oil Content</i>	
Dove Creek High School	Dove Creek
<b>Third Place</b>	
Nikki Buhrdorf	9th grade
<i>Aspens in a State of SADness: A Statistical Analysis of the Decline of Populus tremula</i>	
Hotchkiss High School	Hotchkiss
<b>Honorable Mention</b>	
Tawney Bleak	10th grade
<i>Evaluating Forage Soybean as an Alternative Dryland Crop for the Central Great Plains</i>	
Otis Jr/Sr High School	Otis
<b>Honorable Mention</b>	
Andrew Delany	12th grade
<i>Mendelian Study of Cosmos bipinnatus</i>	
Basalt High School	Basalt
<b>Honorable Mention</b>	
Tyler Willson	12th grade
<i>Effect of Carbon on Tanacetum vulgare</i>	
Basalt High School	Basalt
<b>Team Nomination</b>	
Lindsay Baum, Kylie Dickson & Kristin Watkins	
	12th grade
<i>The Stress Effects of Caffeine and Alcohol on Arabidopsis Wild-type and Mutant Strains</i>	
Monarch High School	Louisville

## 2009 Colorado Science and Engineering Fair Special Awards Press Release

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### Teacher Awards

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#### Lockheed Martin

##### *Teacher of the Year Award*

Dena Palsler  
certificate, \$3,000 grant  
Lone Star School

#### Professional Association of Colorado Educators

##### *PACE Teacher Award*

Paul Strode  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
Boulder High School

Mike Viney  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
Blevins Junior High School

TJ Donahue  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
Cherry Creek High School

Karl Donnelson  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
Otis Jr/Sr High School

Patricia Keeling  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
La Veta School District

Don Anderson  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
Sacred Heart of Jesus School

David Volz  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute

Candus Muir  
certificate, one week Space Discovery Institute 2009 summer science course, choice of \$100 DonorsChoose gift card or covered cost of required materials for the institute  
The Classical Academy

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### Colorado Science and Engineering Fair

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*Ralph Desch Memorial Technical Writing Award*  
Sarah Guthrie 12th grade  
certificate, \$100  
Boulder High School Boulder  
*Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans*

##### *Poster Art Contest*

Kenna Brown 8th grade  
certificate, \$100  
East Middle School Grand Junction

##### *Junior Division Student Choice Award*

Kaley Kukus 8th grade  
trophy, certificate, \$100  
Woodlin School Woodrow  
*Art and Nature: It All Adds Up*

##### *Senior Division Student Choice Award*

Krista Garchar & Stephanie Williams 10th grade  
trophy, certificate, \$100  
Dolores High School Dolores  
*Can Carnations Smell Like Dead People? Ask a Trained K9*

*Pioneers of Science Award - Georges LCF Cuvier*  
Reilly Hilbert 7th grade  
certificate, \$30  
Blessed Sacrament Catholic School Denver  
*Magnificent Metamorphosis*

##### *Pioneers of Science Award - Charles Darwin*

Katelynn Lippitt 8th grade  
certificate, \$30  
Wiggins Middle School Wiggins  
*Which Do They Prefer - Crabs and Colors*

##### *Pioneers of Science Award - Sigmund Freud*

Julia Siegel 7th grade  
certificate, \$30  
Herzel Rocky Mountain Hebrew Denver  
*The Confusion of the Rainbow*

##### *Pioneers of Science Award - Margaret Mead*

Emma Reece 6th grade  
certificate, \$30  
North Middle School Colorado Springs  
*Visual, Auditory, or Kinesthetic?*

*Pioneers of Science Award - Alfred Bernard Nobel*  
Anthony Clark 6th grade  
certificate, \$30  
Eagle County Charter Academy Edwards  
*Does Composition Put You Above the Competition?*

## Appendix 2

*Pioneers of Science Award - Marie Curie*

Haley Foster 7th grade  
 certificate, \$30  
 The Classical Academy Colorado Springs  
*Is Green Clean?*

*Pioneers of Science Award - Edwin Hubble*

Jordan Bushnell 7th grade  
 certificate, \$30  
 Irving Middle School Colorado Springs  
*Weathering Degradation of Anthropogenic Formations in  
 Marble and Granite*

*Pioneers of Science Award - Alfred Lothar Wegner*

Lexi Thompson 8th grade  
 certificate, \$30  
 Otis Jr/Sr High School Otis  
*H2O Hurricanes are Heated by Oceans*

*Pioneers of Science Award - James Prescott Joule*

Melissa Poet 8th grade  
 certificate, \$30  
 Arriba-Flagler School Flagler  
*Feces to Fuel*

*Pioneers of Science Award - Sir William Grove*

Alexandre Basagoitia 7th grade  
 certificate, \$30  
 Sargent Jr/Sr High School Monte Vista  
*Powerful Garbage*

*Pioneers of Science Award - Nicola Tesla*

Patrick Telck 6th grade  
 certificate, \$30  
 Mountain View Core Knowledge Canon City  
*Wood Glue Hold . . . Or Not?*

*Pioneers of Science Award - James Buchanan Eads*

Henry Kamp 7th grade  
 certificate, \$30  
 Denver School of the Arts Denver  
*How a Checkered Chroma-Key Background Makes Light Dis-  
 tortion Visible and Measureable*

*Pioneers of Science Award - Rachel Louise Carson*

Joel Lopez 8th grade  
 certificate, \$30  
 Woodlin School Woodrow  
*It's A Dirty Job*

*Pioneers of Science Award - Barry Commoner*

Caleb Wright 7th grade  
 certificate, \$30  
 Yuma Middle School Yuma  
*Going Green With Water*

*Pioneers of Science Award - Charles Babbage*

Tyler Meyer 7th grade  
 certificate, \$30  
 Mt. Garfield Middle School Clifton  
*Dice Probabilities*

*Pioneers of Science Award - Grace Hopper*

Dominic Carrese 6th grade  
 certificate, \$30  
 North Middle School Colorado Springs  
*Give Me Oxygen!: The Effects of Wastewater Treatment*

*Pioneers of Science Award - Greene Vardiman  
 Black*

Hunter Sneller 6th grade  
 certificate, \$30  
 Lincoln Elementary School Lamar  
*Water vs Gatorade*

*Pioneers of Science Award - Albert Schweitzer*

MacKenzie Renzelman 8th grade  
 certificate, \$30  
 Buchanan Middle School Wray  
*Do Poppy Seeds Affect Drug Test?*

*Pioneers of Science Award - John Edward Salk*

Austin Zuniga 6th grade  
 certificate, \$30  
 Roncallie Middle School Pueblo  
*"How Clean is Your Mouth" (The Effects of Mouthwash on  
 Bacteria)*

*Pioneers of Science Award - Louis Pasteur*

Mackenzey Becker 7th grade  
 certificate, \$30  
 Monte Vista Middle School Monte Vista  
*Dirty Rotten Fountains*

*Pioneers of Science Award - Albert Einstein*

Andrew Perry 8th grade  
 certificate, \$30  
 Otis Jr/Sr High School Otis  
*'Chute Me*

*Pioneers of Science Award - Sir Isaac Newton*

Wyatt Vick 6th grade  
 certificate, \$30  
 Genoa-Hugo School Hugo  
*How to Make a Rheostat*

*Pioneers of Science Award - Max Planck*

Aidan Mike 7th grade  
 certificate, \$30  
 North Middle School Colorado Springs  
*Nitinol (Memory Masters)*

*Pioneers of Science Award - Luthar Burbank*

Ashley Snyder 6th grade  
 certificate, \$30  
 Lincoln Elementary School Lamar  
*A Comparison of Moisture Content of Three Apples*

*Pioneers of Science Award - Carolus Linnaeus*

Josiah Higgins 7th grade  
 certificate, \$30  
 Genoa-Hugo School Hugo  
*To Fertilize or Not to Fertilize*

## Appendix 2

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### Military

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#### United States Air Force

Isaac Brost certificate, messenger bag, jotter, pen, & MP3 player Brush High School <i>The Rotational Phenomenon of a Simple Wing</i>	12th grade Brush
Jesse Ellison certificate, messenger bag, jotter, pen, & MP3 player Bayfield High School <i>Plasma Propulsion III</i>	11th grade Bayfield
Antonia Lira Susana Lira certificate, messenger bag, jotter, pen, & MP3 player Lamar High School <i>Analyzing High Energy Cosmic Rays</i>	11th grade 9 <sup>th</sup> grade Lamar

#### United States Army

Joe Rosenbrock certificate, \$50 Brush High School <i>Valveless Pumping</i>	10th grade Brush
Jesse Ellison certificate, \$50 Bayfield High School <i>Plasma Propulsion III</i>	11th grade Bayfield
Cole Kembel certificate, \$50 Brush High School <i>Motion Sensored Controls: Advancement In A Higher Application</i>	12th grade Brush
Christiaan van der Walt IV certificate, \$50 Denver School of the Arts <i>Accelerants' Minor League Baseball</i>	12th grade Denver
Adam Schendel certificate, silver medallion Merino Jr/Sr High School <i>Lockdown Bot Phase 2.0</i>	11th grade Merino

#### United States Navy and Marine Corps

##### *Office of Naval Research Award*

Casey Campbell certificate, medallion La Veta Jr/Sr High School <i>Phytoremediation of Coal Bed Methane Produced Water</i>	8th grade La Veta
Rachel Purswell certificate, medallion The Classical Academy <i>Get a Grip</i>	7th grade Colorado Springs
Drew Auburger certificate, medallion Springfield Jr/Sr High School <i>H2O MPG: Does a Homemade Hydrogen Electrolyzer Really Improve Fuel Mileage?</i>	8th grade Springfield

Malia Barca certificate, medallion Eagle County Charter Academy <i>Water, Water, Everywhere, But Not a Drop to Drink: E. coli Dangers!</i>	6th grade Edwards
Joshua Garcia certificate, \$75 gift certificate, medallion Monte Vista High School <i>Brain Age: Conditioning the Human Brain in Minutes a Day!</i>	10th grade Monte Vista
Caleb Kruse certificate, \$75 gift certificate, medallion Home Schooled <i>Researching Calcification, and the Effects of Ocean Acidification on Marine Algae</i>	11th grade Colorado Springs
Ambrose Soehn certificate, \$75 gift certificate, medallion Boulder High School <i>Analyzing the Material "Fingerprint": The Relationship of Fundamental Frequency to Young's Modulus</i>	10th grade Boulder

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### Organizational

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#### Air and Waste Management Association Rocky Mountain States Section

Allie Martin \$50 (to be mailed later) Woodlin School <i>The Pink Side of Water: An Investigation of Estrogen in Northeast Colorado Water Sources</i>	10th grade Woodrow
Casey Campbell \$50 (to be mailed later) La Veta Jr/Sr High School <i>Phytoremediation of Coal Bed Methane Produced Water</i>	8th grade La Veta
Logan Graham \$50 (to be mailed later) Miller Middle School <i>The Effects of Magnesium Chloride Road De-icer on Plants</i>	6th grade Durango
Jessica Constant \$50 (to be mailed later) Saint Joseph Catholic School <i>Your's, Mine and Our's II: A Further Study into Modeling the Spread of Pollutants in the Atmosphere</i>	8th grade Fort Collins
Jordan Bushnell \$50 (to be mailed later) Irving Middle School <i>Weathering Degradation of Anthropogenic Formations in Marble and Granite</i>	7th grade Colorado Springs

#### American Association of University Women

Sophie Wright \$100 (to be mailed later) Stanley British Primary School <i>C What Happens to Your Vitamin C</i>	8th grade Denver
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## Appendix 2

### American Chemical Society Colorado Local Section

Sophie Wright certificate, \$100 (to be mailed later)	8th grade
Stanley British Primary School <i>C What Happens to Your Vitamin C</i>	Denver
Alan Bromwell certificate, \$100 (to be mailed later)	12th grade
Cherry Creek High School <i>An Alternative Application of the Sabatier Process for More Sustainable Transit</i>	Greenwood Village

### American Institute of Chemical Engineers Rocky Mountain Section

Zane Willburn \$75 (to be mailed later)	8th grade
Mancos Middle School <i>Water Purification Off The Grid, Phase II</i>	Mancos
Srish Sharma \$100 (to be mailed later)	8th grade
American Academy <i>An Investigation On How Applying Stress to a Fluid Effects the Fluids Ability to Disperse Force</i>	Lone Tree
Kelci Garcia \$75 (to be mailed later)	10th grade
Antonito Jr/Sr High School <i>Parabolic Solar Desalination for the Developing World</i>	Antonito
Lorne Muir II & Nathan Weeks \$100 (to be mailed later)	9th grade
The Classical Academy <i>The Effectiveness of Carbon Water Filters on E. coli and Pharmaceuticals</i>	Colorado Springs

### American Meteorological Society

Jessica Constant certificate	8th grade
Saint Joseph Catholic School <i>Your's, Mine and Our's II: A Further Study into Modeling the Spread of Pollutants in the Atmosphere</i>	Fort Collins
Johanna Phillips certificate	9th grade
Monte Vista High School <i>Infested Forests and Evapotranspiration</i>	Monte Vista

### American Statistical Association Colorado/Wyoming Chapter David Young Award

Jens Hybertson \$150, student membership in the American Statistical Association, acknowledgement at the chapter spring meeting and on chapter web site	8th grade
Summit Middle School <i>Modern Drugs from Ancient Medicine: Finding New Antibiotics in Native American Medicinal Plants</i>	Boulder

Sarah Guthrie \$150, student membership in the American Statistical Association, acknowledgement at the chapter spring meeting and on chapter web site	12th grade
Boulder High School <i>Effect of Cytotoxic Chemicals on Apoptosis in Caenorhabditis elegans</i>	Boulder

### American Vacuum Society Rocky Mountain Chapter

Sophia Schneider \$50, \$50 matching award to the teacher/sponsor	7th grade
North Middle School <i>Neutralization Investigation: Battery Chemicals in Landfills</i>	Colorado Springs
Srish Sharma \$50, \$50 matching award to the teacher/sponsor	8th grade
American Academy <i>An Investigation On How Applying Stress to a Fluid Effects the Fluids Ability to Disperse Force</i>	Lone Tree
Isabella Soehn \$100, \$100 matching award to the teacher/sponsor	8th grade
Summit Middle School <i>Convection Cells: The Saline Effect</i>	Boulder
Jesse Ellison \$50, \$50 matching award to the teacher/sponsor	11th grade
Bayfield High School <i>Plasma Propulsion III</i>	Bayfield
Tanya Petach \$100, \$100 matching award to the teacher/sponsor	10th grade
Fairview High School <i>Mitigation of Soil Liquefaction with Magnetic Fields</i>	Boulder

### American Water Works Association Rocky Mountain Section & Rocky Mountain Water Environmental Association

Kole Van Treese certificate, \$200 (to be mailed later)	8th grade
Sargent Jr/Sr High School <i>A "Well" of a Problem</i>	Monte Vista
Malia Barca certificate, \$400 (to be mailed later)	6th grade
Eagle County Charter Academy <i>Water, Water, Everywhere, But Not a Drop to Drink: E. coli Dangers!</i>	Edwards
Ben Armstrong certificate, \$200 (to be mailed later)	11th grade
Monte Vista High School <i>Enemies of the Environment: Estrogen Mimics Can They Be Stopped?</i>	Monte Vista
Erik Schnaderbeck certificate, \$400 (to be mailed later)	10th grade
Sargent Jr/Sr High School <i>The Effect of Reservoir on the Biodiversity of Aquatic Invertebrates in Cold Water Fisheries</i>	Monte Vista

## Appendix 2

### Armbruster Associates

#### *Charles Armbruster Memorial Award*

Zachary Schoenherr 7th grade  
 \$100  
 Weld Central Junior High School Keenesburg  
*How Does Your Spaghetti Hold Up?*

### ASM International

Sean Wright 9th grade  
 \$50  
 Blevins Junior High School Fort Collins  
*Casting Aluminum Helmet Hangers*

Ambrose Soehn 10th grade  
 \$75  
 Boulder High School Boulder  
*Analyzing the Material "Fingerprint": The Relationship of Fundamental Frequency to Young's Modulus*

### Association for Women Geoscientists

#### Laramide Chapter

Courtlyn Carpenter 8th grade  
 \$75, achievement medal  
 East Middle School Grand Junction  
*Getting to the Root of Groundwater Pollution*

Ashlynn Miller 10th grade  
 \$75, achievement medal  
 Lone Star School Otis  
*Investigating the Effects of Tissue Decay on the Underlying Soil Chemistry*

### Boulder Flycasters - Trout Unlimited

#### *Trout Unlimited Award*

Erik Schnaderbeck 10th grade  
 \$100 savings bond (to be mailed later); Boulder Flycaster's hat  
 Sargent Jr/Sr High School Monte Vista  
*The Effect of Reservoir on the Biodiversity of Aquatic Invertebrates in Cold Water Fisheries*

### Colorado Association of Meat Processors

Ben Smith, Kasey Miles & Kyle Tallent 9th grade  
 certificate, \$60  
 Hotchkiss High School Hotchkiss  
*Presenting the Champion or Maybe Not*

### Colorado Association of Science Teachers

Randi Timmons 8th grade  
 certificate, \$100  
 Walsh Jr/Sr High School Walsh  
*Giddy-Up Glucose*

Xavier Sabourin 6th grade  
 certificate, \$100  
 Cortez Middle School Cortez  
*Local Plants as Insect Repellant*

Allie Martin 10th grade  
 certificate, \$100  
 Woodlin School Woodrow  
*The Pink Side of Water: An Investigation of Estrogen in Northeast Colorado Water Sources*

Amanda Patrick 10th grade  
 certificate, \$100  
 Merino Jr/Sr High School Merino  
*Oh What a Pain . . . Ear Infections Cause Obesity*

### Gerald Gromko Award

Cole Kembel 12th grade  
 \$175, plaque  
 Brush High School Brush  
*Motion Sensored Controls: Advancement In A Higher Application*

### Colorado Biology Teachers' Association

Beth Lenz 8th grade  
 certificate, \$75  
 Buchanan Middle School Wray  
*Does Carbon Dioxide Effect Zea mays and Phaseolus vulgaris Growth?*

Radhika Rawat 11th grade  
 certificate, \$75  
 Boulder High School Boulder  
*Assaying Cellular Migration on A 2D Surface: A Comparative Approach to Cancer Metastasis*

### Colorado Dental Association

Jessica Green 8th grade  
 \$50, plaque  
 St. John the Evangelist School Loveland  
*Does Teeth Whitening Toothpaste, Teeth Whitening Gum, or Teeth Whitening Strips Remove Stains Better*

Mali Garrett-Mills 7th grade  
 \$100, plaque  
 Smiley Middle School Denver  
*The Effects of Various Liquids on Hydroxyapatite Calcium Tablets: An Inadequate Model for Tooth Decay*

Alyssa Dunlap 9th grade  
 \$50, plaque  
 Springfield Jr/Sr High School Springfield  
*Open Wide and See What's Inside?*

Jessie Haugen 12th grade  
 \$100, plaque  
 Sargent Jr/Sr High School Monte Vista  
*Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm*

### Colorado Division of Wildlife

Kolton Miller 8th grade  
 Mancos Middle School Mancos  
*Bear-icade*

Rennie Winkelman 9th grade  
 Blevins Junior High School Fort Collins  
*Effect of Water Quality on Aquatic Invertebrates*

### Colorado Environmental Health Association

Malia Barca 6th grade  
 certificate, \$75  
 Eagle County Charter Academy Edwards  
*Water, Water, Everywhere, But Not a Drop to Drink: E. coli Dangers!*

## Appendix 2

Lorne Muir II & Nathan Weeks 9th grade  
 certificate, \$150, invitation to exhibit at the CEHA Annual  
 Educational Conference (\$400 value)  
 The Classical Academy Colorado Springs  
*The Effectiveness of Carbon Water Filters on E. coli and  
 Pharmaceuticals*

### Colorado Foundation for Agriculture

#### *Agriculture in the Classroom Award*

Brisha Wakasugi 8th grade  
 certificate, \$50  
 Sierra Grande Jr/Sr High School Blanca  
*Under Pressure: Stress Gene Response in Pressure Bruised  
 Tubers*

AleahDell Sheldon 7th grade  
 certificate, \$50  
 Quest Academy Dacono  
*Heterozygous Inheritance in a Paint Stallion*

Alan Seltzer 11th grade  
 certificate, \$50  
 Fairview High School Boulder  
*Carbon Sinks to Carbon Sources: A Soil Analysis of the Colo-  
 rado Mountain Pine Beetle Infestation*

Tawney Bleak 10th grade  
 certificate, \$50  
 Otis Jr/Sr High School Otis  
*Evaluating Forage Soybean as an Alternative Dryland Crop  
 for the Central Great Plains*

### Colorado Geographic Alliance

Kole Van Treese 8th grade  
 \$100  
 Sargent Jr/Sr High School Monte Vista  
*A "Well" of a Problem*

Johanna Phillips 9th grade  
 \$100  
 Monte Vista High School Monte Vista  
*Infested Forests and Evapotranspiration*

### Colorado Geological Survey & Division of Reclamation Mining and Safety

Zach Miller & Matt O'Keefe 11th grade  
 Cherry Creek High School Greenwood Village  
*The Removal of Copper Ions Through the Application of Natu-  
 ral and Synthetic Zeolites*

Sophia Schneider 7th grade  
 \$150 (to be mailed later)  
 North Middle School Colorado Springs  
*Neutralization Investigation: Battery Chemicals in Landfills*

Tanya Petach 10th grade  
 \$150 (to be mailed later)  
 Fairview High School Boulder  
*Mitigation of Soil Liquefaction with Magnetic Fields*

### Colorado Medical Society

Madison Hoven 6th grade  
 \$100  
 Escalante Middle School Durango  
*I See You*

Tonya Pavlenko & Laura Gudvangen 10th grade  
 \$100  
 Palmer High School Colorado Springs  
*The Internal Battle With Melanoma: Triggering an Immune  
 Response Using Toll Ligands*

### Colorado Mineral Society

Erin McLaughlin & Jessie McLaughlin 7th grade  
 \$25, 2 mineral specimens, book  
 Sacred Heart of Jesus School Boulder  
*The Seawall Solution*

Danielle Riggs 8th grade  
 \$40, 2 mineral specimens, book  
 Fruita 8/9 School Fruita  
*Cooled Fast or Cooled Slow, How Big Will the Crystals Grow?*

Sean Buck 12th grade  
 \$25, 2 mineral specimens, book  
 Cherry Creek High School Greenwood Village  
*Reconstructing Paleoecosystems: Community Structure  
 Throughout the EECO*

Zach Miller & Matt O'Keefe 11th grade  
 \$40, 2 mineral specimens, book  
 Cherry Creek High School Greenwood Village  
*The Removal of Copper Ions Through the Application of Natu-  
 ral and Synthetic Zeolites*

### Colorado Mycological Society

Devon Enke 7th grade  
 certificate, \$50  
 La Veta Jr/Sr High School La Veta  
*Mycorrhizal Symbiosis - Unlocking the Potential of Soil*

### Colorado River Watch

Molly Graber 9th grade  
 \$50 (to be mailed later)  
 Palmer High School Colorado Springs  
*Manufactured Monster: Antibiotic Resistance in the Water of  
 Colorado Springs*

### Colorado Scientific Society

Danielle Riggs 8th grade  
 \$50  
 Fruita 8/9 School Fruita  
*Cooled Fast or Cooled Slow, How Big Will the Crystals Grow?*

Taylor Volesky 7th grade  
 \$75  
 Cherry Creek Challenge School Denver  
*Acid Rain Effects on Cave Formation*

Alan Seltzer 11th grade  
 \$75  
 Fairview High School Boulder  
*Carbon Sinks to Carbon Sources: A Soil Analysis of the Colo-  
 rado Mountain Pine Beetle Infestation*

Zach Miller & Matt O'Keefe 11th grade  
 \$100  
 Cherry Creek High School Greenwood Village  
*The Removal of Copper Ions Through the Application of Natu-  
 ral and Synthetic Zeolites*

## Appendix 2

### Colorado Veterinary Medical Association & CVMA Auxiliary & Auxiliary to the AVMA

Clay Patton	8th grade
certificate & gold medallion from the Auxiliary to the AVMA; \$50 from the CVMA and \$50 from the CVMA Auxiliary	
Genoa-Hugo School	Hugo
<i>Farm Fresh vs. Store Bought Eggs</i>	
Katlin Hornig	12th grade
certificate & gold medallion from the Auxiliary to the AVMA; \$50 from the CVMA and \$50 from the CVMA Auxiliary	
Sargent Jr/Sr High School	Monte Vista
<i>The Effects of Equine Association on the Initial Beneficiary Benefactor</i>	

### Colorado-Wyoming Society of American Foresters

Nikki Buhrdorf	9th grade
\$100 savings bond	
Hotchkiss High School	Hotchkiss
<i>Aspens in a State of SADness: A Statistical Analysis of the Decline of Populus tremula</i>	
Kayla Boren	7th grade
\$100 savings bond	
St. Columba School	Durango
<i>Burn Baby Burn: A Study in Forest Fuels and Humidity</i>	

### Covidien, Energy-based Devices

Jennifer Jones	6th grade
\$75 (to be mailed later)	
Hoff Elementary School	Keenesburg
<i>Transfer of Bacteria from a Person to a Bottle of Water</i>	
Sophie Wright	8th grade
\$100 (to be mailed later)	
Stanley British Primary School	Denver
<i>C What Happens to Your Vitamin C</i>	
Connie Liu	10th grade
\$75 (to be mailed later)	
Cherry Creek High School	Greenwood Village
<i>Restoration of microRNA-200c: Effect on HEY Cancer Cell Behavior</i>	
Kelli Lynch	9th grade
\$100 (to be mailed later)	
Blevins Junior High School	Fort Collins
<i>Irradiation Extermination</i>	

### CSU, Department of Biochemistry & Molecular Biology

Connie Liu	10th grade
certificate, \$100	
Cherry Creek High School	Greenwood Village
<i>Restoration of microRNA-200c: Effect on HEY Cancer Cell Behavior</i>	

### CSU, Department of Chemistry

Gerri Roberts	8th grade
certificate, \$100 (to be mailed later)	
Turner Middle School	Berthoud
<i>A Model Study of Drug Intake</i>	

Benjamin Hoffman	12th grade
certificate, \$100 (to be mailed later)	
Fairview High School	Boulder
<i>Synthesis of 4-Bromo-2,2'-Bipyridine</i>	

### CSU, Department of Horticulture and Landscape Architecture

Brisha Wakasugi	8th grade
\$150	
Sierra Grande Jr/Sr High School	Blanca
<i>Under Pressure: Stress Gene Response in Pressure Bruised Tubers</i>	
Haydn Christensen	12th grade
\$150	
Sargent Jr/Sr High School	Monte Vista
<i>Aquaponics vs. Hydroponics: A Comparison of Tilapia Efflu- ent and Conventional Fertilizers as a Hydroponic Nutrient</i>	

### Epler Family

Samir Berrada	6th grade
microprocessor kit and digital multimeter	
Cortez Middle School	Cortez
<i>The Laser Car</i>	
Minuri Gamage	8th grade
microprocessor kit and digital multimeter	
Kinard Core Knowledge Junior	Fort Collins
<i>Here Comes the Sun . . .</i>	

### Fort Collins Conservation District

Camrey Garoutte	8th grade
plaque, \$50	
Sargent Jr/Sr High School	Monte Vista
<i>Gone With the Wind</i>	
Nakayla Lestina	9th grade
plaque, \$50	
Dove Creek High School	Dove Creek
<i>Biological Control of Canada Thistle-Phase 3: Testing Local Crops for Damage by Canada Thistle Insects</i>	

### Hands and Minds, Inc.

Quint Mediate	8th grade
Student Maniken® Half Skeleton compete kit including base, support leg, tools, clay and learning activities booklet (approx- imate value \$200)	
The Classical Academy	Colorado Springs
<i>The Size Is Right: A Study in Food Servings</i>	
Jesse Soule	10th grade
Student Maniken® Half Skeleton compete kit including base, support leg, tools, clay and learning activities booklet (approx- imate value \$200)	
Cherry Creek High School	Greenwood Village
<i>Hepatotoxic Effects of Repeat Therapeutic Doses of Acetami- nophen</i>	

### Human Factors and Ergonomics Society Rocky Mountain Chapter

Carissa Harlow	6th grade
\$100	
Mountain View Core Knowledge	Canon City
<i>Call It Disaster: Cell Phone Use During Simulated Driving</i>	

## Appendix 2

Michael Seltzer \$100 Summit Middle School <i>Don't Think and Drive!</i>	8th grade Boulder	<b>MWH Americas, Inc.</b> <i>Sustainable Future Award</i>	
<b>Institute of Electrical and Electronics Engineers</b> <b>Centennial Subsection</b>		Zane Willburn \$100 (to be mailed later), plaque Mancos Middle School <i>Water Purification Off The Grid, Phase II</i>	8th grade Mancos
Kayleigh Santala \$100 Arriba-Flagler School <i>Electromagnets II</i>	8th grade Flagler	Amanda Coopersmith \$200 (to be mailed later), plaque Cherry Creek Challenge School <i>Snug as a Bug: Green Insulation</i>	8th grade Denver
Jesse Ellison \$150 Bayfield High School <i>Plasma Propulsion III</i>	11th grade Bayfield	Caleb Kruse \$100 (to be mailed later), plaque Home Schooled <i>Researching Calcification, and the Effects of Ocean Acidification on Marine Algae</i>	11th grade Colorado Springs
<b>Little Shop of Physics</b> <i>Matthew McCausland Memorial Award</i>		Matthew Bull Forrest Pieper \$200 (to be mailed later), plaque Nederland Middle/Senior High <i>Putting Humans to "Work": Generating Usable Electricity from Wasted Energy</i>	12th grade 11th grade Nederland
Rachel Rossi \$100(to be mailed later) Miller Middle School <i>Radio Wave Roundup</i>	7th grade Durango		
<b>Lockheed Martin</b>		<b>National Geophysical Data Center</b>	
Samir Berrada \$50 US savings bond Cortez Middle School <i>The Laser Car</i>	6th grade Cortez	Casey Campbell \$100 savings bond (to be mailed later), certificate, plaque La Veta Jr/Sr High School <i>Phytoremediation of Coal Bed Methane Produced Water</i>	8th grade La Veta
Cole Kembel \$100 US savings bond, nominal Lockheed Martin logo item Brush High School <i>Motion Sensored Controls: Advancement In A Higher Application</i>	12th grade Brush	<b>National Renewable Energy Laboratory</b>	
		Raleigh Burt \$100, Patagonia messenger bag Sargent Jr/Sr High School <i>Optimizing Energy Extraction and Water Conservation of Geothermal Heating Systems</i>	11th grade Monte Vista
<b>MAST Institute</b>		<b>Rocky Mountain Association of Geologists</b>	
Samir Berrada \$50 (to be mailed later) Cortez Middle School <i>The Laser Car</i>	6th grade Cortez	Danielle Riggs cash award to be determined and mailed later Fruita 8/9 School <i>Cooled Fast or Cooled Slow, How Big Will The Crystals Grow?</i>	8th grade Fruita
Sean Wright \$50 (to be mailed later) Blevins Junior High School <i>Castings Aluminum Helmet Hangers</i>	9th grade Fort Collins	Taylor Volesky cash award to be determined and mailed later Cherry Creek Challenge School <i>Acid Rain Effects on Cave Formation</i>	7th grade Denver
<b>Morris Animal Foundation</b>		Sean Buck cash award to be determined and mailed later Cherry Creek High School <i>Reconstructing Paleoecosystems: Community Structure Throughout the EECO</i>	12th grade Greenwood Village
Kelsey Martin & Brandy Haller \$150 Woodlin School <i>Give That Dog His Bone: OSA Pedigree Analysis in Irish Wolfhounds &amp; Inhibiting OSA via Statins and B</i>	11th grade Woodrow		
Katlin Hornig \$250 Sargent Jr/Sr High School <i>The Effects of Equine Association on the Initial Beneficiary Benefactor</i>	12th grade Monte Vista	<b>Seagate Technology &amp; Science Buddies</b>	
		Kathryn Wied Seagate's Free Agent Go storage device; opportunity to publish the project idea on the Science Buddies web site Canon City Middle School <i>Pop! Goes the Hairstrand</i>	8th grade Canon City

## Appendix 2

Kelci Garcia 10th grade  
 Seagate's Free Agent Go storage device; opportunity to  
 publish the project idea on the Science Buddies web site  
 Antonito Jr/Sr High School Antonito  
*Parabolic Solar Desalination for the Developing World*

### **Society for Advancement of Chicanos and Native Americans in Science**

Jovanny Alvarez 8th grade  
 \$25 (to be mailed later)  
 Quest Academy Dacono  
*How Many Lemons Are Needed to Light Up an LED?*

Taylor Huebner 10th grade  
 \$50 (to be mailed later)  
 Canon City High School Canon City  
*Does CO2 Affect Plant Efficiency?*

Sami Hourieh 8th grade  
 \$50 (to be mailed later)  
 Lamar Middle School Lamar  
*The Power of Transformers*

### **Society for Mining, Metallurgy, and Exploration Colorado Section**

Danielle Riggs 8th grade  
 \$100 plaque  
 Fruita 8/9 School Fruita  
*Cooled Fast or Cooled Slow, How Big Will The Crystals  
Grow?*

Kyle Harlow 8th grade  
 \$200, plaque  
 Mountain View Core Knowledge Canon City  
*Hot Rods: Three Methods for Measuring the Expansion Coef-  
ficients of Metals*

Raleigh Burt 11th grade  
 \$100, plaque  
 Sargent Jr/Sr High School Monte Vista  
*Optimizing Energy Extraction and Water Conservation of  
Geothermal Heating Systems*

Zach Miller & Matt O'Keefe 11th grade  
 \$200, plaque  
 Cherry Creek High School Greenwood Village  
*The Removal of Copper Ions Through the Application of Natu-  
ral and Synthetic Zeolites*

### **Society of Manufacturing Engineers Northern Colorado Chapter 354**

Kolton Miller 8th grade  
 \$200 (to be mailed later), certificate, recognition by local  
 chapter  
 Mancos Middle School Mancos  
*Bear-icade*

Sean Wright 9th grade  
 \$200 (to be mailed later), certificate, recognition by local  
 chapter  
 Blevins Junior High School Fort Collins  
*Casting Aluminum Helmet Hangers*

### **Society of Women Engineers Rocky Mountain Section**

Jordanne Williams 8th grade  
 certificate, \$75  
 LW St. John Middle School Parachute  
*How Safe Is Your Groundwater?*

Jessica Constant 8th grade  
 certificate, \$100  
 Saint Joseph Catholic School Fort Collins  
*Your's, Mine and Our's II: A Further Study into Modeling the  
Spread of Pollutants in the Atmosphere*

Abbi Helfer 9th grade  
 certificate, \$75  
 Palmer High School Colorado Springs  
*Sun-Sational Solar*

Stacey Lyne 12th grade  
 certificate, \$100  
 Brush High School Brush  
*Improved Efficiency of Microbial Fuel Cells*

### **Soil & Water Conservation Society Colorado Chapter**

Camrey Garoutte 8th grade  
 certificate, red ribbon, \$25  
 Sargent Jr/Sr High School Monte Vista  
*Gone With the Wind*

Casey Campbell 8th grade  
 certificate, blue ribbon, \$50  
 La Veta Jr/Sr High School La Veta  
*Phytoremediation of Coal Bed Methane Produced Water*

Rennie Winkelman 9th grade  
 certificate, red ribbon, \$25  
 Blevins Junior High School Fort Collins  
*Effect of Water Quality on Aquatic Invertebrates*

Tawney Bleak 10th grade  
 certificate, blue ribbon, \$50  
 Otis Jr/Sr High School Otis  
*Evaluating Forage Soybean as an Alternative Dryland Crop  
for the Central Great Plains*

### **SPIE-The International Society for Optics & Photonics**

Beth Romero 8th grade  
 \$100 (to be mailed later)  
 Cesar Chavez Academy Pueblo  
*Spacing and Diffraction Patterns*

Samir Berrada 6th grade  
 \$150 (to be mailed later)  
 Cortez Middle School Cortez  
*The Laser Car*

Rachel Rossi 7th grade  
 \$250 (to be mailed later)  
 Miller Middle School Durango  
*Radio Wave Roundup*

## Appendix 2

Garrett Crownover \$100 (to be mailed later) Plainview School <i>Lightin' Up The Sound</i>	10th grade  Sheridan Lake
Jessica O'Clair \$150 (to be mailed later) Brush High School <i>What Duration of Ultraviolet Light Kills Bacteria?</i>	10th grade  Brush
Kelci Garcia \$250 (to be mailed later) Antonito Jr/Sr High School <i>Parabolic Solar Desalination for the Developing World</i>	10th grade  Antonito

### The Inventor's Roundtable

Kolton Miller \$25 (to be mailed later) Mancos Middle School <i>Bear-icade</i>	8th grade  Mancos
Zane Willburn \$75 (to be mailed later) Mancos Middle School <i>Water Purification Off The Grid, Phase II</i>	8th grade  Mancos
Sean Wright \$25 (to be mailed later) Blevins Junior High School <i>Castng Aluminum Helmet Hangers</i>	9th grade  Fort Collins
Kyle Myhra \$75 (to be mailed later) Broomfield High School <i>Spotsucker Cleaning System</i>	11th grade  Broomfield

### United States Geological Survey

Kole Van Treese reference book and mineral specimen Sargent Jr/Sr High School <i>A "Well" of a Problem</i>	8th grade  Monte Vista
Rennie Winkelman reference book and mineral specimen Blevins Junior High School <i>Effect of Water Quality on Aquatic Invertebrates</i>	9th grade  Fort Collins

### University of Colorado Health Sciences Center

#### *Medical Scientist Training Program Award*

Joe Rosenbrock \$50 (to be mailed later) Brush High School <i>Valveless Pumping</i>	10th grade  Brush
Aarthi Shankar \$50 (to be mailed later) Rampart High School <i>Proteomic Characterization of ECM to Identify Tumor Associated Biomolecules Part 2</i>	11th grade  Colorado Springs

### US Department of Commerce

#### *US Department of Commerce Internship*

Isaac Brost alternate for the opportunity for summer employment with the Department of Commerce with possibility for future continuing employment Brush High School <i>The Rotational Phenomenon of a Simple Wing</i>	12th grade  Brush
Dominic Fuller-Rowell opportunity for summer employment with the Department of Commerce with possibility for future continuing employment Boulder High School <i>Dual Frequency GPS Accuracy with a Single Frequency Receiver</i>	12th grade  Boulder

### Xcel Energy

#### *Environmental Stewardship Award*

Jordanne Williams \$50 LW St. John Middle School <i>How Safe Is Your Groundwater?</i>	8th grade  Parachute
Samantha Ensz \$100 Hi-Plains Jr/Sr High School <i>Preventing Pollutants</i>	10th grade  Seibert

#### *Innovations in Energy Award*

Grant Yowell \$50 Genoa-Hugo School <i>Go Green with Thermal Energy</i>	7th grade  Hugo
Matthew Bull Forrest Pieper \$100 Nederland Middle/Senior High <i>Putting Humans to "Work": Generating Usable Electricity from Wasted Energy</i>	12th grade 11th grade  Nederland

### Yale Science & Engineering Association, Inc.

Emily Schnoor certificate, pewter medallion (to be mailed) Sargent Jr/Sr High School <i>Catching the Electric Current</i>	11th grade  Monte Vista
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### Zonta Club of Boulder County

#### *Amelia Earhart Award*

Melissa Poet \$100 Arriba-Flagler School <i>Feces to Fuel</i>	8th grade  Flagler
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## Appendix 2

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### Scholarships

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#### Adams State College Foundation

Nakayla Lestina	9th grade
one-year resident tuition and fees (approximate value \$2,500)	
Dove Creek High School	Dove Creek
<i>Biological Control of Canada Thistle-Phase 3: Testing Local Crops for Damage by Canada Thistle Insects</i>	
Joshua Garcia	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Monte Vista High School	Monte Vista
<i>Brain Age: Conditioning the Human Brain in Minutes a Day!</i>	
Ashlynn Miller	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Lone Star School	Otis
<i>Investigating the Effects of Tissue Decay on the Underlying Soil Chemistry</i>	
Jerrica Cherry	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Springfield Jr/Sr High School	Springfield
<i>Feeling the Heat?</i>	
Christy Farnsworth	11th grade
one-year resident tuition and fees (approximate value \$2,500)	
Paonia Jr/Sr High School	Paonia
<i>Electrifying the World, One Loop at a Time</i>	
Kelci Garcia	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Antonito Jr/Sr High School	Antonito
<i>Parabolic Solar Desalination for the Developing World</i>	
Samantha Ensz	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Hi-Plains Jr/Sr High School	Seibert
<i>Preventing Pollutants</i>	
Bethany Dilda	11th grade
one-year resident tuition and fees (approximate value \$2,500)	
Branson School	Branson
<i>The Golden Ratio: An Exploration of the Prevalence of Phi</i>	
Sage Thompson	10th grade
one-year resident tuition and fees (approximate value \$2,500)	
Walsh Jr/Sr High School	Walsh
<i>Warning! Consume At Your Own Risk</i>	
Jessie Haugen	12th grade
one-year resident tuition and fees (approximate value \$2,500)	
Sargent Jr/Sr High School	Monte Vista
<i>Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm</i>	
Donald Dutro	12th grade
one-year resident tuition and fees (approximate value \$2,500)	
Genoa-Hugo School	Hugo
<i>Identifying the Properties of Constructive and Destructive Interference</i>	
Haydn Christensen	12th grade
one-year resident tuition and fees (approximate value \$2,500)	
Sargent Jr/Sr High School	Monte Vista
<i>Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient</i>	

Antonia Lira	11th grade
Susana Lira	9th grade
one-year resident tuition and fees (approximate value \$2,500)	
Lamar High School	Lamar
<i>Analyzing High Energy Cosmic Rays</i>	

#### Colorado School of Mines

Emily Schnoor	11th grade
25% resident tuition, four-year scholarship	
Sargent Jr/Sr High School	Monte Vista
<i>Catching the Electric Current</i>	
Caleb Kruse	11th grade
25% resident tuition, four-year scholarship	
Home Schooled	Colorado Springs
<i>Researching Calcification, and the Effects of Ocean Acidification on Marine Algae</i>	
Christy Farnsworth	11th grade
25% resident tuition, four-year scholarship	
Paonia Jr/Sr High School	Paonia
<i>Electrifying the World, One Loop at a Time</i>	
Jesse Ellison	11th grade
25% resident tuition, four-year scholarship	
Bayfield High School	Bayfield
<i>Plasma Propulsion III</i>	
William Leigh & Mark Seres	11th grade
25% resident tuition, four-year scholarship	
Cherry Creek High School	Greenwood Village
<i>Phytoplankton and DMS: A Study of Environmental Alteration</i>	
Christopher Krause	11th grade
25% resident tuition, four-year scholarship	
The Classical Academy	Colorado Springs
<i>Variograms: Forewarning Disaster</i>	
Antonia Lira	11th grade
Susana Lira	9th grade
25% resident tuition, four-year scholarship	
Lamar High School	Lamar
<i>Analyzing High Energy Cosmic Rays</i>	

#### Propst Medicine & Health Scholarship

Jessie Haugen	12th grade
certificate, \$3,000 non-renewable scholarship	
Sargent Jr/Sr High School	Monte Vista
<i>Slime Out: A Correlation Between the Effects of Digestive Enzymes on Pseudomonas Fluorescens Biofilm</i>	

#### Moving Science Forward Scholarship

Kelli Lynch	9th grade
certificate, \$2,000 non-renewable scholarship	
Blevins Junior High School	Fort Collins
<i>Irradiation Extermination</i>	
David Wu	12th grade
certificate, \$2,000 non-renewable scholarship	
Cherry Creek High School	Greenwood Village
<i>Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications</i>	



## Appendix 2

### Colorado Science and Engineering Fair

#### *Ryan Patterson Scholarship*

Haydn Christensen 12th grade  
one-year resident tuition and fees (approximate value \$2,500)  
Sargent Jr/Sr High School Monte Vista  
*Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient*

### Society for Science and the Public

#### American Psychological Association

Kristiana Longfield 7th grade  
certificate  
Hotchkiss K-8 School Hotchkiss  
*The Effects of Television on Children's Choices*  
Joshua Garcia 10th grade  
certificate  
Monte Vista High School Monte Vista  
*Brain Age: Conditioning the Human Brain in Minutes a Day!*

#### Intel Corporation

##### *Excellence in Computer Science Award*

Dominic Fuller-Rowell 12th grade  
certificate, \$200 (to be mailed)  
Boulder High School Boulder  
*Dual Frequency GPS Accuracy with a Single Frequency Receiver*

#### Mu Alpha Theta

Bethany Dilda 11th grade  
Certificate, congratulations letter for teacher  
Branson School Branson  
*The Golden Ratio: An Exploration of the Prevalence of Phi*

#### National Oceanic and Atmospheric Administration

##### *Taking the Pulse of the Planet Award*

Caleb Kruse 11th grade  
Certificate, medallion, congratulations letter  
Home Schooled Colorado Springs  
*Researching calcification and the Effects of Ocean Acidification on Marine Algae*

#### National Society of Professional Engineers

##### *Innovative Engineering Award*

Ethan Hahn 11th grade  
certificate, lapel pin  
The Classical Academy Colorado Springs  
*Design and Construction of a Silent Magneto-hydrodynamic Propulsion System*

#### Ricoh Corporation

##### *Ricoh Sustainable Development Award*

Haydn Christensen 12th grade  
certificate  
Sargent Jr/Sr High School Monte Vista  
*Aquaponics vs. Hydroponics: A Comparison of Tilapia Effluent and Conventional Fertilizers as a Hydroponic Nutrient*

### Society for In Vitro Biology

Aarthi Shankar 11th grade  
certificate  
Rampart High School Colorado Springs  
*Proteomic Characterization of ECM to Identify Tumor Associated Biomolecules Part 2*

### United States Metric Association

David Wu 12th grade  
certificate  
Cherry Creek High School Greenwood Village  
*Char and Methanol Synthesis by the Destructive Distillation of Biomass – Environmental Implications*

### United States Public Health Service

#### *The Surgeon General's Challenge*

Quint Mediate 8th grade  
certificate  
The Classical Academy Colorado Springs  
*The Size Is Right: A Study in Food Servings*

### Water Environment Federation

#### *Stockholm Junior Water Prize*

Molly Graber 9th grade  
Certificate, nomination to the state SJWP competition  
Palmer High School Colorado Springs  
*Manufactured Monster: Antibiotic Resistance in the Water of Colorado Springs*  
Allie Martin 10th grade  
Certificate, nomination to the state SJWP competition  
Woodlin School Woodrow  
*The Pink Side of Water: An Investigation of Estrogen in Northeast Colorado Water Sources*  
Lorne Muir II & Nathan Weeks 9th grade  
Certificate, nomination to the state SJWP competition  
The Classical Academy Colorado Springs  
*The Effectiveness of Carbon Water Filters on E. coli and Pharmaceuticals*

Appendix 3  
**2008/2009 Expense Report**  
**September 1, 2008-August 31, 2009**

Category Descriptions	Budget	Actual	Difference
<b>INCOME</b>			
Sponsorships	\$41,850.00	\$29,300.00	(\$12,550.00)
Contributions	\$2,930.00	\$2,506.81	(\$423.19)
In-Kind	\$6,425.00	\$13,707.86	\$7,282.86
Registrations	\$11,025.00	\$11,200.00	\$175.00
Grants	\$4,500.00	\$10,000.00	\$5,500.00
General Income			
<i>Interest</i>	\$550.00	\$543.83	(\$6.17)
<i>Sales</i>	\$1,000.00	\$2,368.00	\$1,368.00
<i>Goodsearch</i>	\$0.00	\$10.89	\$10.89
<i>RSF Outreach Funds</i>	\$0.00	\$10,000.00	\$10,000.00
<i>Scholarships/Special Awards</i>	\$6,300.00	\$1,660.00	(\$4,640.00)
<i>Teacher of the Year Award</i>	<u>\$3,000.00</u>	<u>\$3,000.00</u>	<u>\$0.00</u>
TOTAL General Income	\$20,850.00	\$17,582.72	(\$3,267.28)
<b>TOTAL INCOME</b>	<b>\$87,580.00</b>	<b>\$84,297.39</b>	<b>(\$3,282.61)</b>
<b>EXPENSES</b>			
Awards Ceremony			
Cash Awards	\$11,990.00	\$11,200.00	\$790.00
Other Awards	\$9,150.00	\$6,430.43	\$2,719.57
Photos	\$200.00	\$226.70	(\$26.70)
Press Release	\$450.00	\$308.50	\$141.50
Program	\$375.00	\$374.81	\$0.19
Room Rental	<u>\$800.00</u>	<u>\$50.00</u>	<u>\$750.00</u>
TOTAL Awards Ceremony	\$22,965.00	\$18,590.44	\$4,374.56
CSSF, Inc. Board			
Communications	\$498.00	\$418.89	\$79.11
Equipment	\$0.00	\$0.00	\$0.00
Meetings	\$1,550.00	\$1,436.05	\$113.95
Operations	\$8,155.00	\$7,478.00	\$677.00
Services	\$100.00	\$206.20	(\$106.20)
Supplies	<u>\$50.00</u>	<u>\$216.13</u>	<u>(\$166.13)</u>
TOTAL CSSF, Inc. Board	\$10,353.00	\$9,755.27	\$597.73
Finalists			
Activities	\$2,250.00	\$1,883.47	\$366.53
Publications	\$1,725.00	\$1,235.40	\$489.60
Registration	\$8,150.00	\$13,046.18	(\$4,896.18)
Room Rental	\$1,074.00	\$1,224.00	(\$150.00)
Transportation	<u>\$1,100.00</u>	<u>\$1,065.00</u>	<u>\$35.00</u>
TOTAL Finalists	\$14,299.00	\$14,299.00	(\$4,155.05)

Appendix 3

Category Description	Budget	Actual	Difference
<b>ISEF</b>			
Affiliation	\$500.00	\$500.00	\$0.00
Travel	<u>\$10,525.00</u>	<u>\$5,284.13</u>	<u>\$5,240.87</u>
<b>TOTAL ISEF</b>	<b>\$11,025.00</b>	<b>\$5,784.13</b>	<b>\$5,240.87</b>
<b>Judging</b>			
Communications	\$650.00	\$1,101.00	(\$451.00)
Room Rental	\$340.00	\$340.00	\$0.00
Supplies	\$500.00	\$390.30	\$109.70
Thank Yous	<u>\$3,750.00</u>	<u>\$2,896.86</u>	<u>\$853.14</u>
<b>TOTAL Judging</b>	<b>\$5,240.00</b>	<b>\$4,728.16</b>	<b>\$511.84</b>
<b>Outreach</b>	<b>\$1,000.00</b>	<b>\$865.90</b>	<b>\$134.10</b>
<b>RSF Outreach</b>	<b>\$10,000.00</b>	<b>\$9,000.00</b>	<b>\$1,000.00</b>
<b>CSEF Expenses</b>			
Adult Sponsors	\$350.00	\$119.47	\$230.53
Advisory Council	\$100.00	\$92.34	\$7.66
Fund Raising	\$100.00	\$82.04	\$17.96
Personnel	\$8,220.00	\$8,134.29	\$85.71
Publicity	\$300.00	\$275.59	\$24.41
Regional Fair Directors	\$200.00	\$14.73	\$185.27
Supplies	\$300.00	\$438.53	(\$138.53)
Volunteers	<u>\$1,800.00</u>	<u>\$761.27</u>	<u>\$1,038.73</u>
<b>TOTAL CSEF Expenses</b>	<b>\$11,370.00</b>	<b>\$9,918.26</b>	<b>\$1,451.74</b>
<b>SRC/Display and Safety</b>			
Communications	\$150.00	\$107.18	\$42.82
Meetings	\$750.00	\$280.65	\$469.35
Supplies	<u>\$200.00</u>	<u>\$201.10</u>	<u>(\$1.10)</u>
<b>TOTAL SRC/Display and Safety</b>	<b>\$1,100.00</b>	<b>\$588.93</b>	<b>\$511.07</b>
<b>TOTAL EXPENSES</b>	<b>\$87,352.00</b>	<b>\$77,685.14</b>	<b>\$9,666.86</b>
<b>OVERALL TOTAL</b>	<b>\$228.00</b>	<b>\$6,612.25</b>	

