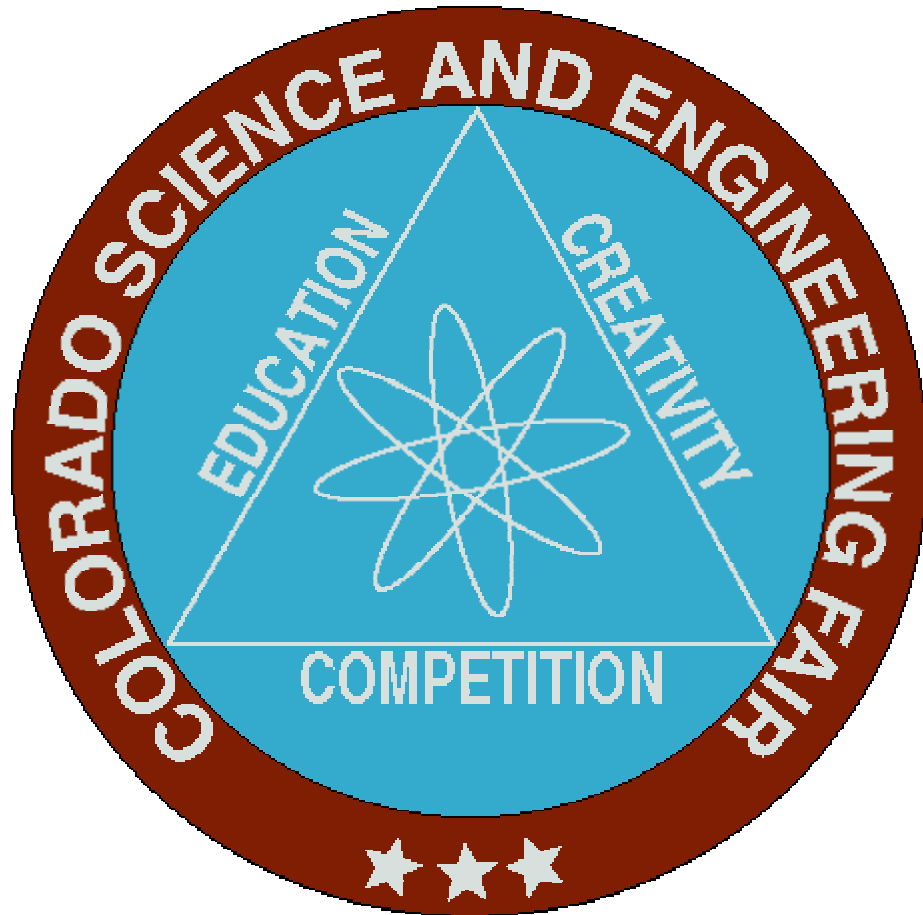


# 1999 Annual Report



August 31, 1999

## 1999 Annual Report

*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.*

Established in 1956, the Colorado State Science Fair, Inc. is a private, non-profit organization which holds a statewide competition each year. This competition, known as the Colorado Science and Engineering Fair (formerly Colorado State Science Fair), is the state level event in a year-long process of local and regional science fairs. More than two thousand students from all over the state participated in the statewide science fair program. The purpose of the CSEF is to stimulate student interest and encourage them in science and engineering by recognition of their ability and achievement.

This year, state winners were chosen from among 243 exhibits presented by 276 finalists from 13 regions within the state. This represented 93 schools throughout the state. More than 130 professional scientists, engineers and mathematicians interviewed the students and evaluated their projects before selecting the Grand Awards winners. In addition, there are currently over 50 business, professional societies, and government agencies that provide over 150 of their own representatives to judge exhibits based on their own criteria. They judge 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 calculators. Over 1000 people attended the Awards Ceremony this year.

In addition to getting the rare opportunity to speak with working scientists, Colorado Science and Engineering Fair student participants compete for awards in a number of categories: Botany, Earth & Environmental Sciences, Engineering, Health & Behavioral Sciences, Mathematics & Computer Sciences, Physical Sciences, and Zoology. There is also a team competition. Recognition for outstanding exhibits in each of these categories as well as an award for technical writing are given to students at the Colorado Science and Engineering Fair Awards Ceremony. The top two Senior Division winners and the top Senior Division team winners at the state level are awarded trips to the International Science and Engineering Fair. In 1999, the International Science and Engineering Fair was held in Philadelphia, Pennsylvania, where Colorado students competed with their peers from the United States and 40 countries.

A number of experiences are made available to students who participant in the CSEF. Tours of university and local corporate research facilities provide opportunities for students and their families to see research in action. The judges' interviews allow the students to interact with professional scientists and engineers. 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.

Scholarships from Colorado State University, Colorado School of Mines, and Adams State College are also presented. Colorado State University offers a \$4,000 scholarship to the first place winner in each of the individual categories in the Senior Division. The Colorado School of Mines offers a \$1,000 scholarship to a senior entrant who has declared their intention to attend the School of Mines. Adams State College offers seven \$2,000 scholarships to promising students in the upper division categories.

## 1999 Colorado Science and Engineering Fair

The 44<sup>th</sup> Colorado Science and Engineering Fair was held at the Lory Student Center on the Colorado State University campus on April 8 - 10, 1999. Two hundred seventy-six students participated in this three-day event and competed for honors in their respective categories. This year, the CSEF was honored to have as the guest speaker, Brian Jones from Colorado State University. As the coordinator of the physics instructional laboratories at CSU and the Director of the popular Little Shop of Physics traveling hands-on science program, Mr. Jones has focused on ways to help people learn science through hands-on work in formal and informal settings. His presentation this year was "The Physics of Sound and Music."

The top exhibitor of the 1999 Colorado Science and Engineering Fair and winner of an all-expense paid trip to compete in the Intel/International Science and Engineering Fair was Natalia Toro, Fairview High School, grade 12, for the project *Analysis of nu-mu nu-tau Atmospheric Neutrino Oscillations*. The runner up for the best in the state science fair, also a winner of the all-expense paid trip to ISEF was Katie Propst, Merino High School, grade 12, for the project *The Mystery of the Calcium Coat: Are Nanobacteria Linked to Extraskkeletal Calcification?* Awarded 3<sup>rd</sup> Place in the Senior Division, and alternate for the ISEF trip was Lindsay Mitchell, Palmer High School, grade 12, for the project *VRE: The Survival of Vancomycin-Resistant Enterococci on Hospital Environmental Surfaces*.

The top winner of the Junior Division was James Norton, Summit Middle School, grade 7, for the project *Sound Propagation*. The exhibit judged second best in the Junior Division was Trevor Ycas, Centennial Middle School, grade 8, for the project *To Build a Torsion Magnetometer*. Third best in the Junior Division was Spencer Imel, Centennial Middle School, grade 6, for the project *Does Smoking Effect Vision?*

Winners of the scholarships given by the local universities were:

From Colorado State University - \$4,000 scholarships (\$1,000 for each year attended at CSU):

- Lindsay Mitchell from Palmer High School, grade 12, for the project *VRE: The Survival of Vancomycin-Resistant Enterococci on Hospital Environmental Surfaces*.
- Pavan Sekhar from Cherry Creek High School, grade 11, for the project *Phytoremediation of Heavy Metal Contaminated Soils*.
- Andrea White from Merino High School, grade 12, for the project *The Power From the Sun*.
- Katie Propst from Merino High School, grade 12, for the project *The Mystery of the Calcium Coat: Are Nanobacteria Linked to Extraskkeletal Calcification?*
- Natalia Toro from Fairview High School, grade 12, for the project *Analysis of nu-mu nu-tau Atmospheric Neutrino Oscillations*.
- Ryan Patterson from Central High School, grade 9, for the project *Can a Computer Controlled Device Be Designed, Constructed, and Programmed to Find and Remember Its Way Through a Maze?*

From Adams State College - \$2,000 scholarship

- Shannon George from Woodlin School, grade 9, for the project *The Chilling Effects of Cryogenics on Clones Native Grasses*.
- Milena Pastore from Monte Vista High School, grade 9, for the project *It's a Bug's Life: The Effects of Fertilizers Containing Nitrates on Collenbola*.
- Anthony Standard from Gilpin County High School, grade 10, for the project *Eye on the Sky*.
- Stephen Hafertepen from Cherry Creek High School, grade 11, for the project *Can Common Antioxidants Prevent Damage Done To DNA Caused By Smoking*.

- Ryan Dobson from Monte Vista High School, grade 12, for the project *A Modern Look at the Delian Problem*.
- Kevin Christopher from Cherry Creek High School, grade 10, for the project *Energy as a Fundamental Unit; A New System of Measures*.
- Preetraj Grewal from Cherry Creek High School, grade 11, for the project *Antibiotic Resistance Displayed by E. Coli When Treated with Ampicillin*.
- Shere Brisendine from Walsh High School, grade 12, for the project *Like Father Like Son?*

Winner of the Ralph F. Desch Memorial Technical Writing Award of \$100 was Natalia Toro, Fairview High School, grade 12, for the project *Analysis of nu-mu nu-tau Atmospheric Neutrino Oscillations*.

### **1999 International Science and Engineering Fair**

CSEF's top two winners, Natalia Toro (from Boulder) and Katie Propst (from Sterling) represented Colorado at the International Science and Engineering Fair that is the culmination of each year's science fair experience. The 50<sup>th</sup> Intel/International Science and Engineering Fair was held May 2 – 6<sup>th</sup> in Philadelphia, Pennsylvania. At the Intel/ISEF, more than 1000 finalists represented over 40 countries from around the globe.

Natalia won 3<sup>rd</sup> Place in the Intel/ISEF Physics category and received \$1,000. She also won \$3,000 with a 1<sup>st</sup> Place award from the US Air Force. Katie won a 2<sup>nd</sup> Place award of \$1,500 in the Intel/ISEF Medicine and Health Category.

Other Colorado winners at the Intel/ISEF were:

James DePue from Woodlin School, grade 12, won prizes from the American Phyopathological Society and the Department of Commerce's Patent and Trademark Office for the project *Characterization of Pathogenic Gytospora Species*.

Will Helling from Weld Central Jr/Sr High School, grade 11, won an expense paid trip to the NASA US Space Camp in Huntsville, Alabama, for his project *A Computer Simulation of the Interactions Between Species: Evolution*.

Ryan Patterson from Central High School, grade 9, won an eight week internship with the Axonn Corporation for the project *Can a Computer Controlled Device Be Designed, Constructed, and Programmed to Find and Remember Its Way Through a Maze?*

### **Organization**

The Colorado Science and Engineering Fair would not be possible without the dedication and tremendous efforts of many committed individuals and organizations including school districts, universities, government agencies, corporations, and professional associations. These groups sustain the CSEF through financial and resource support, special awards and most importantly, through providing dedicated volunteers to serve on the fair's many working committees.

It is no exaggeration to say that the state science fair volunteers indeed make the fair possible each year by serving on the Advisory Council and its various committees. They and others also serve as judges for the Colorado Science and Engineering Fair. Prior to the statewide event, thirteen regional science fairs and a great number of local school science fairs are conducted throughout the state; each of these fairs is supported and promoted by hardworking and dedicated educators at the local level. Before a student's exhibit even makes it to a local fair, it requires the encouragement and

support from individual teachers, 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.

The success of each year's fair is directly dependent upon the support of public and private organizations, government agencies, school districts, universities, and the efforts and coordination of more than three hundred dedicated volunteers. To organize and stage the fair each year requires a great effort, but it also offers many personal challenges and rewards. To witness the level of achievement, pride and excitement of these bright young people in their scientific endeavors is one of the rewards that all of the volunteers share, and it also speaks to the high level of students' aptitude and enthusiasm for science in Colorado.

### **Mission Statement**

The Colorado Science and Engineering Fair is an organization that:

- Honors winners from Colorado regional science fairs at an annual state science fair.
- Provides an opportunity to send finalists from the State of Colorado to the International Science and Engineering Fair (ISEF).

We support regional science fairs by:

- Providing an alternative to the ISEF affiliation as a means of attending the ISEF.
- Providing a forum where regional science fairs can influence policies, rules, and by-laws of the state science fair.
- Providing rules and requirements for participation in the state science fair.
- Facilitating communication, where practical, regarding science fairs and their participants.

Colorado Science and Engineering Fair Sponsors provide the majority of the financial and resource support. In addition, each sponsor also provides two volunteers to serve on the CSSF, Inc. Board of Directors.

### **Platinum Sponsors**

(Providing over \$2,500 in support for the CSEF.)  
Colorado State University

### **Gold Sponsors**

(Providing \$1,000 to \$2,500 in support for the CSEF.)  
Alcoa Foundation  
Anheuser-Busch, Inc.  
Arkansas Valley Dental Association  
Colorado Medical Society  
Eastman Kodak Company, Colorado Division  
Lockheed Martin Astronautics  
Old Chicago Restaurant  
Rocky Mountain Remediation Services  
Safe Sites of Colorado, LLC  
StorageTek Foundation  
US Department of Commerce/ITS  
US Department of Commerce/NOAA

### **Silver Sponsors**

(Providing \$750 to \$1,000 in support for the CSEF.)  
US Department of Commerce/NIST

### **Sponsors**

(Providing \$500 to \$750 in support for the CSEF.)

Amgen, Inc.	Colorado Engineering Council
COBE Laboratories	Colorado State University, College of Engineering
Colorado Biomedical	OEA, Inc.
Colorado Dental Association	San Luis Valley Regional Science Fair
Hach Company	University of Colorado, CEAS
IEEE/LEOS Denver Chapter	US West Information Technologies, Inc.
National renewable Energy Lab/Midwest Research Institute	

### **Financial Contributors**

(Providing up to \$500 in support for the CSEF.)

Lucy Adams	Paul Cheng
A & L Coors	Gina Holland
American Institute of Chemical Engineers	King Soopers
Applied Hydrology Association, Inc.	Kaiser-Hill Company
ASM International, Rocky Mountain Chapter	New Century Energies
Ball Aerospace Technology Corp	USR Greener Woodward Clyde
Dan & Carol Blake	Utility Engineering Corporation

Many Federal employees contribute monthly through the Combined Federal Campaign.

### **Lynn Butler Memorial Scholarship**

The CSSF, Inc. Board of Directors has established the Lynn Butler Memorial Scholarship Fund to assist low-income finalists in paying their CSEF registration fee. Lynn Butler was the CSEF Director for the 1991 fair, as well as a hard working, dedicated volunteer for CSEF and for science students statewide until her death in 1996.

## Advisory Council

The CSEF Advisory Council includes all Regional Fair Directors, the CSSF, Inc. Board of Directors and members at large.

### Board of Directors

President: Bob Morrow  
Vice President: Harvey Teyler  
Secretary: David Holm  
Treasurer: Asa Reed  
Fair Director: Lucy Adams  
American Cancer Society – Richard Shipman, Heather Tolby  
Anheuser-Busch, Inc. – Skip Beck  
Colorado Dental Association – Robert Morrow  
Colorado Engineering Council – Gina Holland, Paul Cheng  
Colorado Medical Society – William Pierson, John Farrington  
Colorado State University – Tom Sneider, David Brinkley  
Colorado State University, College of Engineering – Charles Shackelford  
Eastman Kodak Company – Sue Refner  
Hewlett-Packard Company – Rob Yockey, Kristin Howerton  
Lockheed Martin Astronautics – Paul Cheng  
National Renewable Energy Lab – Dan Blake, Bonnie Hames  
Rocky Mountain Remediation – Gary Guinn, Asa Reed  
Safe Sites of Colorado – Mile Korenko, Bob Suyama  
San Luis Valley Regional Science Fair – David Holm, Harvey Teyler  
StorageTek Foundation – Dan McCamman  
Symbios Logic – Don Kirkland  
US Department of Commerce/NIST – Dave Lovering  
US Department of Commerce/NOAA – Dave Clark, Al Bedard  
US Department of Commerce/NTIA – Carrie Shaw  
US West Technologies – Radford Walker  
University of Colorado, College of Engineering and Applied Science – Sherry Snyder

### Advisory Council Members At Large

Carl Edstrom	Jody Oaks
Nancy Gettman	Kelly Reed
Cameron Holm	Lisa Rothe
Larry Jakel	Jim Sites
Dan Van Gorp	James Stevens
Charles Johnson	Doug Steward
Beverly Meier	

### Regional Science Fairs

<u>Arkansas Valley</u> Joel Gray and Jim Herrell, Co-Directors	<u>Pikes Peak</u> Georgia Matteson, Director
<u>Boulder Valley</u> Cheryl Rapp, Director	<u>San Juan Valley</u> Martha Iverson, Director
<u>Denver Metro</u> Radford Walker, Director	<u>San Luis Valley</u> Lucy Adams, Director
<u>East Central</u> William Mallory, Directors	<u>Southeast Colorado</u> Robert Williams and Dan Temple, Co-Directors
<u>Longs Peak</u> Terry Scott, Director	<u>Spanish Peaks</u> Robert Phillbin, Director
<u>Morgan/Washington Bi-County</u> Elemer Bernath & Don Gabriel, Co-Directors	<u>Western Colorado</u> Forbes Davidson and Rob Robison, Co-Directors
<u>Northeast Colorado</u> Donald Hurt, Director	

## Working Committees

Alumni – Bob Morrow, Cameron Holm

Awards Ceremony – Kelly Reed, Beverly Meier, Sue Refner, Doug Steward

CSEF 2000 – Bob Morrow, Dave Clark, Dave Lovering

Display & Safety – Elemer Bernath, Dan Van Gorp, Don Hurt, Rich Shipman, David Holm, Sue Refner, Jim Sites

Facilities/Monitors – Ruth Taylor, Joel Gray, Nancy Gettman, Bob Williams

Finance – Dan Blake, Carl Edstrom, Bob Morrow, David Holm, Dave Lovering, Al Bedard, Harvey Teyler, Kate Taylor

Host Families – Sue Refner

Photography – Ray Alvarado, Carrie Shaw, Sue Refner, Doug Steward, Larry Jakel, plus Kodak volunteers

Publicity – Dave Clark, Carol Morrow, Jody Oaks, Jane Cowden

Registration – Ruth Taylor, Carl Edstrom, Cheryl Rapp, Lucy Adams, Lori Dillon, Jeni Jack

Regular Judging – Gina Holland, Carl Edstrom, Russell Stoner, Trudy Germann, Bonnie Hames

Room Set-Up – Jim Sites, Don Hurt, Al Bedard, Elemer Bernath, Dan Van Gorp, Doug Steward, Tom Sneider

Scholarships – David Holm, Lucy Adams

Scientific Review – Elemer Bernath, Charles Johnson, Steve Iona, Lisa Rothe, Doug Steward, Jody Oaks, Lucy Adams

Special Awards Judging – Paul Cheng

Student Activities/Speaker – Lucy Adams

Tours – Rich Shipman, Kristin Howerton, Skip Beck

### Past Colorado Science and Engineering Fair Directors

Charles Bragaw	1956-1967
Calvin Fisher	1968-1974
Sam Shushan	1975-1977
Gordon Moore	1978
Russell B. Stoner	1979-1981
Virgil Sandborn	1981-1983
James Sites	1984-1985
Llyod Walker	1986-1988
Connie Vader-Lindholm	1989-1990
Lynn Butler	1991
Kate Taylor	1992-1994
Christal McDougall	1995-1996
Kate Taylor	1997-1998
Lucy Adams	1999



## Annual Budget Report

9/1/98 through 8/31/99

Category Description	Actual	Budget	Difference
<b>INCOME</b>			
Sponsors	\$16,900.00	\$20,000.00	(\$3,100.00)
Contributions	\$3,411.92	\$2,500.00	\$911.92
Registrations	\$10,010.00	\$10,000.00	\$10.00
Interest	\$0.00	\$50.00	(\$50.00)
General Sales	\$461.89	\$1.00	\$460.89
Tour Tickets	<u>\$219.05</u>	<u>\$200.00</u>	<u>\$19.05</u>
<b>TOTAL INCOME</b>	<b>\$31,002.86</b>	<b>\$32,751.00</b>	<b>(\$1,748.14)</b>
<b>EXPENSES</b>			
Student Awards			
Cash Awards	\$3,050.00	\$3,100.00	\$50.00
<b>ISEF</b>			
Affiliation	\$500.00	\$500.00	\$0.00
Lodging	\$1,602.13	\$1,600.00	(\$2.13)
Per Diem	\$335.00	\$840.00	\$505.00
Registration	\$375.00	\$450.00	\$75.00
Travel	<u>\$1,122.67</u>	<u>\$1,700.00</u>	<u>\$577.33</u>
<b>TOTAL ISEF</b>	<b>\$3,934.80</b>	<b>\$5,090.00</b>	<b>\$1,155.20</b>
Medals	\$937.52	\$850.00	(\$87.52)
T-shirts, etc.	<u>\$975.00</u>	<u>\$2,100.00</u>	<u>\$1,125.00</u>
<b>TOTAL Student Awards</b>	<b>\$8,897.32</b>	<b>\$11,140.00</b>	<b>\$2,242.68</b>
Student Meals	\$3,429.46	\$4,600.00	\$1,170.54
Student Publications	\$146.00	\$500.00	\$354.00
Student Rent	\$125.00	\$1,300.00	\$1,175.00
Student Tours	\$0.00	\$200.00	\$200.00
Student Printing	\$2,680.14	\$1,700.00	(\$980.14)
Operations			
Communications	\$1,529.35	\$1,760.00	\$230.65
Meals	\$216.38	\$500.00	\$283.62
Personnel	\$12,210.04	\$6,800.00	(\$5,410.04)
Training	\$85.00	\$50.00	(\$35.00)
Annual Report	\$0.00	\$550.00	\$550.00
Corporate Fees	\$25.00	\$50.00	\$25.00
Insurance	<u>\$1,602.90</u>	<u>\$1,600.00</u>	<u>(\$2.90)</u>
<b>TOTAL Operations</b>	<b>\$15,668.67</b>	<b>\$11,310.00</b>	<b>(\$4,358.67)</b>
Savings	\$0.00	\$2,000.00	\$2,000.00
<b>TOTAL EXPENSES</b>	<b>\$30,946.59</b>	<b>\$32,750.00</b>	<b>\$1,803.41</b>
<b>TOTAL INCOME-EXPENSES</b>	<b>\$56.27</b>	<b>\$1.00</b>	<b>\$55.27</b>