



CALIFORNIA STATE SCIENCE FAIR PROGRAM OF PROJECTS

M A Y
23 - 24 **2016**

Presenting Benefactor

NORTHROP GRUMMAN

with support from



The California Science Center aspires to stimulate curiosity and inspire science learning in everyone by creating fun, memorable experiences, because we value science as an indispensable tool for understanding our world, accessibility and inclusiveness, and enriching people's lives.

Welcome to the California Science Center, a dynamic destination where learners of all ages can explore the wonders of science through interactive exhibits, live demonstrations, innovative programs and awe-inspiring films. With 2.5 million guests in each of the past three years since the Space Shuttle Endeavour arrived, the Science Center is the most attended museum in California and ranks as number 8 of the 20 most visited museums in North America. While you are on site, please take a moment to explore some of the many exhibitions the Science Center offers.



One-of-a-Kind Experiences

Ecosystems, a major exhibition wing, explores the links between the living and physical worlds. It features an unprecedented blend of live plants and animals with hands-on science exhibits in 8 different environments. *Creative World* examines the environment humans build to meet their needs for structures, transportation and communications. From computer technology and digital imaging to solar cars and earthquake-resistant buildings, *Creative World* showcases the wonders and consequences of human innovation. *World of Life* probes the commonalities of the living world, from the single-celled bacterium to the 100 trillion-celled human being. Five additional galleries within this exhibit area feature the processes of creating, controlling, supplying, energizing and defending life. *SKETCH Foundation Gallery Air and Space Exhibits* presents aerospace artifacts along with hands-on exhibits that show how scientific principles affect air and spacecraft design. Real flown space craft such as space capsules from the Mercury, Gemini and Apollo-Soyuz missions are among the artifacts on display.

While we are building Space Shuttle Endeavour's permanent home, a new addition to the Science Center called the Samuel Oschin Air and Space Center, Endeavour can be viewed in the Samuel Oschin Pavilion. You can begin your experience in *Endeavour: The California Story*, an introductory gallery featuring images and artifacts that relate the shuttle program to California, where the orbiters were built. Following your visit to *The California Story*, you can see Endeavour up close and personal in the Samuel Oschin Pavilion, and outside you can view the last remaining flight-qualified external tank, known as ET-94, which was just transferred to us from NASA.

The Weingart Special Exhibits Gallery and S. Mark Taper Foundation Sky Court Gallery are where guests will find changing exhibits from other museums as well as the Science Center.

The IMAX Theater offers an immersive experience featuring a movie screen 7-stories high and 90-feet wide, with a 6-channel surround sound system. The experience takes filmgoers across continents, over oceans and into outer space! Films showing at this time include *A Beautiful Planet 3D* and *National Parks Adventure 3D*.



The California Science Center is open daily from 10:00 a.m. to 5:00 p.m., except for Thanksgiving, Christmas and New Year's Day. General admission is free. IMAX Theater tickets range in price from \$8.50 to \$5.25. For general information, including prices, show descriptions and schedules, phone (323) SCIENCE or visit www.californiasciencecenter.org.

The 65th Annual
California State Science Fair

May 23 - 24, 2016



PRESENTED BY

NORTHROP GRUMMAN

California Science Center
Exposition Park • Los Angeles



OFFICE OF THE GOVERNOR

April 3, 2016

Dear California Science Fair Applicant:

Your outstanding work and interest in scientific research speaks of your gifts and abilities. Your success in local competitions qualifies you to apply to compete in the 2016 California State Science Fair. If selected, you will have the opportunity to represent your community in a statewide competition attended by talented young researchers like yourself. The State Science Fair leaves a lasting impression on participants and inspires many students to pursue their interests in science throughout their lives.

I would also like to acknowledge the guiding role of your parents and teachers in your science project. Their support plays an important role in encouraging you and other young adults to consider becoming California's future scientists, engineers and mathematicians.

The originality, creativity and professionalism displayed by students at the Science Fair have consistently impressed. I wish you the best of luck as you apply to participate in this great event.

Sincerely,


EDMUND G. BROWN JR.

**CALIFORNIA STATE
SCIENCE FAIR**



PRESENTED BY

NORTHROP GRUMMAN

May 23, 2016

Welcome to the 65th Annual California State Science Fair!

This is an exciting time to be involved with and interested in Science, Technology, Engineering and Math (STEM). Everywhere we look: your TV, your tablet, or your smart phone, you see exciting news associated with these disciplines.

We read about advances in clean transportation, driverless cars, hybrids, drones and hovercrafts. We are seeing new clean energy sources associated with solar, hydrogen, renewable natural gas. We see advances in health, medicine and real time physical health monitors we can all wear on our wrists. You read about private companies delivering payloads and experiments to the International Space Station (ISS). They are not ready to take reservations for you and me to visit the ISS, or the Moon or even Mars, but we all know with the advances we see all around us, it's just a matter of time.

The innovations and crazy ideas that you all are thinking of today will change the way we interact with the world around us and with each other. Every single one of the young men and women future leaders whose curiosity has led them to present their projects here today will lead us into that future. It is these future leaders who will help the world to be a better place to live. It is these future doctors, scientists, and teachers that will forge new frontiers in how we interact, socialize, travel, and peacefully coexist with each other in the future. The work being done by these students is not only exciting, it is important.

This extraordinary event is hosted and produced by the California Science Center Foundation and its dedicated volunteer Board. It is made possible by our donors, volunteer staff, volunteer judges and California Science Center staff whose hard work, enthusiasm and generous contributions are essential to the success of the California State Science Fair.

We are deeply grateful to the supporters of this exhilarating statewide competition. A very special thanks to our presenting benefactor Northrop Grumman Corporation for their tremendous generosity and commitment to making this event possible. We also acknowledge our additional benefactors for their generous support: Chevron Corporation, GoDaddy.com, LLC, Southern California Gas Company, THE MUSES of the California Science Center Foundation, The Ralph M. Parsons Foundation, and Gilead Sciences, Inc.

To all of the students: your hard work and discipline is much admired. Enjoy the competition and have fun meeting peers—your vision is our future.

Congratulations and best of luck to all!

Sincerely,

Hal Snyder
Co-Chair
2016 California State Science Fair

Liz Snyder
Co-Chair
2016 California State Science Fair

California State
Science Fair Board

Hal Snyder
Co-Chair

Liz Snyder
Co-Chair

Robert V. Anderson

Philip M. Fine, Ph.D.

John J. Germroth

Christopher M. Gould, Ph.D.

Thomas R. LeBon, Ph.D.

Geraldine J. Peters, Ph.D.

Kevin Wegener

700 Exposition Park Drive
Los Angeles, California
90037

(213)744-2511
[www.californiasciencecenter.org/
CSSF](http://www.californiasciencecenter.org/CSSF)

2016 California State Science Fair Board

Co-Chairs	Hal Snyder and Liz Snyder
Directors of Judging	Philip M. Fine, Ph.D. Thomas R. LeBon, Ph.D. Geraldine J. Peters, Ph.D.
Director of External Awards	Robert V. Anderson
Display Approval	John J. Germroth
Student Affairs	Christopher M. Gould, Ph.D.
MUSES Liaison	Kevin Wegener

Judges Advisory Committee

Miss Nishat Alikhan	Dr. Michael J. Kelley	Ms. Pamela V. Sachse
Mr. Robert V. Anderson	Dr. Shalini Kumar	Dr. Patrick M. Sain
Dr. Jonathan W. Arenberg	Dr. David E. Lee	Mr. Shyam Saladi
Dr. John J. Ermer	Dr. Florence J. Lin	Dr. Robert E. Salfi
Mr. Harry J. Evry	Mr. James P. Lux	Mr. Arif H. Sayed
Dr. Robert A. Gelfand	Mr. Tom Melatis	Mr. Aaron Schwartzbart
Mr. John J. Germroth	Dr. Sarina Mohanty	Ms. Margery Weitkamp
Dr. Cymra Haskell	Mr. Hany Morcos	
Mr. Thomas Heim	Mr. Jeffrey Scott Nuttall	<i>ex officio:</i>
Ms. Kathryn J. Hoxsie	Dr. Jessica Anne Parr	Philip M. Fine, Ph.D.
Mrs. Ani M. Issaian	Mr. Lee Pedlow	Thomas R. LeBon, Ph.D.
Ms. Tahseena Kahn	Prof. Suraiya Rasheed	Geraldine J. Peters, Ph.D.
Dr. Raj P. Kandpal	Dr. Alexander Ring	Christopher M. Gould, Ph.D.

California Science Center

Jeffrey N. Rudolph	President and Chief Executive Officer
Ron Rohovit, Ed.D.	Deputy Director, Education
Gretchen Bazela	Senior Director, Education Programs
Chris Sion	Vice President, Event Services
Shelby Richmond	Coordinator, Event Services
Kari Mendez	Sales Manager, Event Services
Kristina Kurasz	Associate Director, Communications
Valerie Thompson	Volunteer Manager
Alexandra Larned	Volunteer Outreach Coordinator
Christy Seki	Director of Development
Esteban Martorell	Senior Grant Writer
Georgina Diaz	Director, Guest Services/ IMAX
Christopher Nwani	Manager, Print and Graphics Design
Ryan Zynger	Zynger Events Design
Morgan Cassell	Zynger Events Design

California Science Center
CALIFORNIA STATE SCIENCE FAIR
2016 Donors

The California Science Center Foundation extends heartfelt gratitude to the following donors to the California State Science Fair whose generous support makes possible this extraordinary experience for our state's best and brightest young science scholars.

PRESENTING BENEFACTOR
NORTHROP GRUMMAN

BENEFACTORS



GoDaddy.com, LLC
Southern California Gas Company
THE MUSES of the California Science Center Foundation
The Ralph M. Parsons Foundation
Gilead Sciences, Inc.

IN-KIND CONTRIBUTORS

University of Southern California
Trimana

California Science Center
CALIFORNIA STATE SCIENCE FAIR
2016 Special and Recognition Awards

SPECIAL AWARDS

- Chairwoman's Award for Positive Impact to Social Good and a Friendlier Planet,
Liz Snyder, Keller Williams Realty
- LA BioMed Award for Excellence in Biochemistry and Molecular Biology,
Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center
(LA BioMed)
- Math Teachers Award for Excellence in Mathematics and Computer Science Studies,
Anonymous
- Raytheon Academic Junior Achievement Award, *Raytheon Asian Pacific Association*
(RAPA) – Raytheon Space and Airborne Systems Company, El Segundo, CA
- South Coast AQMD Air Quality Award, *South Coast Air Quality Management*
District

RECOGNITION AWARDS

- AIPG Geoscience Award, *American Institute of Professional Geologists, California*
Section
- A&WMA Environmental Stewardship Award, *Air and Waste Management*
Association
- Biophysics Award, *Biophysical Society*
- Bone Clones Research Award, *Bone Clones Osteological Reproductions*
- CAPS Science Achievement Award, *California Association of Professional Scientists*
- Center for Plant Cell Biology Award, *Center for Plant Cell Biology, UC, Riverside*
- Clinical Chemistry Award, *American Association for Clinical Chemistry – Southern*
California Chapter
- CSBPA Best Coastal Science Project, *California Shore & Beach Preservation*
Association
- CWEA Outstanding Water Project, *California Water Environment Association*
- Excellence in Environmental Education Award, *California Environmental Education*
Association
- Nature-Watch Mammalian Biology Award, *Nature-Watch*
- Peter Emmanuel Shirajian Award, *Armenian Engineers and Scientists of America*
- Plug In America EV Excellence Award, *Plug In America*
- Raytheon Academic Junior Achievement Award, *Raytheon Asian Pacific Association*
(RAPA) – Raytheon Space and Airborne Systems Company, El Segundo, CA
- SPIE Optics and Photonics Award, *International Society for Optics and Photonics*
- Sushila & Chandi Charan Kar Award, *Sheila Kar Health Foundation*
- UCLA BRI Award, *Brain Research Institute, University of California, Los Angeles*



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2016 SCHEDULE OF ACTIVITIES

Monday, May 23, 2016

10:00 a.m.	Registration Opens
1:00 - 3:00 p.m.	Affiliated County and Regional Fair Coordinators Meeting Location: California Science Center Administrative Offices, Conference Room 3 (Fourth Floor)
3:00 - 4:30 p.m.	* Public Viewing of Fair Projects Students requested to be present at their displays
3:30 p.m.	Registration closes
5:00 - 6:00 p.m.	* Opening Ceremony and Keynote Address Location: Big Lab, Wallis Annenberg Building Speaker: Robert Curbeam, <i>Former NASA astronaut and currently Vice President and Deputy, Raytheon Space Systems</i>

Tuesday, May 24, 2016

7:00 a.m.	Science Center opens for judges and participants only
8:00 a.m.	* Student Orientation Location: Big Lab, Wallis Annenberg Building Speaker: Walter O'Brien, <i>Founder and CEO of Scorpion Computer Services, Inc.</i>
8:00 a.m.	All judges examine project displays before the First Judging Session. No interviews will be conducted at this time because students should <i>not</i> be present until 8:30 a.m.
8:30 - 10:30 a.m.	* First Session of Judging for all awards, in parallel. Includes: All Category Awards, All Special and Recognition Awards, Science Fair Student of the Year project reviews
9:00 a.m. - 12:00 p.m.	California State Science Fair Teacher of the Year Interviews Location: California Science Center Administrative Offices, Conference Room 3 (Third Floor)
10:30 - 11:00 a.m.	Scheduled Break in Judging. Students are free to leave the display area now. No interviews by any judges (for either Fair or external awards) will be conducted during this time.

Tuesday, May 24, 2016

- 11:00 a.m. - 12:30 p.m. * **Final Session of Judging** for Category and Special Awards
Recognition Awards presented to winners at their projects.
- 12:30 p.m. Judging Ends. All participants must exit the Science Center.
All displays must remain in place until the Removal Time (below).
- 12:30 p.m. Students are now free. First among the local opportunities is the
Science Fair Seminar at 2:00 p.m. Other sites include California
Science Center and IMAX Theater, Natural History Museum of Los
Angeles County, California African American Museum, and USC.
- 12:30 p.m. California State Science Fair Student of the Year
Finalists Announced
Location: Under the Rotunda, outside Science Center south doors
- 1:30 p.m. California State Science Fair Student of the Year Interviews
Location: California Science Center Administrative Offices,
Conference Room 3 (Third Floor)
- 1:30 - 3:30 p.m. **Project Removal**
No projects may be removed before this time. All projects must be
removed during this time. Unclaimed projects will be discarded.
- 2:00 - 3:30 p.m. Science Fair Seminar for Everyone
How to Do a Better Science Fair Project
Telling a Scientific Story: Presenting Data
Location: MUSES Room, Wallis Annenberg Building
- 4:00 - 5:00 p.m. * **Junior Division Awards Ceremony**
Location: Big Lab, Wallis Annenberg Building
Closed to the public. Admission limited to Junior Division
participants and guests with a Ceremony Admission Ticket.
- 5:30 - 6:30 p.m. * **Senior Division Awards Ceremony**
Location: Big Lab, Wallis Annenberg Building
Open to the public.

* Photographs will be taken, and press interviews (newspaper, radio, and TV) may be held at these times. Fair photographs will be posted to the World Wide Web. Please dress appropriately.

California Science Center
CALIFORNIA STATE SCIENCE FAIR
2016 Judges

The California State Science Fair would not be possible without the voluntary efforts of hundreds of professional scientists and engineers from throughout the State who have volunteered this day for the purpose of meeting with the participants and discussing the projects. We especially recognize the Directors of Judging, Dr. Philip M. Fine, Dr. Thomas R. LeBon, and Dr. Geraldine J. Peters who have coordinated all of the judges for the 2016 Fair.

We also want to recognize the extra efforts by the following members of the Judges Advisory Committee who, among other duties, read every Project Summary and collaboratively assigned each project to the panels in this *Program*: Miss Nishat Alikhan, Mr. Robert V. Anderson, Dr. Jonathan W. Arenberg, Dr. Robert A. Gelfand, Mr. John J. Germroth, Dr. Cymra Haskell, Mr. Thomas Heim, Ms. Tahseena Kahn, Dr. Shalini Kumar, Dr. David E. Lee, Dr. Florence J. Lin, Mr. James P. Lux, Mr. Tom Melatis, Prof. Suraiya Rasheed, Ms. Pamela V. Sachse, Mr. Shyam Saladi, Dr. Robert E. Salfi, Mr. Aaron Schwartzbart, and Ms. Margery Weitkamp, in addition to the Directors of Judging above.

Finally, we recognize all judges who had confirmed their participation by the time this *Program* was produced on May 4.

Dr. Kim Aaron	Dr. Jeffrey R. Begley	Mrs. Michelle A. Carter
Dr. Henry I. Abrash	Dr. Michael J. Belisle	SSA Timothy G.
Prof. Ravinder Abrol	Mr. Ram K. Bharti	Cassidy-Curtis
Mr. Kent D. Adams	Mr. Arshi M. Bharucha	Ms. Gretchen G. Castello
Dr. Mark Adler	Dr. Kiran Bijlani	Mr. Jose M. Castellon, Jr.
Mr. David Agdashian	Ms. Elizabeth J. Billet	Miss Linh Anh Cat
Mr. Syed Z. Ahmed	Dr. Wendy M. Blanda	Dr. Arpi Chalian
Dr. Amal Alachkar	Dr. Lucia Borriello	Dr. Kishore B. Challagundla
Dr. Rizaldo E. Aldas	Mr. Richard J. Bravo, Sr.	Dr. Carcy L. Chan
Mr. Daniel Alford	Dr. Greg Brennan	Ms. Lily Chang
Miss Nishat Alikhan	Mr. Scott W. Breunsbach	Mr. Ramesh N. Chaubey
Mr. Lee L. Amatangelo	Mr. Martin Paul Bronstein	Dr. Parvesh Chaudhry
Mr. Joel R. Amato	Dr. Thomas E. Browne	Dr. Audrey Chen
Mr. William W. Anderson, Jr.	Mr. Macarius B. Brownfield	Mrs. Jennifer S. Cheng
Dr. Bradley T. Andresen	Dr. Rebecca Broyer	Mr. Sothy Chhe
Dr. David R. Ardila	Mr. Bert A. Brumell, Jr.	Mr. Yun Luke Chiang
Dr. Jonathan W. Arenberg	Dr. David L. Brundrett	Dr. David Chilin
Ms. Emma Lee Baker	Mr. Alan Bruno	Mr. Chris Ching
Mr. Mohan Balagopalan	Ms. Melissa Buettner	Mr. Anthony K. Choi
Dr. Pratheep Balasingam	Miss Carolyn Bufford	Ms. Joan Wang Chou
Prof. Gerald S. Bales	Dr. Carrie Butler	Dr. Henry A. Choy
Mr. Tereso Banuelos	Dr. Jennifer L. Buur	Mr. Gino Cochella
Miss Joyann S. Barber	Dr. Denise A. Calaprice	Mr. Bob F. Colella
Mr. Victor J. Barres	Mr. Steven Paul Caldwell	Miss Cathleen Collins
Dr. Wojciech Bartkowski	Dr. Monika P. Calef	Mr. Daniel Cordero, Jr.
Dr. Gregory Becker	Dr. Arezoo Campbell	Mr. Michael A. Corsello

2016 California State Science Fair Judges

Dr. Llewellyn Cox	Mr. David Han	Dr. Michael J. Kelley
Mrs. Ashley Danial	Dr. Yinhua Han	Dr. Stephen Kendall
Dr. Marlene De la Cruz	Mr. J. A. Hangen	Ms. Selena K. Khan
Dr. Margie Dell	Mr. William R. Harper	Mr. Sheraz Khoja
Mr. Robert J. Dempster	Prof. David Money Harris	Miss Malak Khojasteh
Mr. Joman Diec	Prof. Joel K. Harris	Dr. Richard D. Kidd
Mr. Vinh Diep	Dr. Marni E. Harris-White	Ms. Jackie H. Kim
Dr. Sunil Dixit	Ms. Carrie Ann Hartman	Prof. Jayoung Kim
Ms. Sijia Dong	Dr. Cymra Haskell	Mr. Jun Kim
Mr. Steve Doucette	Mr. Jason Hatakeyama	Dr. Natalie Kintz
Mr. Levon Dovlatyan	Mr. Alan Heath	Ms. Diana Lynn Kirtley
Mr. Ken Dreshfield	Mr. Jeffery C. Heath	Mr. Wayne Kiso
Mr. Richard A. Easton	Prof. David Heckerman	Mr. Victor S. Kiuhan
Dr. John J. Ermer	Mr. Thomas Heim	Dr. Leslie Ann Klein
Mr. Wilber Escorcia	Dr. Joseph Heras	Ms. Renee E. Klein
Mr. Daniel P. Faigin	Dr. Karl M. Hess	Mr. Eric T. Kong
Mr. Daniel Fettner	Dr. Phyllis C. Hirsch	Mr. Andre Kovach
Mr. Juergen Flamm	Mr. Huan D. Hoang	Dr. Anita T. Kreide
Mr. Mark Ford	Dr. Jerzy R. Hoffman	Mr. Andrzej Krol
Mr. Steven G. Fox	Mr. Florian Hofmann	Dr. Shalini Kumar
Dr. Jason L. Frand	Dr. Tyler R. Holcomb	Dr. Tsz Ho Kwok
Dr. Kenn K. Fujioka	Dr. Philip Hon	Dr. Allan W. Labrador
Mr. Alexander Paul Funk	Dr. Ryan J. Honda	Dr. Venu Lagishetty
Mr. Jawahar Jeff Garg	Ms. Kathryn J. Hoxsie	Dr. Rabin D. Lai
Dr. Thomas M. Garrett	Dr. Ben S. Huang	Mr. Sherman Lambert
Dr. Samuel D. Gasster	Ms. Alexa Hudnut	Mrs. Betsey Landis
Dr. Prapti Gautam	Dr. Sharon Hudson	Dr. Christianne Joy Lane
Dr. Robert A. Gelfand	Mrs. Natalya Hung	Mr. Jorg R. Largent
Dr. Christine E. Geosling	Prof. Ian V. Hutchinson	Dr. Huong Le
Dr. Z. Nevin Gerek Ince	Dr. Sandra C. Hutchinson	Mr. Kim H. Le
Mr. John J. Germroth	Dr. James T. Huynh	Dr. David E. Lee
Miss Tina Gettas	Dr. Frank W. Ingle	Mr. Jeffrey L. Lee
Mr. Eric Gever	Mrs. Ani M. Issaian	Mrs. Marianne Lee
Prof. William A. Goddard, III	Ms. Nora J. Jamgotchian	Ms. Michele Lee
Dr. Benjamin D. Goldman	Miss Michelle Jhun	Mrs. Samantha Leigh
Dr. Henry J. Gonzalez	Mr. David R. Johannes	Dr. James E. Leight
Mrs. Josephine J. Gow	Dr. Michael F. Johnston	Dr. Audra V. Lembertas
Dr. Gian Paola G. Grant	Miss Lacey Rose Jones	Prof. James Lewis
Mr. Pernell W. Gray, Jr.	Dr. Thomas E. Jones	Mr. David Y. Liang
Prof. Weifeng Gu	Ms. Tahseena Kahn	Dr. Bruno P. Lima
Dr. Eda Gungor	Dr. Craig B. Kalem	Ms. Karla P. Lima
Mr. Amit Gupta	Ms. Marwah Kamel	Dr. Florence J. Lin
Dr. Jasmine Gupta	Dr. Martin Kampe	Dr. Kenneth H. Lister
Dr. Augusto L. Gutierrez-Aitken	Dr. Aaron Katzenstein	Dr. Chung S. Liu
Mr. Dale L. Hall	Mr. Aaron Keefe	Ms. Irene Liu
Mrs. Priscilla R. Hamilton	Mr. John K. Keigharn	Mr. John H. Livingston
	Dr. Clifford W. Kelley	Mr. Eric Loke

2016 California State Science Fair Judges

Dr. Terrence S. Lomheim	Mr. Jim E. Nichols, Jr.	Mr. Richard E. Rifelli
Dr. Steven D. Lord	Dr. Richard Niederberg	Dr. Alexander Ring
Mr. Michael S. Luk	Prof. Robert L. Nigbor	Miss Alejandra Rios
Mrs. Carmelita S. Magat	Ms. Nina C. Nishiyama	Dr. Juan Rivera
Dr. Nitaigour P Mahalik	Ms. Cindy Kay Noble	Prof. Bruce Rothschild
Dr. Sharon Mair	Mr. Kevin A. Noertker	Dr. Arthur L. Rubin
Dr. Devdoot Majumdar	Mr. Jeffrey Scott Nuttall	Mr. Stephen A. Runk
Dr. Daniel W. Manchala	Dr. Steve OBarr	Mr. Phil Rutherford
Dr. Gene R. Mancini	Dr. Roger C. O'Brien	Dr. Michael J. Ryan
Dr. Bruce D. Marcus	Dr. Jinny J. Oh	Ms. Pamela V. Sachse
Dr. Thomas Mathew	Mr. Yun S. Ohm	Mr. Timon Safaie
Dr. Natalia S. Mattan-Hung	Mr. Oliver C. Pacifico	Dr. Patrick M. Sain
Mr. Alan S. Mazer	Dr. Teresa P. Palos	Mr. Shyam Saladi
Ms. Chiara Mazzasette	Dr. Hagop V. Panossian	Dr. Robert E. Salfi
Mrs. Samantha E. McBirney	Dr. Vasileios Papapostolou	Dr. Janaki Santhiveeran
Mr. Donald W. McCarthy	Mrs. Susana Pardo	Dr. Prakash Sarathy
Mr. Thomas K. McCloud, Jr.	Dr. B. Hyle Park	Ms. Marianna Sarkissyan
Ms. Lydia McDowell	Dr. Jennifer I. Park	Mr. Branko Savic
Mr. Charles R. McMahan	Dr. Jessica Anne Parr	Mr. Arif H. Sayed
Mr. Jose M Medina	Mrs. Tanya Patterson	Dr. Steven L. Schandler
Ms. Mary L. Meecker	Mr. Bartlett W. Patton	Dr. Leif Z. Scheick
Mr. Brian Edwar Megginson	Capt. Jason Pausewang	Mr. David Schilpp
Mr. Tom Melatis	Prof. Michael J. Pecaut	Dr. Kee W. Scholten
Miss Faye Mendoza	Mr. Lee Pedlow	Mr. Aaron Schwartzbart
Mr. Steven M. Menkus	Mr. Fred W. Peitzman	Mr. Alan E. Scrivner
Mr. Rob C. Merrell	Mrs. Katherine M.	Mr. Randal E. Secor
Mr. Luis E. Meza	Pendergraph	Dr. Manoug Seraydarian
Ms. Sara Michael	Dr. Lynnus Peng	Dr. Joel C. Sercel
Dr. Sheryl Militar	Mr. N. Dean Pentcheff	Dr. Kenneth L. Servis
Mr. Rich B. Miller	Mr. Daniel G. Peterson	Mrs. Yogita Shah
Dr. Hamed Mirzaei	Dr. Stacey N. Peterson	Mr. David J. Sharkey
Dr. Sarina Mohanty	Dr. Zoe Pettway Unno	Dr. Jai Shetake
Mr. Jesus Moreno	Mr. Elias Picazo	Mrs. Nicole C. Shimshock
Ms. Rachel Morford	Mr. Marc Oliver D. Quijano	Mr. John E. Shirajian
Mr. Lucas A. Morrill	Mr. Paul V. Raab	Dr. Arnold L. Shugarman
Dr. Tony Mosconi	Mr. Ahmed Rafi	Dr. Karen S. Sibert
Ms. Alexandra Moser	Dr. Kodandapani	Ms. Rosemarie N. Sibley
Mr. John Mow	Ramadurgam	Mr. Bryan J. Simmons
Dr. Richard H. Moyer	Mr. Daniel Rampacek	Dr. Donna M. Simmons
Dr. Maurena S.	Miss Kathleen R. Rand	Dr. Jessica D. Sims
Nacheff-Benedict	Prof. Suraiya Rasheed	Dr. Hardeep Pal Singh
Dr. George Jean Nacouzi	Mrs. Nancy L. Reddick	Dr. Mohan Singh
Mr. Francisco M. Narvaez	Mr. Jim Reed	Mr. Kenneth A. Sitarski
Dr. Robert H. Nelson	Ms. Kim Reher	Ms. Margret Sitarski
Mr. Chris B. Newton	Mr. H. Lee Renger	Ms. Jennifer Skelly
Mrs. Grazyna H. Newton	Dr. Ariel E. Reyes	Mr. Terry R. Smigla
Ms. Carol Nguyen	Mr. Geoff Reyes	Dr. Beth A. Smith

2016 California State Science Fair Judges

Mr. David M. Smith, P.E.	Mr. George J. Thiruvathukal	Dr. Michael Werner
Mr. Joshua C. Smith	Dr. Valentino M. Tiangco	Ms. Fiona G. Whelan
Mr. Larry J. Smith, Jr.	Dr. Thomas S. Tighe	Ms. Jill D. Whynot
Mr. Yiu M. So	Dr. Albert D. Tomassian	Dr. Holger Wille
Mr. Soheil Soltani	Ms. Rita Tong	Dr. Rhon Williams
Prof. Chad S. Sprouse	Mr. Payman Torabi	Mr. James C. Willis
Mr. Terry Staler	Dr. Bruce E. Tucker	Mrs. Lauma M. Willis
Dr. Zlatka Stojanova	Dr. Manish Verma	Ms. Betty Wong
Dr. Steven N. Suchard	Ms. Luz E. Virgen	Mr. Peter Wong
Dr. Hemlata Sukhija	Mr. Keith J. Volkert	Dr. Kirby C. Wong-Moon
Dr. Allen S. Sun	Dr. Vatche Vorperian	Mr. True Xiong
Ms. Victoria Sun	Dr. Madhuri Wadehra	Mr. Steven Xu
Dr. D. Joye Swan	Dr. Russell E. Walker	Dr. Patrick Yee
Mr. Wil L. Swan	Dr. Kevin Warner	Mr. Bob Yinger
Dr. Larry W. Swanson	Mr. Aaron M. Warren	Dr. David Yu
Miss Amanda C. Swason	Mr. Ed Weaver	Dr. Richard Yu
Dr. Tonia L. Symensma-Cohen	Mr. Jerry A. Wedekind	Dr. Jasmine Wong Yumori
Ms. Michelle U. Tabencki	Ms. Swan Wedekind	Ms. Artemis Zavaliangos-Petropul
Prof. Stanley M. Tahara	Mr. Beck A. Wehrle	Mr. David M. Zehnpfennig
Mr. Mitchell A. Tarr	Dr. Irwin S. Weiss	Dr. Richard Zhang
Mr. Tom Tcimpidis	Ms. Margery Weitkamp	Dr. David M. Zielke
Mr. Sevag Terterian	Ms. Marisa A. Wells	Mr. Richard Zundel
	Mr. Curtis M. Welty	

Junior Division
Aerodynamics/ Hydrodynamics

Project Name	Gd	Project Title	Advisor	County
J0101 Au, Daniel	7	The Effect of Air Temperature on Aircraft Propellers	Mr. Derek Au	Mendocino
J0102 Austin, Ansel R.	8	Silent Rotor Blades: Reducing Noise Output of Rotor Blades by Incorporating Noise-Dampening Features of an Owl's Feather	Mrs. Leisa Moore	Santa Clara
J0103 Balaji, Sanskriti Kellampalli, Harshikasai	7 7	Riding On Air: How a Hovercraft Hovers	Mrs. Joleen Zammit	Riverside
J0104 Balasingam, Akhilesh V.	7	Galloping Prisms: On the Optimal Design of a Novel Aeroelastic Energy Harvester for Remote Sensing	Mrs. Heather Mackewicz	Santa Clara
J0105 Benedict, Jeanie C.	7	The Effect of Winglet Cant Angle on the Speed of a Windmill	Ms. Megan Margeson	Los Angeles
J0106 Berube, Madisen F.	7	The Effect of Textures on Rocket Shuttle Drag	Ms. Jessica Hobba	Humboldt
J0107 Brandon, Chloe	7	Bio-Inspired Wind Power: Can a Whale Help Us Design Better Wind Turbines?	Dr. Erik Brandon	Los Angeles
J0108 Brott, Ivy A.	8	Paddling for Power	Mr. Chris Thibodeau	Nevada
J0109 Cotman, Sophia G.	7	Swim Caps: Do They Really Make You Faster?	Mr. Mark Pattullo	Los Angeles
J0110 Dominguez-Letelier, Gil T.	8	Parachutes and Drag	Mr. John Shirajian	Los Angeles
J0111 Fagan, James D.	6	A Wind Tunnel to Examine Subsonic Aerodynamic Effects on Airfoils for Future Flight on Mars	Mr. Dan Fagan	Riverside
J0112 Gow, James A., Jr.	8	Are Angle and Size of the Buckets Keys for a Successful Pelton Water Turbine?	Dr. Jennifer Ross-Viola	Orange
J0113 Gushchyan, Daniel	8	How Do the Temperature and the Length of the Tube Affect the Speed of the Wind Produced?	Mr. Felix Gushchyan	Los Angeles
J0114 Henry, Jonah S.	8	Tabletop Hurricanes: A Study of Vortex Stability in a Rotating Fluid	Mr. Carlos Lauchu	Los Angeles
J0115 Hessler, Isaiah M.	8	Need for Speed: A Study of Drag Reduction Methods in Vehicles	Mrs. Wendy Karnes	Kern
J0116 Izmirian, Daniel Z.	8	Wicked Wave Walls: The Effect of Different Types of Walls on the Distance a Wave Will Travel	Mrs. Kristin Spencer	Orange
J0117 Manivone, Joshua T.	8	Do Sail Size and Speed Affect Efficiency?	Mrs. Elaine Gillum	San Diego
J0118 Mikami, Ryan T.	8	Measuring Airfoil Lift/Drag Designs	Mrs. Elaine Gillum	San Diego
J0119 Nieves-Ellis, Denico M.	8	Experimenting with Ferrofluid's Magnetic Properties: Searching for Novel Applications	Mrs. Roxanne Hunker	San Diego

Junior Division
Aerodynamics/ Hydrodynamics

Project Name	Gd	Project Title	Advisor	County
J0120 Patton, Zachary	6	Squirt Power: Constructing a More Efficient Generator by Changing the Diameter of the Pipe in the Water Feed System	Mrs. Diane Loflin	Fresno
J0121 Petty, Olivia G.	6	Powerful Wind: Which Wind Turbine Design Is Most Efficient?	Mr. Jeff Petty	Nevada
J0122 Pierson, Olivia H.	7	Can I Make Rocket Fins More Efficient?	Ms. Shaina Peng	Santa Cruz
J0123 Vuicich, Alec D.	7	Wind Turbines: Vertical vs. Horizontal: Watts Up with That?	Ms. Lori Salazar	Fresno
J0124 Weibel, Narayan K.	7	Hydropower Unleashed: Design Elements of a Small-Scale Paddle Wheel Hydroelectric System	Ms. Jody Himango	Humboldt

Junior Division Alternative Energy

Project	Name	Gd	Project Title	Advisor	County
J0201	Athreya, Anousha A.	6	The Effect of Organic Dye on Dye-Sensitized Solar Cell Efficiency	Mr. Jeffrey Takemoto	Santa Clara
J0202	Benson, Josh C.	8	Increasing the Useful Lifetime of Solar Panels	Mr. Ryan Need	Santa Barbara
J0203	Bose, R. Rik	8	Power Beneath Your Feet: Energy from Piezoelectric Elements	Mr. Partha Bose	Kern
J0204	Bringetto, Jake D.	8	Solar Energy: Increasing Power with Helio-Trackers and Fresnel Lenses	Mrs. Tara Greenmyer	Fresno
J0205	Campbell, Remy S.	7	Sawmill Waste Biomass Powering the Future	Ms. Diana Skiles	Humboldt
J0206	Drain, Nicholas A.	8	Artificial Turf Pool Heating	Ms. Michelle Arias	Riverside
J0207	Eichhorn, Victoria E.	6	Waste to Power	Mr. Travis Eichhorn	Placer
J0208	Hogue, Ryan S.	8	How the Concentration of Platinum in a Fuel Cell Membrane Electrode Assembly Affects Its Performance	<none acknowledged>	San Diego
J0209	Hua, Kenny	8	Waste Heat Recovery	<none acknowledged>	San Bernardino
J0210	Korolik, Masha	7	Solar Energy Concentrator Integrated into Windows: Smart Solar Energy Conversion	Dr. Katrina Mikhaylich	Santa Clara
J0211	Lortz, Cristofer	7	Oceanic Power: Oscillating Water Column Generator	Mr. Oscar Espinoza	Los Angeles
J0212	McCormick, Gunner H.	8	Stomp: Building an Energy Floor in Search for More Renewable Energy Sources	Mrs. LeighAnn Work	Santa Cruz
J0213	Ngo, Jeremy M.	8	Efficient Solar Panel Cooling for Power	Mrs. Elaine Gillum	San Diego
J0214	Patel, Sahil D.	8	Developing a Piezoelectric Roof	Mrs. LeighAnn Work	Santa Cruz
J0215	Rajesh, Arya	6	The Effect of the Layout of Piezoelectric Crystals on the Amount of Electrical Energy Generated	Mrs. Pronati Mondal	Santa Clara
J0216	Ravi, Rohit	8	Solar Tracker: An Optimal Method to Generate the Highest Energy	Mrs. Vimala Sampath	Alameda
J0217	Rioux, Anna T.	7	Engineering Clean Energy: Measuring Energy Production of a Microbial Fuel Cell Using Waste Materials	Mrs. Vicky Rioux	Kings
J0218	Sikdar, Diptanshu	6	Effect of Shapes of Solar Panels on the Generation of Electricity	Ms. Shalini D'Souza	Santa Clara
J0219	Still, Toby J.	8	How Does Temperature Affect Solar Cells?	Mr. David Marchetti	Santa Barbara
J0220	Tallavarjula, Surya C.	6	To Characterize the Energy Loss for Different Types of Light Bulbs, and Ways to Recover & Reuse Some of the Energy Loss	Dr. Sai Tallavarjula	Santa Clara

Junior Division
Alternative Energy

Project	Name	Gd	Project Title	Advisor	County
J0221	Tota, Kaushik Sai	7	Developing Magnesium Air Fuel Cells	Dr. Youssef Ismail	Santa Clara
J0222	Yang, Adam	8	Pee for Power: An Exp. to Find the Opt. Concentration of Urine to be Introduced to a MFC to Produce the Highest Voltage	Mrs. Emily Hoffman	Los Angeles
J0223	Yonan, Franchesca E.	7	Power It Up! A Study of Solar Power vs. Angle and Time	Mrs. Wendy Karnes	Kern

Junior Division
Applied Mechanics & Structures

Project	Name	Gd	Project Title	Advisor	County
J0301	Arriola, Katherine D. Lopez, Danielle N.	7 7	Preventing Earthquake Destruction	Ms. Mahya Babaie	Los Angeles
J0302	Banal, Enzo F.S.	6	The Effect of Bridge Designs on the Forces They Can Endure	Ms. Joyann Sofio	Los Angeles
J0303	Beam, Ryan M.	8	Utilizing Human Motion for Intuitive Control of Robotic Joints	Mrs. Sally Ghilarducci	Santa Cruz
J0304	Becker, Zachary J.	8	Constructing a 3D Printer from Scratch	Mrs. Alicia D'Alessandro	San Bernardino
J0305	Catanzaro, Francisco C.	7	Changing Angular Momentum in Midair	Mr. Pat Hollis	San Diego
J0306	Chaudri, Rohan H. Krishnan, Arya Retika, Chloe	8 8 8	Grasping the Future: A Fully Functional, Affordable, Electromechanically Controlled Bionic Hand	Mr. Sanjib Homchadhuri	Alameda
J0307	Dahlgren, Christopher T.	7	Bottle Rocketry	Mrs. Colleen Duncan	San Bernardino
J0308	Fleischer, Markus S. Smith, Robert J.	7 7	Wonderful Whiffle Bats: Which Is Best?	Mrs. Karen Stampes	Kern
J0309	Gorin, Caitlin Maya	7	Which Type of 3D Printed Plastic Is the Strongest?	Mr. Gregory Lampard	Santa Clara
J0310	Hall, Marcus B.	7	Buoyancy Homeostasis: How a Flexible Swim Bladder Naturally Stabilizes Submarine Buoyancy	Mrs. Linda Patterson	San Diego
J0311	Inaba, Gisele M. Labonville, Diana B.	7 7	A Working Submarine with Magnetic Coupling Propulsion System	Mr. Peter Cheng	Santa Clara
J0312	Jackson, Kate E.	7	Constructing Science: Comparing the Strength of Wooden Joints Made with Nails, Screws, and/or Glue	Ms. Sabine Schmuck	Santa Clara
J0313	Kellogg, Phoebe N.	8	How Model Houses Made of Different Materials Resist Earthquakes and Wind	Miss Janica Henzie	Los Angeles
J0314	Knowlton, Brady J.	8	Is Your Head in the Game?	Mrs. Wendi Rodriguez	San Bernardino
J0315	Koval, Tess N.	6	Can Papercrete Compete with Concrete?	Mr. David Deason	Humboldt
J0316	Lackner, Hadrien P.	6	Childsplay: Using Playgrounds to Benefit Mankind	Mr. Lucas Lackner	Mendocino
J0317	Land, Andrew T.	8	The Last 3 Meters: Development of a Multi-Sensor Method for Safe Multicopter Landings	Dr. Jayne Hastedt	San Mateo
J0318	Lee, Dylan J.	8	How Does the Addition of Diagonal Braces Affect the Rigidity of a Wall?	Mr. Dean Okimura	Los Angeles
J0319	Legaspi, Felimon Charles L., III	6	Building Better Earthquake Resistant Structures	Ms. Juana Salazar	Los Angeles

Junior Division
Applied Mechanics & Structures

Project	Name	Gd	Project Title	Advisor	County
J0320	Minagawa, Maya G.	8	Leave the "Wrist" of the Supports Behind!	Mrs. Tina Brown	San Diego
J0321	Nguyen, Ethan M.T.	6	Dome-N-Egg	Mrs. Elizabeth Conrad	Orange
J0322	Panasyuk, Benjamin A.	6	Is Earth-Friendly Concrete Stronger than Traditional Portland Concrete?	Mr. Donald Scott	Placer
J0323	Pardo, Enzo A.	7	A Bridge to Nowhere	Mr. John Shirajian	Los Angeles
J0324	Patwa, Aalok N.	7	Do I Grind? A Wearable System that Detects Bruxism Ahead of Its Effect on Teeth	Mrs. Preethi Sundaresakumar	Santa Clara
J0325	Rachlin, Abraham E.	7	Which Is the Best Lower Limb Prosthetic for Sports?	Mrs. Evelyn Urbiztondo	San Diego
J0326	Ramsay, Aidan M.O.	7	Geopolymers vs. Portland Cement	Ms. Zephyr Bergera	Mendocino
J0327	Rodriguez, Roman M.	8	Effective Prosthetic Foot Lengthening Prototype	Mrs. Kersten Janowicz	San Bernardino
J0328	Smith, Katherine J.	7	Brace Yourself	Ms. Nicole Shimshock	San Mateo
J0329	Tores, Liliana	6	Wind Power: Does Fabrication Material Affect Energy Produced?	Mr. Robert Nelson	Fresno
J0330	Wolf, Saida M.	7	Mace vs. Flail: A Comparative Study of Impact Forces between Two Medieval Weapons	Mr. Reagan Wolf	Kern

Junior Division
Behavioral & Social Sciences

Project	Name	Gd	Project Title	Advisor	County
J0401	Amaturo, Lily C. Forgue, Abigael R.	7 7	The Teaching Style Files	Mrs. Carrie Smith	Sonoma
J0402	Arramreddy, Vibha Krishnan, Sejal	8 8	Effects of Emotions on Test Takers	Mrs. Kristen Morgensen	Santa Clara
J0403	Bharucha, Mahnur A.	8	Wonder Pets: The Effects of Animal Assisted Therapy on Children with Autism	Mrs. Mariam Rangoonwala	Los Angeles
J0404	Billings, Tyler J.	8	Does College Help Basketball Players or Hold Them Back?	Mrs. Tina Brown	San Diego
J0405	Carrillo, Juliana Rawnsley, Jaclyn	6 6	Light vs. Sleep	Ms. Marcia Nogueira	Ventura
J0406	Cook, Sadie L.	8	Cyber Sadness	Mrs. Wendi Rodriguez	San Bernardino
J0407	Crannell, Coraline C.	8	Gender Stereotypes: How Can Gender Stereotypes Affect People's Choices?	Ms. Cailee Kilroy	Santa Barbara
J0408	Dailey, Jill C.	8	Does Confidence Matter?	Mr. Jack Chen	Kern
J0409	Duarte, Sean F.	8	Does Password Complexity Increase with Age?	Mr. Ben Yurman- Glaser	San Mateo
J0410	Garcia, Michelle J.	8	Examining the Bullying Nature in Preverbal and Verbal Children	Mrs. Jewelry Lickey	Fresno
J0411	Gates, Jasmine T.	7	The Psychology of Belief: The Placebo Effect vs. the Power of Suggestion in the Effectiveness of the Velox Energy Drink	Mr. Chris Nestlerode	Santa Cruz
J0412	Green, Chloe M.	8	The Effect of Perceived Risk on the Video Game Performance of Middle School Players	Mrs. Lydia Cordova	Los Angeles
J0413	Howard, Anthony M.	6	The Relationship between Exam Stressors and Eating Behaviors	Mrs. Sharine Neipp	Tulare
J0414	Infelise, Alexa Q.	8	Impact of the Decoy Effect on Promoting Positive Choice in an Academic Setting	Mrs. Roxanne Hunker	San Diego
J0415	James, Samantha J.	7	What Colors Are Preferred by Children of Certain Ages?	Mrs. Marilyn Reed	San Diego
J0416	Jia, Allison S. Wiese, Jasmine K.	8 8	Delicious or Disgusting? The Effects of Priming on a Taster's Reaction and Perception of Food	Ms. Kathy Peng	Santa Clara
J0417	Kulick, Christopher C.	7	The Effectiveness of Vehicle Speed Feedback Signs	Mrs. Roxanne Hunker	San Diego
J0418	Lusk, Cuyler R.	8	Is Smiling Contagious?	Ms. Marilyn Garza	Santa Barbara
J0419	Narasimhan, Shree R.	8	OTC Drug Use and Abuse by Elderly Adults	Mrs. Elaine Gillum	San Diego
J0420	Owada, Samantha J.	6	The Power of Music	Mr. Alan Newlove	Fresno

Junior Division
Behavioral & Social Sciences

Project	Name	Gd	Project Title	Advisor	County
J0421	Pollner, Alina V.	8	Electronic Media vs. Paper: Effect on Teenagers' Reading Comprehension	Ms. Naomi Clum	San Diego
J0422	Purvis, Lily C.	8	Reading Emotions in the Eyes: Age and Gender Differences in Empathy	Ms. Marilyn Garza	Santa Barbara
J0423	Raheem, Talhah A.	6	Are You a Digital Citizen? An Analysis of How Digital Citizenship Education Can Improve Online Behavior in Schools	Ms. Aurelia Khatib	Orange
J0424	Rathi, Pratham P.	8	Exploration of Factors Influencing Career Choice	Mrs. Susan Chollar	Santa Cruz
J0425	Sumii, Maleah A.	8	The Effects of Different Forms of Grading on Student Learning	Ms. Hadeel Payne	Fresno
J0426	Wozniak, Joshua D.	7	How Does Sound Affect Your Body?	Mrs. Debbie Culley	San Diego
J0427	Zope, Anjali S.	7	Can You Spot the Liar?	Mr. Chris Nestlerode	Santa Cruz

Junior Division
Biochemistry/ Molecular Biology

Project	Name	Gd	Project Title	Advisor	County
J0501	Alishala, Mohnish	8	Biodiesel: The Future Generation Fuel	Mrs. Elaine Gillum	San Diego
J0502	Anand, Suraj K.	8	Conserved Regions of Coagulation Factors III, VIII, and XII's Percent, Location, and Function in Diverse Species	Mrs. Andrea Acres	Los Angeles
J0503	Campbell, Joseph S.	6	Acid Base Effect on Catalase	Mr. Timothy Miser	Kern
J0504	Chandrasekaran, Aathith Kim, Ian S.	7 7	Investigating the Deactivators of Enzymatic Browning	Mr. Jon Estay	Kern
J0505	Cruz, Kyra Jan S.	8	Developing a Model of an Artificial Pancreas	Mrs. Vicky Rioux	Kings
J0506	Ganesan, Akshaya	7	Do Common Genetically Modified Foods Carry Tnos and CAMV 35S Promoter Genes?	Mrs. Jennifer East	Alameda
J0507	Jarasunas, Lukas A.	7	Drip, Drip, Drip: Which Ice Cream to Choose on a Hot Day to Avoid a Big Melted Mess?	Ms. Megan Margeson	Los Angeles
J0508	Johnston, Elisha D.	7	Investigating the Molecular Mechanisms of a Safe Promising Treatment for Chronic Joint Pain	Mr. Paul Burns	Los Angeles
J0509	Jones, Dominic C.	7	Comparing the Vitamin C Levels in Various Vegetables after Steam Cooking	Mrs. Diane Loflin	Fresno
J0510	Kaur, Prabhdeep	8	Grainy Gluten	Mrs. Anna Lemme	Kern
J0511	Koronyo, Itai	8	Prolonging Shelf Life of Produce: A New Potassium Permanganate Product to Oxidize Ethylene	Mr. Eric Hartung	Los Angeles
J0512	Laurits, Christopher M.	8	Comparing the Amount of Lactose in Human, Cow, and Goat Milk	Ms. LeighAnn Work	Santa Cruz
J0513	Low, Serena K.T.	8	Effects of Temperature on Catalase Enzymes	Mrs. Rita Armstrong	Ventura
J0514	Mann, Tanvir S.	8	Troubled Transfusion: Reactions between Antigens and Antibodies	Mr. Kanwarjit Mann	San Benito
J0515	Mermilliod, Nathan G.	8	Scar Solutions: The Effects of Enzymes in Collagen Breakdown and Scar Prevention	Mrs. Katheen Harrison	Riverside
J0516	Michaelson, Madeline K.	8	Correlation between Vitamin C Levels and Expiration Dates	Mrs. Jewelry Lickey	Fresno
J0517	Narang, Shivek	7	Study of Osmolarity and Fluid Homeostasis Using Saccharomyces cerevisiae: Implications for Regulation of Hypertension	Dr. Anuradha Murthy	Santa Clara
J0518	Novakovic, Milena	6	The Magic of Yeast	Mrs. Stacie Grooters	Orange
J0519	Palakur, Swethasai	7	Were Micelles or Vesicles the First Protobionts? Measuring DNA Phase Extraction into Lipids	Mrs. Kimberly Soliday	Orange
J0520	Sato, Justine E.	8	Increasing Cellulosic Bioethanol Production with Ultrasound and Cellobiase	Mrs. Nelly Tsai	Orange

Junior Division
Biochemistry/ Molecular Biology

Project	Name	Gd	Project Title	Advisor	County
J0521	Singer, Ryan M.	7	Does Boiling Broccoli in Lemon Water Alter the Vitamin C Content?	Mrs. Suneeta Cohen	San Diego
J0522	Tanner, Ryan W.T.	6	Hay in a Tray: Does Barley Fodder Increase Unsaturated Fat in Eggs?	Ms. Jayne Hastedt	San Mateo
J0523	Trovato, Geneva D.	7	Effects of CaCl ₂ Temperature in the Creation of Competent Host Cells: A Study in Genetic Engineering of E. coli	Ms. Irene Trovato	Riverside
J0524	Troxell, Andrew W.	8	Can I Create Gas from Trash? A Scientific Approach Creating Methane from Manure and Biomass	Mrs. Reggie Mclean	Fresno
J0525	Vasquez, R. Alexander	8	Effects Temperature Has on Yeast	Mr. Joey Silva	Santa Cruz
J0526	Zepeda, Dean V.	6	Determining the Amount of Vitamin C in Boiled Broccoli	Ms. Darcy Angel	Orange

Junior Division Chemistry

Project	Name	Gd	Project Title	Advisor	County
J0601	Abele, Julia M.	7	Batter Up! How Does the Amount of Time Blending the Batter and the Amount of Time Letting It Sit Impact Pancake Height?	Ms. Megan Margeson	Los Angeles
J0602	Aly, Yasser A.	7	Super-Cool Water and Salt Effect on Ice	Mrs. Arwa Alkhawaja	San Diego
J0603	Aravanis, Sophia B. Stewart, Jordan S.	8 8	Taffy Tactics	Mrs. Reggie McLean	Fresno
J0604	Assadourian, Larisa M.	8	I Love Dairy, but It Hates Me: Testing the Glucose Content of Milk and Ice Cream	Ms. Abigail Nastan	Los Angeles
J0605	Aziz, Zahra A.	7	The Effects of High and Low pH Levels and Sodium Citrate on Spherification for Human Health	Mrs. Heather Mackewicz	Santa Clara
J0606	Cannon, Braydon A.C.	6	The Dehydrated Egg	Mrs. Syliva Guzman	Kern
J0607	Cascadden, Kory A.	8	Flash Frozen	Mr. Brian Collins	Los Angeles
J0608	Chak, Noah M.	8	Beware of the Bezoar	Mrs. Grace Kim	Orange
J0609	Deng, Nathan	8	Drop by Drop: Manipulating the Surface Tension of Water to Find the Best Way of Cleaning	Ms. Aimee Davignon	Los Angeles
J0610	Ellis, Shoshana H.	8	It Says Organic. Is It True?	Mr. Matt Bessler	San Diego
J0611	Fausone, Sofia C.	8	Desalination: Can It Affect the Ocean's Carbon Dioxide Holding Capacity?	Ms. Carrie Smith	Sonoma
J0612	Finke, Nicholas L.	8	Drinking the Ocean: Desalinating Seawater and Generating Hydrogen Using Organic Waste	<none acknowledged>	San Mateo
J0613	Fotovat, Ariana J.	7	The Effects of Salt, Sugar, and Sand on Ice	Mr. Brian Collins	Los Angeles
J0614	Fraser, Alyssa J.	7	The Effect of Sodium Carbonate on Pacific Ocean Water Samples	Ms. Vanessa Haggett	Mendocino
J0615	Gaiera, Samantha C.	6	Does Freezing Carbonated Water Affect CO2 Coming Out of Solution?	<none acknowledged>	Humboldt
J0616	Herrod, Emily S.	8	Dirty Money	Mrs. Elaine Gillum	San Diego
J0617	Howard, Sadie R.	6	Burning Biofuels	Ms. Melissa Martinez	Mendocino
J0618	Husain, Zainab	6	How to Grow Homemade Stalactites	Ms. Mariam Rangoonwala	Los Angeles
J0619	Islamovic, Saliha	8	Organic vs. Non-Organic	Mr. Garry Dillard	San Diego
J0620	Kim, Alexis H.	8	The Effect of Ascorbic Acid and Phosphate on Copper Corrosion	Mrs. Alison Linden	Orange

Junior Division Chemistry

Project	Name	Gd	Project Title	Advisor	County
J0621	Kleszewski, Ashley S.	8	The Effects of Eutrophication on Pond Water	Mrs. Stephanie Englund	San Diego
J0622	Kuruvilla, Joseph R. Kuruvilla, Lizbeth R.	8 8	Will Adding Corn Syrup or Glycerin Improve a Mixture of Bubble Solution?	Mr. Mike Mutshnick	Monterey
J0623	Morgan, Isaac H.	6	Testing Voltage Generated from Produce	Mr. Lawrence O'Connor	Kern
J0624	Panguluru, Bhargav	6	Water to Fuel to Water	Mrs. Chandrakala Madasu	Orange
J0625	Porche, Maya R.	8	Tough Beans: How Various Substances Affect the Cooking Time of Legumes	Mrs. Cathy Grimes	Ventura
J0626	Prawira, Jacqueline	6	Coffee-Doh Battery: Boosting the Power of an Enviro-Battery Using Coffee's Acidity in Homemade Conductive Dough	Mrs. Aily Salikin	San Joaquin
J0627	Roice, Alicia E. Roice, Ashlyn M.	6 6	Healthy Options for Treating Heartburn (Acid Reflux): Natural vs. Synthetic Antacids	Mrs. Sini Joseph	San Joaquin
J0628	Shaheen, Roaa A.	8	What Is the Effect of Different MgSo ₄ Concentrations on Hydrogen and Oxygen Gas Production?	Mr. Ravishanth Dev Anandthann	Los Angeles
J0629	Smith, Jada	7	Transesterification of Peanut Oil: Acid vs. Base Catalyst	Mr. Clint Smith	Mendocino
J0630	Swartz, Mandika N.	7	Is It Possible to Generate Electricity from Waste Water?	Mrs. Hadeel Payne	Fresno
J0631	Talur, Nimai	6	Faster Cleaner Composting: The Effect of Amylase on the Decomposition of Biodegradable Plastic	Ms. Shannon Lum	Santa Clara
J0632	Tangirala, Pujita S.	6	Got Antioxidants? Using Chemiluminescence to Study the Effect of Adding Milk or Sugar on the Antioxidant Level of Tea	Mrs. Heather Mackewicz	Santa Clara
J0633	Teele, Ashley A.	7	Inhibiting the Enzymatic Browning of Avocados	Ms. Amy Swankhuizen	San Joaquin
J0634	Vega, Berenice	8	Reaction Rates: Does Temperature Affect the Iodine Clock Reaction?	Mr. Scott Frank	Kern
J0635	Wittman, Ryder J.	6	What Effect Does Temperature Have on the Rate of Reaction?	Mrs. Angela Sheble	Calaveras

Junior Division Cognitive Science

Project	Name	Gd	Project Title	Advisor	County
J0701	Ansari, Nadia	6	The Effect of Deep Breathing vs. Exercise on Stress Reduction and Test Performance	Mr. Christopher Miko	Orange
J0702	Avery, Kennedy J. Culver, Rachel E.	8 8	Healthy Food or Candy? Which Improves Memory?	Mr. Peter Chilpigian	Fresno
J0703	Boris, Kris	8	Synesthesia and Creativity	Ms. Kim Miller	Santa Barbara
J0704	Carlos, Elizabeth A.	8	Highlight Your Memory	Mrs. Darcy Lawson	Butte
J0705	Cavaz, Dante P.	8	Tech Targeting: An Experiment Testing Whether Playing Combat Video Games Increases Real-life Shooting Accuracy	Mrs. Robin Perkins	Sonoma
J0706	Christodoulou, Alexandra C.	7	Pharmacogenetics, Informatics, and Prescription Change	Dr. Chris Christodoulou	Los Angeles
J0707	Courchesne, Sierra L.	7	Studying with Music: Advantage or Not?	Ms. Christine Baldwin	San Diego
J0708	Crawford-Shelmadine, Oliver W. Cunningham, Eoin F.	7 7	How Can You Improve Your Cognitive Performance? It Depends. Are You Male or Female?	Ms. Jayne Hastedt	San Mateo
J0709	Fiskness, Carly R.	7	Impact of the Power of Suggestion on Recall	Ms. Roxanne Hunker	San Diego
J0710	Ghatore, Adishree S.	8	A Software Application as a Learning Platform for Increasing Memory Retention of Definitions of Words	Mrs. Bonny Basu	Santa Clara
J0711	Gupta, Ashwin M.	8	For Those About to Rock: A Study of Human Perception of Sound Quality	Mrs. Soohee Lee	Orange
J0712	Haro, Sergio M.	7	Shaping Your Thoughts	Ms. Elizabeth Espinoza	Riverside
J0713	Hogan, Kaila M.	8	Effects of Age on Reaction Time: Adolescents vs. Pre-Adolescents	Mrs. Roxanne Hunker	San Diego
J0714	Houle, Jenna S.	7	Techniques to Help Kids Improve Their Memory, Lower Their Anxiety, and Improve Their Attitude about School	Ms. Janet Wu	Santa Clara
J0715	Khanna, Simran	7	Can You Enhance Your Hearing by Turning Off Your Vision?	Mrs. Hadeel Payne	Fresno
J0716	Kinney, Alexandria C.	8	Are You Too Old to Turn It Around and Flip Flop? A Study of Age and Ocular Agility	Mrs. Salma Baig	San Mateo
J0717	Kommerell, Rhea A.	8	Focus: The Effect of Media Multitasking on Memory	Mr. David Marchetti	Santa Barbara
J0718	McMullen, Ethan R.	7	The Effectiveness of Eyewitness Reports in a Crime Scenario	Mr. Joe Rivas	San Benito
J0719	Mejia, Ana E.	7	Which Will You See First: Blue, Red, or Pink?	Mrs. Andrea Davidson	Riverside

Junior Division Cognitive Science

Project	Name	Gd	Project Title	Advisor	County
J0720	Oberlander, Kate A.	8	Synesthesia: Predominant Grapheme-Color Associations and the Effects of Age and Gender	Ms. Diana Skiles	Humboldt
J0721	Osorio, Angelica M.	7	Auditory Memory vs. Visual Memory	Mr. Karlton Warren	Riverside
J0722	Phillips, Hannah G.	8	Determining How a Person's Intuition Affects Their Ability to Thin-slice	Dr. Jeneen Graham	Orange
J0723	Poon, Alison M.	7	Color Me Forgetful: Does Color Affect Memory?	Ms. Regan Rostain	Kern
J0724	Richland, Joshua L.	8	Memories Under the Influence	Mr. Eric Hartung	Los Angeles
J0725	Salazar, Kevin	8	The Effect of Emotion on Memory	Mr. Paul Kerekes	San Diego
J0726	Thornton, William D.	7	Did You See What You Heard? How Musical Tones Affect Visual Perception	Ms. Xochi Battle	San Francisco
J0727	Valdez, Emily J.	7	Do Different Genres of Music Affect Cognitive Performance?	Mr. Don Scott	Placer
J0728	Yang, Lindsay D.	8	A Comparison of Online Learning and Traditional Lectures	Mrs. Elizabeth Conrad	Orange
J0729	Yevmenkin, Aleksey	6	Processing Patterns: Does Age Make a Difference?	Mrs. Bonita Hamilton	Ventura

Junior Division
Earth & Atmospheric Sciences

Project	Name	Gd	Project Title	Advisor	County
J0801	Bacich, Cecilia P.	8	Man vs. Nature	Mrs. Janet Herreweyers	San Diego
J0802	Baumann, Matthew J.	8	Just Say NO to Erosion!	Mrs. Robin Perkins	Sonoma
J0803	Billock, Hudson J.	7	Ultraviolet Light Levels in the Upper Atmosphere	Ms. Laura Kaufman	Los Angeles
J0804	Bobrownicki, Olivia R.	8	Fighting Fertilizers	Mr. Peter Bobrownicki	Orange
J0805	Fassett, Nicole A. Kim, Lauren E.	6 6	Save Our Beaches: Man-Made vs. Natural Erosion Prevention Solutions	Ms. Allison Rolfe	Orange
J0806	Leffingwell, Kylynn M.	8	The Effectiveness of Various Organic Additives Promoting Water Retention in Extremely Dry Soil	Mr. Craig Jones	Fresno
J0807	Loewen, Max J.	6	Amendment of Playing Field Soil to Improve Soil Stability	Ms. Kate Bays	Fresno
J0808	McQuilkin, Ellery	6	Supercool Streams: Flowing with Frazil	Dr. Connie Millar	Mono
J0809	Merickel, Luke R.	7	What's Shaking? The Truth about Liquefaction	Mrs. Angela Ward	Kern
J0810	Montgomery, Pascale C.	8	Message in a Bottle: Predicting Sea Level Rise from Thermal Expansion	Mr. Steve Woodward	Monterey
J0811	Perez, Antonia B.	7	Analyzing the Effects of Temperature and Soil Type in Absorption and Capillarity of Soils	Mrs. Jewely Lickey	Fresno
J0812	Pinto, James L.	8	Did Juvenile Spinosaurids Spend Time in the Water?	Mrs. Bonita Hamilton	Ventura
J0813	Shalabi, Ayah H.	7	Brine Exclusion and Thermoclines	Dr. Daniel Morse	San Bernardino
J0814	Stickney, Anika C.	8	Heat Absorption and Retention of Carbon Dioxide and Other Atmospheric Gases	Mrs. Darcy Lawson	Butte

Junior Division
Electronics & Electromagnetics

Project	Name	Gd	Project Title	Advisor	County
J0901	Aggarwal, Dhruv N.	8	Wi-Tricity: Wireless Electricity Using Resonant Inductive Coupling	Mr. Roger Newell	Ventura
J0902	Amanullah, Yusuf	7	Play Safe: An Arduino Based Solution to Sports Injuries	Mrs. Arwa Alkhawaja	San Diego
J0903	Austin, Ian T.	7	Gauss Gun	Mrs. Debbie Culley	San Diego
J0904	Bamford, Zak H.	8	Constructing a Noise Generator to Interrupt Multicopter Flight	Mrs. Roxanne Hunker	San Diego
J0905	Bhakat, Anay	7	A Tool to Effectively Water Plants by Measuring the Soil Moisture	Mr. Rajib Bhakat	Alameda
J0906	Carter, Sophie Q.	8	Indoor Navigation Using Magnetic Fields	Dr. Paul Carter	Los Angeles
J0907	Chiang, Andrew C.	7	Force Sensing Techniques for Robotic Arms	Mr. Kevyn Adams	Santa Clara
J0908	Cho, Matthew	8	Smart Shoes: An Innovative Method to Analyze and Correct Improper Gait	Mrs. Khadija Iyer	Santa Clara
J0909	Evans, Marco R.	6	The Energy Shoe: Generating Electricity while You Walk	Mr. James Evans	Santa Cruz
J0910	Feldman, Jordan S.	8	Controlling a Robot with Electromyography	Mr. Eric Hartung	Los Angeles
J0911	Ford, Nicholas R.	6	Trailer/Truck Light System Tester	Ms. Marie Cappiello	Humboldt
J0912	Garamendi, Aidan D.	8	Will Water Cooling Speed Up My Computer?	Ms. Colleen Denny	Calaveras
J0913	Hubbard, Thomas (Casey) C.	8	One Quarter Wavelength Ground Plane Antennas	Mrs. Mary Anne McNeil	San Diego
J0914	Kazmi, Syed Musab	7	The Road to the Artificial Pancreas	Mrs. Arwa Alkhawaja	San Diego
J0915	Lautrette, Nolan C.	8	The Effects of Varying Tube Materials on Electromagnetic Induction	Mr. Carlos Lauchu	Los Angeles
J0916	Lopatka, Kevin P.	8	Building a Homerun	Mrs. Jeanette Lopatka	San Diego
J0917	Mathews, Anna M.	7	Water Saver: Moisture Detection for Sprinkler Control	Dr. Cherian Mathews	San Joaquin
J0918	Maxfield, Thomas W.	8	Exploring Magnetic Levitation	Mrs. JJ Newman	Los Angeles
J0919	Morris, Aidan J.	6	Regression Analysis of Electric Output from Increasing Battery Cells	Mrs. Renee Rosas	San Bernardino
J0920	Phillips, Adam J.	7	Get It Going with the Gauss Gun: Magnetic Linear Acceleration	Mrs. Jacque Magner	Orange
J0921	Ridley, Daniel P.	8	What Gauge of Magnet Wire Makes Paper Speakers the Loudest?	Mrs. Ana Williams	Kern
J0922	Sharma, Suhina	7	TempBot: Device Preventing Febrile Seizures and Other Fatal Complications by Monitoring Sudden Rise in Body Temperatures	Mr. Trevor Rodin	Orange

Junior Division
Electronics & Electromagnetics

Project	Name	Gd	Project Title	Advisor	County
J0923	Shrivastava, Aryansh	6	Microcontroller Based Bionic Eye for the Blind	Mr. Amit Shrivastava	Alameda
J0924	Sridhar, Shruti	8	A Novel Sensor-Based Device to Detect Heatstroke and Dehydration	Dr. Youssef Ismail	Santa Clara
J0925	Tuazon, Krishna Lian D.	6	Simplest Electromagnetic Train	Mrs. Lorelei Tuazon	Calaveras
J0926	Yao, Daniel W.	8	The Magical Stabilizer	Mrs. Denise Agapoff	Ventura
J0927	Zhulin, Maxim	8	Effects of Pipelining on CPU Speed	<none acknowledged>	Los Angeles

Junior Division
Environmental Engineering

Project	Name	Gd	Project Title	Advisor	County
J1001	Allen, Colton R. Sigala, Gabriel M.	8 8	Let's Talk Trash: A Water Conservation Alternative for Landfill Management	Ms. Shawn Fleming	Fresno
J1002	Ambati, Adarsh S.	6	A Smart, Low Cost, Social Network Connected, Community Sprinkler System (IOT)	Mr. Jeffrey Takemoto	Santa Clara
J1003	Balagopal, Srinivas B.	8	Effectiveness of Different Insect Shield Mesh Designs on the Amount of Water Collected through Fog Harvesting	<none acknowledged>	Santa Clara
J1004	Bonafede, Brandon A. Sano Fleming, Evan Smith, Jackson A.	6 6 6	Comparison of Properties between Greywater and Tap Water for the Use of Watering Outdoor Plants	Mrs. Monica Karam Mrs. Shawn Fleming	Fresno
J1005	Buere, Kimy Alexi	8	Creating Potable Water and Electricity for Undeveloped Countries	Mr. Doug Williams	San Bernardino
J1006	Chen, Cynthia	8	A Novel Method to Reduce Water Consumption in Germinating Seeds	Dr. Thomas Artiss	Santa Clara
J1007	Cullen, Sonya R.	8	Ghost Fishing	Mrs. Lucinda Hitchner	San Mateo
J1008	Davison, Eden M.	7	Salt Water Desalination	Ms. Jennifer Keating	San Mateo
J1009	Dean, Katherine G. Patel, Dilan A.	8 8	Solar Powered Water Desalination	Mr. Stephen Woodward	Monterey
J1010	Fung, Athena F.	8	A Bluer Ocean: Replacing Microplastics with Water-Soluble Bioplastics	Mrs. Khadija Iyer	Santa Clara
J1011	Gibbs, Jacob R.	8	The Most Superior Way to Conserve Water When Growing Grass	Mr. John Briner	Orange
J1012	Hung, Ethan C.	7	Reducing Global Warming through Chemosynthesis	Dr. Todd Haney	Orange
J1013	Jain, Megha	8	The Water Friendly Toilet Tank: Saving Millions of Gallons of Water Daily	Mrs. Darshana Shah	Los Angeles
J1014	Joyce, Gavin C.	8	Surviving Drought II: How Much More Food?	<none acknowledged>	Riverside
J1015	Kattih, Nahla	6	Oil Spills: Polymers vs. Detergents	Mrs. Mariam Rangoonwala	Los Angeles
J1016	Kazarian, Daniel	7	Pre-Cycling before Recycling	<none acknowledged>	San Mateo
J1017	Kokke, Erik L.	7	Solar Powered Desalination	Mrs. Jennifer Lambert	San Diego
J1018	Lee, Meagan	8	Biodiesel: Fuel for the Future	Mr. John Briner	Orange
J1019	Madden, Seth E. Nannie, Gabrielle	7 7	Out with the Oil-d, In with the New: Magnetizing Oil	Mr. Alex Hofsteen	Monterey

Junior Division
Environmental Engineering

Project	Name	Gd	Project Title	Advisor	County
J1020	Maregne, Michael G. Shragg, Dylan E.	6 6	Shade Balls: Sphere vs. Tetrahedron: Using Geometric Shapes to Reduce Evaporation in Open Air Reservoirs	Mr. Ryan Lewis	Los Angeles
J1021	Martinez, Nicolas A.	7	Is Your Kitchen Trash Useful? The Secret Power of Eggshell Powder	Mrs. Stephanie Englund	San Diego
J1022	Mehta, Arshia A.	8	Pure2: A Low Cost, Portable, Microbe-Resistant Water Filtering System Powered by Solar Radiation	Mr. Gurpal Deol	Contra Costa
J1023	Meyer, Rachel A. White, Jasmine V.	7 7	Clean Water?	Mr. Kevin Lane	Humboldt
J1024	Quan, Melanie E.	7	Worldwide Water: One Pot at a Time	Mr. Benjamin Semple	Contra Costa
J1025	Raney, Christopher D.	7	Can Mealworms Fix Our Plastic Waste Problem?	Mr. Jess Green	Sonoma
J1026	Richardson, Kami E.	8	Investigating Ocean Acidification on Bivalves and Echinoids: Filter Study and Water Preservation Using Vector Mapping	Mrs. Rachel McKenna	Santa Clara
J1027	Ruiz, Ariana O.	8	Investigating the Effect of Different Organic Substances in Changing Soil pH in the Environment	Mr. Craig Jones	Fresno
J1028	Sanders, Mari O.	8	The Effectiveness of Cereal Crops in Riparian Restoration Design	Mr. Carey Sanders	Tulare
J1029	Santhosh, Vedha	8	What Is the Effect of Using Bioplastic As a Packaging Alternative to Petroleum Based Packaging?	Mrs. Bonny Basu	Santa Clara
J1030	Senzaki, Sara E.	7	Which Is the Most Effective Layer in Helping to Prevent Evaporation from Large Bodies of Water?	Mrs. Reggie McLean	Fresno
J1031	Starr, Rebecca E.	8	During Drought Mulch Matters	Mr. Ben Semple	Contra Costa
J1032	Zhou, Iris	6	Soil Moisture Level Detector	Mrs. Pronati Mondal	Santa Clara

Junior Division
Environmental Science

Project	Name	Gd	Project Title	Advisor	County
J1101	Africa, Emily P.	8	Star Light, Star Bright, I Can't See the Stars Tonight! A Study on the Effects of Skyglow on Stellar Visibility	Mrs. Patty Borell	Riverside
J1102	Andre, Zoie S.	7	Black Bear Damage to Conifers in Redwood Forests	Ms. Jessie Hobba	Humboldt
J1103	Arredondo-George, Noe T.	7	Monterey Bay: Sanctuary for Microplastics?	Mr. Chris Nestlerode	Santa Cruz
J1104	Banda, Hermak	8	Which Tree Is More Capable of Sequestering Carbon from the Environment?	Mrs. Jenniffer Chew-Pina	Imperial
J1105	Cooper, Hannah E.	8	Effects of Ash Contamination on Water pH in Moving and Still Water Systems	Mr. Craig Jones	Fresno
J1106	Csato, Xavier T.	7	Radiation Investigation: What's in YOUR Fish?	Mr. Norm Brennan	Los Angeles
J1107	Dietz, Madison M.	7	Make It Rain: What Material Works Best in Cloud Seeding?	Mr. Brian Collins	Los Angeles
J1108	Fowler, Annabelle	8	The Effect of Storm Drain Runoff on the Concentration of Chloride Ions and Dissolved Oxygen in Newport Harbor's Back Bay	Mrs. Lily Westhart	Orange
J1109	Gasmelseed, Fatima S.	7	Carbon Dioxide in the Lakes	Mr. Alex Hofsteen	Monterey
J1110	Goley, Madelyn R.	8	Do Sea Lion Carcasses on the Surface Affect the Amount of Bacteria in the Soil?	Ms. Jessie Hobba	Humboldt
J1111	Gooding, Riley K.	7	Impacts of Restoration vs. Natural Recovery on Coastal Scrub Soil	Ms. Roxanne Hunker	San Diego
J1112	Horsley, Finn A.	7	Impacts of Recreational Boating on Copper Levels in Bays and Marinas	Mrs. Roxanne Hunker	San Diego
J1113	Humphrey, Jackson J.	8	Effects of Particulate Matter on Precipitation	Mr. Craig Jones	Fresno
J1114	Jackson, Linnea J.	7	Cyanobacteria at Pinto Lake	Mrs. Sally Ghilarducci	Santa Cruz
J1115	Kahn, Samuel B.	8	Post-fire Regeneration in Coastal Sage Scrub: Second Year of Study	Mr. David Gillingham	San Diego
J1116	Kerr, Ethan P.	7	The Effect of Man-Made Materials on Urban Temperatures	Mrs. Elizabeth Conrad	Orange
J1117	Lamphear, Erin K.	8	A Spatial and Temporal Comparison of Sound Levels in a Rural and Urban Interface	Mr. David Lamphear	Humboldt
J1118	Lifset, Ella T.	8	Efficacy of UVC Treatment Facility on Cottonwood Creek Water Quality	Mrs. Roxanne Hunker	San Diego
J1119	McPhie, Michael C. Moudgalya, Pranav S.	6 6	Extraordinary Elodea: A Look into the World of Pollution	Mrs. Ann Bennett	Orange

Junior Division
Environmental Science

Project	Name	Gd	Project Title	Advisor	County
J1120	Olson, John D.M.	7	The Effect of Location on Pollution Levels in the Russian River	Miss Megan Margeson	Los Angeles
J1121	Orczyk, Alexandra P.	7	Investigating Impacts of Human Intrusion on Lottia gigantea Populations	Mrs. Roxanne Hunker	San Diego
J1122	Palakodety, Nithyasree	8	Exposure to Bad Air Quality, Bad Water Quality, and Toxic Mold: Do They Increase the Risk of Getting a Brain Tumor?	Mrs. Elaine Gillum	San Diego
J1123	Pendergast, Rachel E.	6	You're Going to Eat That? Is It Possible and Probable to Survive in Riverside, CA Using Only Natural/Wild Resources?	Ms. Patty Hill	Riverside
J1124	Rochin, Gerardo	8	The Effect of Runoff Substances on the Fertilization of Sea Urchins	Dr. Kiersten Darrow	Los Angeles
J1125	Rumbaugh, Phoenix	8	Which Has More Plankton, the Santa Cruz Wharf or the Santa Cruz Harbor? How Much of that Plankton Is Toxic?	Mrs. Anne Rumbaugh	Santa Cruz
J1126	Washburn, Haidyn N.	8	Salinity Stress on Lycopersicon esculentum Associated with Drought Affected Ground Water	Mr. Craig Jones	Fresno

Junior Division
Mammalian Biology

Project	Name	Gd	Project Title	Advisor	County
J1201	Abbassi, Mina L.	7	Paw Dominance in Dogs: The Brain, the Paw, and the Dog	Mrs. Diana Skiles	Humboldt
J1202	Alamad, Mahmoud J.	7	Autism Listens! An Attempt to Digitally Simulate a Hearing Aid that Helps Autistic Children with Hyperacusis	Mrs. Rula Alshanableh	Los Angeles
J1203	Alvarado, Zoe R.	6	How Does the Trajectory of a Horse Change as the Height of a Jump Increases?	Dr. Michael Witt	Mendocino
J1204	Burkhalter, Olivia S. Koebler, Ty R.	6 6	Super Powers: The Study of Brain Lateralization through Paw Preference in Dogs	Ms. Allison Birkhead	Santa Cruz
J1205	Chmait, Dani R.	7	The Triplet Fingerprint Study: Comparison of Fingerprint Patterns of Identical and Non-Identical Co-Triplets	Mr. Steve Miller	Los Angeles
J1206	Colon-Kinlecheenie, Jydrianna L.	8	The Nose Knows Smell, but Does It Know Taste?	Mrs. Patricia Huntington	San Diego
J1207	Dechene, Michael B.	7	The Biomechanics of Pitching	Mr. John Wood	Orange
J1208	Eleftheriadis, Eva M.	8	Can You Breathe as Deeply as Me? Comparing the Inspiratory Vital Lung Capacity of Athletes	Mr. Ben Semple	Contra Costa
J1209	Espinosa, Riley L.	8	Searching for Commonalities among Patients with a Bicuspid Aortic Valve	Mrs. Shelley Bellwe	Riverside
J1210	Foxx, Sandra M.	8	The Effect of Texting on Finger Dexterity	Mrs. Ana Williams	Kern
J1211	Fradkin, Dov	8	How Do Different Breads Affect Blood Sugar Levels of Diabetics and Non-Diabetics?	Mrs. Marilyn Sniffen	San Diego
J1212	Franke, Margaret M.	8	Does the Shoulder Angle of a Horse Affect Its Stride?	Ms. Rosie VanZyl	Los Angeles
J1213	Goldberg, Skylyn T.	8	Which Will Increase Your Heart Rate More: Biking a 5K or Running a 5K?	Mrs. Colleen Duncan	San Bernardino
J1214	Gottschalk, Meiwan M.	7	Perceiving with Your Periphery	Mr. David Haller	Humboldt
J1215	Kakarlamudi, Prathik Udgaonkar, Aditya U.	7 7	Does Measured Blood Glucose Correlate with Tear Glucose?	Ms. Kanchan Bhandare	Santa Clara
J1216	Knight, Ellie M.	8	How Do Tones of Voice Affect a Horse's Heart Rate and Reaction?	Mrs. Nicole Luckin	Fresno
J1217	Konyn, Kylie M.	7	How Now Black and White Cow	Mr. Ryan Hanson	San Diego
J1218	Lipsky, Ryan J.	6	Don't Go Staining My Teeth	Mrs. Leslie Hatland	Ventura
J1219	Mandayam, Rishabh	7	Mutations and Drug Response	Ms. Fe Marie Bustos	Alameda
J1220	McKinny, Rebecca M.	8	How a Prosthetic Moves	Mrs. Kim Miller	Santa Barbara

Junior Division
Mammalian Biology

Project	Name	Gd	Project Title	Advisor	County
J1221	Poirier, Nicole M.	8	Active Dog, Healthy Dog: Using Treats to Keep Vet Bills Down	Mrs. Elaine Gillum	San Diego
J1222	Shapiro, Gina S.	8	Blink! A Study of Blink Rates while Using Computer Devices with Different Screen Sizes	Dr. Benjamin Reese	Santa Barbara
J1223	Singh, Aneal	7	The Impact on the Patellar Tendon When Squatting	<none acknowledged>	Orange
J1224	Walzer, Natalie A.	8	How Can Knee Injuries Be Prevented in Female Athletes?	Dr. Matthew Walzer	San Diego
J1225	Wolf, Aaron J.	8	The Boy Who Cried WHAT?	Mr. Matt Inman	Ventura

Junior Division Materials Science

Project	Name	Gd	Project Title	Advisor	County
J1301	Adams, Joseph C.F.	7	Can You Hear Me Now? A Project on Acoustic Physics with Household Materials	Mr. Mark Pattullo	Los Angeles
J1302	Amalan, Cyrus Rose, Michael	7 7	Sound Extermination	Mr. Alex Hofsteen	Monterey
J1303	Balandin, Alec A.	8	How Does Graphene Implanted in Thermal Paste Affect Its Heat Conduction Properties?	Mr. Fariborz Kargar	Riverside
J1304	Bray, Faith J.	6	How Many Volts Does It Take to Light Up Different Thickness of Pencil Lead?	Mrs. Leslie Hatland	Ventura
J1305	Champness, Katherine G.	8	The Effect of Rapid Temperature Change on Protective Coatings	Mrs. Rhonda Germano	Kern
J1306	Eftekharzadeh, Dominic A. Ramos, Lorenzo L. Tudor, Nicholas V.	8 8 8	The Coolest Apparatus	Mr. Jeff Geraci	Riverside
J1307	Hartsell, Allison	7	Heat Retention Levels of Woods	Mrs. Susan Wright	Fresno
J1308	Haught, Loden J.	8	Sound Dampening	Ms. Sara Meyers	Mendocino
J1309	Ingelson-Filpula, T. Alden	7	Tensile Strength of Biobased Polymers (Bioplastics)	Mrs. Donna Gilbertson	Butte
J1310	Jones, Cassia A.	7	Future Fabrics: Using Carbon Nanotube-Coated Cotton to Create Efficient Wearable Heaters	Mrs. Suzanne Burrows	San Mateo
J1311	Larson Moreno, Seney	7	The Effect of Acid Rain on Construction Materials	Mrs. Rita Blickenstaff	San Diego
J1312	Olson, Marta K.	6	Conductive Paint: Can You Resist?	Dr. Jayne Hastedt	San Mateo
J1313	Perez, Johnny	8	The Effect of Material on Sound Absorption	Mrs. Shannon Harris	Kern
J1314	Perez, Nicholas A.	8	Silica-Based Engineering to Solve Thermodynamic Threats to Wildland Firefighters	Ms. Darlene Shimizu	Riverside
J1315	Robinson, G. Dalton	8	Thermite Reactions: A Comparison of Iron and Copper Oxides	Miss Sarah Meyers	Mendocino
J1316	Rodriguez, Christopher J.	8	What's the Coolest Turf?	Mr. Jose Melgoza	Santa Barbara
J1317	Roquemore, Isabelle M.	7	Glow with the Flow	Mrs. Lisa Haycraft	Kern
J1318	Samuel, Joseph	7	Which Roofing Material Gives the Best Thermal Insulation for a House?	Mrs. Susan Tu	San Diego
J1319	Van Doren, Josh A.	8	Wild for Wildfire Safety	Mr. Peter Chilpigian	Fresno
J1320	Ventura, Hannah Jo	6	Winter Warmth	Mrs. Taryn Hansen	Fresno
J1321	White, Anna R.	6	Stiches that Bind: An Analysis of Seam Strength	Mrs. Lisa Kelsey	Santa Clara

Junior Division
Mathematics & Computer Science

Project	Name	Gd	Project Title	Advisor	County
J1401	Baronia, Ruchir	8	Emergency SMS App Using Voice Recognition/ Volume-Keys with Easy Access for the Physically Impaired	<none acknowledged>	Contra Costa
J1402	Cage, Cameron N.	8	A Sense of Stylometry	Ms. Christine Baldwin	San Diego
J1403	Cholbi, Galen M.	6	Spaceship Soup: Predicting the Emergence of Moving Objects from Random Configurations of Cells in Cellular Automata	Mrs. Anona Gasca	San Bernardino
J1404	deCastongrene, Erin M.	8	Pegs and Programming	Mr. John Wright	Santa Cruz
J1405	Eckmann, Peter L.	7	Are Genetic Algorithms Effective for Computationally Intense Problems?	Mr. Jens Klubberud	San Diego
J1406	Elliott, Madison A.	8	Less Is More: A Geometric Analysis of the Environmental Impact and Cost of Inefficient Product Packaging	Mrs. Wendi Rodriguez	San Bernardino
J1407	Forrest, Kathryn C.	8	Using Zipf's Law to Analyze Word Complexity through the Past Three Centuries	Mrs. Nicole Shimshock	San Mateo
J1408	Ghosh, Anusha	8	A Device to Detect Diabetic Retinopathy	Dr. Sunondo Ghosh	Santa Clara
J1409	Goel, Swati	8	An Efficient Assignment Algorithm, Given Preferences and Capacity Constraints	Dr. Ashish Goel	Santa Clara
J1410	Hoffman, Ilene J.	8	Genre Differentiation Using Timbral Analysis	Mrs. Roxanne Hunker	San Diego
J1411	Jarecki, Knight A.	8	The Science Behind Moneyball	Mrs. Lee Bizzini	Kern
J1412	Jilla, Sanjana S.	6	Tempus Genie: A Time Budgeting and Planning App for Students	Mrs. Shalini D'Souza	Santa Clara
J1413	Kazmie, Solomon A.	8	LifeLine: Thinking Outside the Black Box	Mrs. Gini Bartley	Ventura
J1414	Kim, Jimin	8	A Combinatorial Proof for the Geometric Series, Binomial Theorem, and the Square of a Polynomial with Tiling	Mrs. Kimberly Soliday	Orange
J1415	Knapp, Katherine G.	8	The Glorious Unfolding: Similarities between Flexagons, Mobius Loops, and Klein Bottles	<none acknowledged>	Santa Cruz
J1416	Kravtchenko, Elizabeth	8	How Math Helped Me Become an All-American Athlete	Mrs. Marsenne Kendall	San Mateo
J1417	Kruglyak, Lev	8	Inductive Reasoning Algorithm	Mrs. Liane Martin	Orange
J1418	Madhukara, Rachana	8	Devising a Secure and Efficient Hybrid Cryptosystem	Mr. David Main	San Diego
J1419	McDowell, Alexander T.	7	Fractal Learning: A Better Approach to Neural Networks?	Ms. Jayne Hastedt	San Mateo
J1420	Olson, Dominic K.	8	Are You in Tune? A Program to Make You a Better Musician	Dr. Jayne Hastedt	San Mateo

Junior Division
Mathematics & Computer Science

Project	Name	Gd	Project Title	Advisor	County
J1421	Pasha, Deepro F.	7	Programming a Smarter Planner for Students to Prioritize Their Daily School Work	Ms. Kay Barrie	Fresno
J1422	Qin, Albert W.	8	An Application of Artificial Neural Networks to Decentralized Cooperative Navigation	Mrs. Xiaochun Wang	Sacramento
J1423	Ramachandran, Arvind	7	TrackBar: Tracking Food Expiration to Reduce Wastage	Mrs. Shalini D'Souza	Santa Clara
J1424	Saling, Sage C.	7	Limiting Drug Interactions through an Online Dashboard Tool	Ms. Maxime Salzburg	Los Angeles
J1425	Shah, Kirtan U.	8	Image Compression: Which Algorithm Performs the Best?	Mrs. Thea Dalvand	Santa Clara
J1426	Srivastava, Rushil	8	BliPC: A Low Cost Computer for the Blind Using a Raspberry Pi and Cloud Technologies	Ms. Navpreet Bawa	Santa Clara
J1427	Vanheusden, Rohan K.	7	Analyzing the Effects of Hidden Neuron Quantity on Neural Network Performance	Ms. Melissa Bowdoin	San Mateo
J1428	Vonk, Johan D.S.	7	Pitch Detection on Arduino Using Autocorrelation	Ms. Lorena Rolland	Santa Clara
J1429	Yu, Patrick Z.	8	A Novel Approach to Image Recognition with Leaves	Dr. Youssef Ismail	Santa Clara

Junior Division
Microbiology (General)

Project	Name	Gd	Project Title	Advisor	County
J1501	Agashe, Ruchi P.	8	Abundance and Identity of Various Species of Bacteria in Sushi	Mrs. Tania Kim	San Diego
J1502	Bechler, Amaya M.	8	Effect of Preservatives on Yeast	Mrs. Diana Skiles	Humboldt
J1503	Brassil, Catherine M.	8	Gut Wars: The Probiotic Force Awakens	Dr. Patrick Brassil	San Mateo
J1504	Carlson, James B. Vinogradsky, Shawn	7 7	Heat Controlled Eradication of Fungus	Dr. Adrian Land	San Mateo
J1505	Elliott, Gwyneth C.	7	Algae	Mrs. Kathy Blakemore	Riverside
J1506	Frangos, Chrysanthe N.	7	Using Rice and Silica Gel in the Prevention of Bread Mold	Ms. Jennifer Lambert	San Diego
J1507	Gamble, Alexa M.	8	The Effectiveness of Bleach: Its Impact on Microorganism Reduction in Relation to Time in Park Drinking Fountain Water	Mr. Clint Wyatt	Riverside
J1508	Gao, Ryan	6	What We Can't See: Detection and Identification of Microorganisms in a School Environment	Ms. Zephyr Bergera	Mendocino
J1509	Janapaty, Shloka V.	8	Fueling a Sustainable Planet: Accelerating Algae Growth with Industrial Wastewater	Mrs. Kristi Chung	Santa Clara
J1510	Jilot, Kirsten A.	6	How Does an Electromagnetic Field Affect Single-Celled Organisms?	Mr. Don Scott	Placer
J1511	Maldonado, Amira J.	7	Investigating the Effects of Various Cleaning Methods on Bacteria Growth on Cutting Boards	Ms. Diane Loflin	Fresno
J1512	McMullen, Dylan D.	7	The Effect of Fertilizers on Mushrooms	Mr. Joe Rivas	San Benito
J1513	Parikh, Khushi T.	7	The Effect of the Timing of Light Exposure on the Circadian Cycles of Dinoflagellates	Mrs. Shalini D'Souza	Santa Clara
J1514	Rahmel, Otto A.	6	Algae Farm: Finding the Best Nourishment for Biofuel Algae Growth	Mrs. Andrea Tinoco	Los Angeles
J1515	Tolles, Katherine L.	8	Can We Terraform Mars?	Mr. Zack Moore	Santa Barbara

Junior Division
Microbiology (Medical)

Project	Name	Gd	Project Title	Advisor	County
J1601	Avila-Ayala, Luceli	8	5 Second Rule! Does It Really Apply and Do Different Ground Surfaces Affect the Myth?	Mrs. Jewely Lickey	Fresno
J1602	Beausang, Jenna E.	8	Spice of Life: Oregano as an Antibacterial Agent: Does State Matter?	Ms. Marcia Nogueira	Ventura
J1603	Bharti, Aditi	7	Saliva the Samurai: The Effect of Human Saliva on Bacterial/Fungal Skin Diseases: An Effective/Eco-Friendly Alternative	Mrs. Heather Mackewicz	Santa Clara
J1604	Broudy, Isaac A.	8	A Quantitative Assessment of Nutrients and Their Impact on the Microbiome Health	Mr. Matt Bessler	San Diego
J1605	Cevasco, Olivia J.	6	Healing Tears	Ms. Nicole Shimshock	San Mateo
J1606	Clardy, Camryn M. Elrih, Dalia G.	8 8	The New and Affordable Alternative! Will Turmeric Treat Powdery Mildew?	Ms. Maxime Salzburg	Los Angeles
J1607	Geller, Zoe I.	8	The Effects of Ultrasound on Magnetic Bacteria for a Cancer Therapy	Mrs. Kimberly Miller	Santa Barbara
J1608	Ghodsi, Melina S.	7	The Secrets to a Cleaner Toothbrush	Mrs. Stephanie Conklin	Orange
J1609	Hwang, Joshua J.	8	The Antibacterial Effects of Onions and Shallots on E. coli DH5 Alpha	Mrs. Elaine Gillum	San Diego
J1610	Ismail, Ahmad	6	Yeast Busters: Stopping Fungus in Its Tracks with Antifungal Medicine	Dr. Sumizah Qureshi	Santa Clara
J1611	Kashyap, Meera	8	1000 Year Old Recipe: Can It Kill Today's MRSA?	Ms. Laura Nielsen	Tulare
J1612	Noronha, Laura M.	8	Which Intravenous Fluid Is Best for Sepsis?	Ms. Victoria Go	San Bernardino
J1613	Park, Jian	7	Amoxicillin and Vitamin C: A More Powerful Combination	Mr. John Briner	Orange
J1614	Sheikh, Savera K. Sipra, Emma A.	8 8	How to Kill Bacteria: Natural Herbs vs. Antibiotics	Dr. David Slater	Fresno
J1615	Velasquez, Juan A.	7	The Effects of Ultraviolet Radiation on the Growth of Bacteria	Ms. Martha Melendez	San Bernardino

Junior Division
Physics & Astronomy

Project	Name	Gd	Project Title	Advisor	County
J1701	An, Justin J.	8	All About That Bass: The Effect of Different Frequencies against Isopropyl Alcohol Fires	Mrs. Andrea Acres	Los Angeles
J1702	Behn, Zachary W.	6	Hockey Puck Speed Test	Mrs. Nicole Shimshock	San Mateo
J1703	Bren, Hunter	6	Math in Ballistics	Mr. Norm Brennan	Los Angeles
J1704	Cabatu, Brandon L.	8	Thermoelectricity: The Direct Conversion of Heat into Electricity Utilizing the Seebeck Effect	Mrs. Mary Ann McNeil	San Diego
J1705	Czintos, Angela E.	8	Boiling Cold: Lowering the Boiling Point of Water	Mrs. Sarah Barry	Orange
J1706	Edwards, William P.	8	The Impact of Weight and Surface Area on Static Friction	Mr. Dana Edwards	Kern
J1707	Gath, Bella M.	8	Camera Obscura: The Physics of Optics	Mrs. Kathy Eno	Los Angeles
J1708	Guggenheim, Adam A.	7	Rolling Resistance: Effects of Natural vs. Artificial Turf and High vs. Low Inflation on Rolling Soccer Balls	Ms. Diane Bredt	Marin
J1709	Hanna, Audrey G.	8	Size Really Does Matter: A Study in Stovetop Efficiency	Ms. Christine Baldwin	San Diego
J1710	Jin, Xiaoyue	8	Waves	Mr. John-Emmanuel Shirajian	Los Angeles
J1711	Kaur, Tavleen	6	Does the Surface Tension of Water Change When You Mix Different Substances in It?	Mr. William Jenkinson	Santa Clara
J1712	Khandelwal, Ish	7	Does the Strength of a Magnet Vary with Temperature?	Mr. Rajesh Khandelwal	Sacramento
J1713	Krauskopf, Joey D.	7	Slanted or Straight: Which Will Save Your Life?	Ms. Kerry Keplinger	San Mateo
J1714	Labrador, William A.	8	An Inexpensive Radiation Detector and Its Application to Cosmic Rays and Environmental Radiation	Dr. Allan Labrador	Los Angeles
J1715	McCaffery, Callie M.	8	Centrifugal Force or Fiction?	<none acknowledged>	Kern
J1716	Pirooz, Danial	8	Are Cool Magnets More Attractive?	<none acknowledged>	Santa Barbara
J1717	Ramsdell, Philip M.	6	Spatter Proof: How Height and Angle Affect Blood Spatter Patterns	Mrs. Patricia Durham	San Bernardino
J1718	Rudling, Leif P.	7	Which 3-D Geometric Shape and Surface Color of Stealth Aircraft Makes It Most Invisible or Undetectable to Radar?	Ms. Marcia Nogueira	Ventura
J1719	Salentine, Andrew J.	8	Harnessing the Power of the Sun Using Solar Ovens	Mr. Ken Collin	Santa Barbara

Junior Division
Physics & Astronomy

Project	Name	Gd	Project Title	Advisor	County
J1720	Shott, Bryan A.	8	The Effect of Color on Heat Absorption	Ms. Laura Ulvaeus	Santa Barbara
J1721	Smith, Riley H.	8	The Effects of Magnets on the Rate of the Flow of Water	Mrs. LeighAnn Work	Santa Cruz
J1722	Smith, Schuyler A.	7	Can an Amateur Astronomer Measure Double Stars Accurately?	Mr. Norm Negus	San Diego
J1723	Sullaway, Kristin S.	8	Solar Survival: Dyed Water in a Solar Still	Ms. Virginia Bartley	Ventura
J1724	Thrift, Charlie K.	8	Using Sound Waves to Extinguish Flames	Mrs. Nicole Shimshock	San Mateo
J1725	Tran, Quang-Dan T.	8	What Effect Does the Size of a Magnet Have on its Ability to Serve as a Frictionless Bearing?	Ms. Katherine Batti	Santa Clara
J1726	van den Bergh, Greta M.	8	Testing the Chirality of Glucose Using a Homemade Polarimeter	Ms. Samantha Doerner	San Diego
J1727	Vijayakumar, Vivek	7	Spectral Type and Frequency Correlation in Stars	Mrs. Jami Phillips	San Diego
J1728	Walker-Edwards, Ben R.	8	Measuring the Speed of Sound	Mr. John Wright	Santa Cruz
J1729	Weiner, Grant E.	7	The Evaluation of Latent Fingerprints on Objects of Varying Temperatures	Ms. Dorothy Thornton	San Mateo
J1730	White, Natalie C.	8	Cosmic Rays: Determination of the Relative Contributions from the Sun and the Universe	Dr. Steven White	Fresno

Junior Division Plant Biology

Project	Name	Gd	Project Title	Advisor	County
J1801	Arretche, Alexandra L.	7	The Effect of Aquaponics vs. Hydroponics on Plant Growth	Mrs. Rhonda Germano	Kern
J1802	Bielicki, Liann C.	8	Sugar Levels in Drought Tolerant Biofuel Plants	Mrs. Pamela Serzen-Dayton	Contra Costa
J1803	Chanchani, Aryaa Ramachandran, Mira	8 8	Natural Green Revolution Part 2: Drought Resistance	Mrs. Vasavi Ramachandran	Alameda
J1804	Condon, Karly C. LeSage, Isabella M.	7 7	Testing Aquaponics and Hydroponics to Find the Most Effective Watering Method to Address California's Drought	Ms. Tammy Levy	Los Angeles
J1805	Crane, Samantha T.	7	Efficacy of Human Excrement and Other Fertilizers in Dead Soil: Creating Lasting Food Sources for Deep Space Exploration	Mrs. Phyllis Carnahan	San Bernardino
J1806	Dara, Suchitra	8	Improving Drought Tolerance with Beneficial Fungi	Dr. Ashraf El Kereamy	Kern
J1807	Hegele, Marliese Y.	8	Sweeter Radishes? The Effect of Sweeteners on Radishes	Mrs. Gini Bartley	Ventura
J1808	House, Savannah J.	8	The Prosperous Environments of Plants: Part 2	Ms. Hayley Smith	Los Angeles
J1809	Hutchinson, Zinnia M.	8	How Much Sodium Chloride Can a Cabbage Plant Withstand? The Effects of Salt (NaCl) on Plant Life	Ms. Sallie Corbin	Santa Cruz
J1810	Jain, Viraj V.	6	How to Grow the Best Drought Resistant Lawn	Mr. Alan Newlove	Fresno
J1811	Karthikeyan, Nithika	6	The Effect of Water Beads on the Crop Yield of Bok Choy	Ms. Shannon Lum	Santa Clara
J1812	Khan, Hafsa	8	The Antioxidant Mystery: The Effects of Antioxidants and Free Radicals on Seed Germination	Sr. Rogina Fekry	Los Angeles
J1813	LeBeau, Joseph M.	8	Does Salt Water Exposure Affect Radish Seed Germination?	Mr. Craig Jones	Fresno
J1814	Nishida, Hiromi K. Szalay, Clara R.	7 7	Artificial Hormones Disrupt Non-Competitive Root Growth Patterns In Sibling Plants	Mrs. Liane Martin	Orange
J1815	Oliver, Carson E.	7	Plants Out of Soil	Mr. Alex Hofsteen	Monterey
J1816	Ordway, Katrina G.	8	Effects of Quercus engelmannii on Native vs. Invasive Plant Species	Mrs. Roxanne Hunker	San Diego
J1817	Patel, Tejal A.	7	Botany Battle: Hydroponics vs. Soil	Mrs. Sabine Schmuck	Santa Clara
J1818	Patterson, Mona L.	7	How Do Plants React to Different Types of Greywater?	Mr. Ravi Dev Anadhan	Los Angeles

Junior Division
Plant Biology

Project	Name	Gd	Project Title	Advisor	County
J1819	Salahifar, Aylin G.	6	The Detrimental Impact of Food Remnants on Plant Development	Mr. Bill Jenkinson	Santa Clara
J1820	Yuva Raju, Rhitishah	8	Plants, Photons, Phototropism: How Does Light and Color Affect Plant Growth?	Mrs. Connie Samla	Sacramento
J1821	Zumkeller, Tomas D.	7	Investigating the Effects of Magnetic Forces on Plant Germination and Growth	Mrs. Diane Loflin	Fresno

Junior Division
Product Science (Biological)

Project	Name	Gd	Project Title	Advisor	County
J1901	Alam, Sabreen	6	Natural Foods: Better to Fight Angiogenesis than Cancer Drugs?	Mr. Dan Grubb	Orange
J1902	Arsenith, Addison L.	6	Which Preservative, Synthetic or Natural, Will Inhibit the Growth of Bacterial Microorganisms?	Mr. Don Scott	Placer
J1903	Cardoso, Andrew I.	7	Determining the Effectiveness of Teeth Whitening Paste vs. Natural Remedies	Mrs. Diane Loflin	Fresno
J1904	Cawley, Isabella E.	7	Clorox Wipes vs. Clorox Green Works Wipes: Is Green as Clean?	Mrs. Vicky Rioux	Kings
J1905	Dalton, Logan A.	8	Design and Evaluation of an EZ Tie Emergency Temporary Vascular Shunt	Mrs. Darshana Shah	Los Angeles
J1906	Delgado, Aria	6	Food Preservation: Natural vs. Chemically Modified	Mr. Robert Nelson	Fresno
J1907	Ganguly, Mohona R.	7	Measurement of Potassium in Four Varieties of Rice by Atomic Emission Spectroscopy	Ms. J.J. Newman	Los Angeles
J1908	Golden, Lucy L.	8	Disinfectants: Environmentally Safe Homemade vs. Toxic Brand-Name Products	Mrs. Laura Ulvaeus	Santa Barbara
J1909	Hsi, Emily A.	6	Increasing the Longevity of Cut Roses	Mrs. Ann Bennett	Orange
J1910	Jaime, Juliesen E.	8	The Effectiveness of Active Ingredients in Hand Sanitizers	Ms. Laura Griffith	Los Angeles
J1911	Johnson, Maya A.	8	Which Mouthwash Is More Effective in Killing Oral Bacteria?	Mrs. Rita Armstrong	Ventura
J1912	Luebke, Kaelyn S.K.	6	Cool Idea, Hot Topic: Personal Temperature Management	Mr. Paul Luperini	San Mateo
J1913	Motala, Faatima Zahra	8	Joggin' Your Noggin	Mrs. Mariam Rangoonwala	Los Angeles
J1914	Myatt, Will A.	6	Clash of the Creams: Which Skin Moisturizer Prevents the Greatest Amount of Moisture Evaporation?	Mrs. Susan Bertram	Sacramento
J1915	Navale, Rohan R.	7	Solubility of Sugar Cubes in Soft Drinks: A Measure of Saturation	Mrs. Heather Brown	Sacramento
J1916	Navarro, Sofia A.	7	What Types of Nuts, According to their Calorific Values, Are Best to Store for Emergencies?	<none acknowledged>	Riverside
J1917	O'Rourke, Maggie E.	7	Candy Confusion	Ms. Katherine Moreno	Santa Cruz
J1918	Patel, Sakhi G.	8	Effectiveness of Turmeric in Relieving Arthritis Pain	Ms. Perla Vega	Imperial
J1919	Ravi, Rahul	6	Ultra-Protection against Ultra-Violet	Mrs. Vimala Sampath	Alameda
J1920	Robinson, Audrey L.	7	Examination of the Most Effective Sunscreen	Ms. Kristin O'Neill	Placer
J1921	Rodriguez, Josue H.	7	Are Hand Sanitizers and Antimicrobials Effective?	Mrs. Darshana Shah	Los Angeles
J1922	Wang, Lauryn O.	8	The Effectiveness of Physical Sunblocks Compared to Chemical Sunscreens	Mrs. Rita Armstrong	Ventura
J1923	Woldemar, Josephine V.	7	Bristly Clean Bristles	Mr. Daniel Vilotti	Mendocino

Junior Division
Product Science (Physical)

Project	Name	Gd	Project Title	Advisor	County
J2001	Bass, Emilee H.	8	To Rust, or Not to Rust?	Mr. James Judziewicz	Riverside
J2002	Bertrand, Quentin C.	8	Particulate Matter Emission from Air Fresheners: A Quantitative Study	Mrs. Roxanne Hunker	San Diego
J2003	Billingsley, Grace V.	8	Poison through the Roof	Mr. Chris Thibodeau	Nevada
J2004	Boyt, Jensen L.	7	Testing D3O: Impact Padding Effectiveness in Football Helmet Technology	Mrs. Brenda Kirby	Kern
J2005	Choe, Patrick Kimura, Hannah H. Lee, Eric	8 8 8	How Fast Does a Tennis Ball Lose Its Bounce?	Dr. Susan Kimura	Los Angeles
J2006	Daniher, Caroline L.	8	How an Alum Flocculant Improves the Efficiency of a Ceramic Filter to Purify Water	Miss Jenni Keating	San Mateo
J2007	Fedinick-Emmons, Morrigin K.A.	8	Liar, Liar, Fabric on Fire!	Mr. Kevin Lane	Humboldt
J2008	Fung, Claire	7	Hidden Danger: Investigating Compliance to Lead Standards for Retail Jewelry	Mrs. Roxanne Hunker	San Diego
J2009	He, Zuoheng	8	Please Turn Down the Volume	Mr. John Briner	Orange
J2010	Isaka, Nina N.	8	The Science behind Cleaning	Mrs. Pronati Mondal	Santa Clara
J2011	Khaleel, Aamina Thasneem	7	Investigating Harmful Artificial Food Coloring in Candies Using Agarose Gel Electrophoresis	Mrs. Zaynab Joseph	Orange
J2012	Luisetti, Clara E.	7	Analysis of the Solubility of Different Types of Toilet Paper in Water and Septic Solution	Ms. Jennifer Tayler	Nevada
J2013	Meyer, Hayley N.	6	Insulation Effectiveness: Finding the Best Insulation Product for Your Home	Mrs. Darcy Lawson	Butte
J2014	Mistry, Nishtha K.	8	An Eggsperiment: What Is the Best Egg Substitute in Baking?	Mr. John Kunishima	San Bernardino
J2015	Nigro, Amanda N.	8	Testing Household Materials for Lifting Fingerprints	Mrs. Colleen McNally	Orange
J2016	Ochs, Elise M.	7	Investigating Various New and Used Cooking Oils for Saturated Fat Level	Mrs. Nicole Luckin	Fresno
J2017	Ostermann, Hannah L.	6	Stop the Burn!	Ms. Lauren Ostermann	Kern
J2018	Quinn, Tyler N.	8	Surf Wax	<none acknowledged>	Santa Cruz
J2019	Silvester, Ellie	8	Comparing Levels of Trace Contaminants in Bottled Water vs. Tap Water	Mrs. Roxanne Hunker	San Diego
J2020	Taitano, Dylan J.	7	Paintball Ammo: Is the More Expensive Brand Worth the Price?	Miss Frances Jones	San Diego
J2021	Waldman, Matthew J.	8	Testing Oxidation on Skateboard Bearings	Mrs. Virgin Bar	Ventura

Junior Division Toxicology

Project	Name	Gd	Project Title	Advisor	County
J2101	Annis, Zavier L.	8	Effects of Varied Ratios of Greywater to Clean Water on Tall Fescue Grass	Mr. Bill Frank	Alameda
J2102	Chilukuri, Amruth	7	The Effects of Ultraviolet Radiation on Yeast Colony Growth	Mrs. Jacque Magner	Orange
J2103	DeVore, Avery E.	7	What Essential Oil Kills Flies the Fastest?	Ms. Tammy Levy	Los Angeles
J2104	Duran, Alexa N.	8	Jellies Under Pressure: The Effects of Low Dissolved Oxygen Levels on the Pulse Rates of Aurelia aurita Ephyrae	Mr. Andres Carrillo	Los Angeles
J2105	Ellis, Laura E.	7	Copepod's Reaction to Pesticide	Mrs. Elaine Gillum	San Diego
J2106	Feague, Greta C.	6	The Effects of Pesticides on Bees' Lifespans	<none acknowledged>	Santa Cruz
J2107	Golling, Presley W.	7	Growing Grass with Produced Oil Field Water	Mr. Ken Arnold	Kern
J2108	Gupta, Aarzu Shukla, Maya S	8 8	A Test of the Mutagenic and Carcinogenic Potential of Nicotine-Free Electronic Cigarette Additives	Dr. Thomas Artiss	Santa Clara
J2109	Jacobs, Vinni	8	Are Green Detergents Biodegradable and Less Toxic?	Mr. Joseph Guzzi	Monterey
J2110	Jeck, Julia	6	Is Grey Water Green?	Ms. Cynthia Pellegrini	San Mateo
J2111	Kim, Chloe C.	8	Beating of My Heart	Mrs. Emily Hoffman	Los Angeles
J2112	Maduro, Rena N.	8	The Effects of Stimulants and Depressants on the Roundworm, <i>Caenorhabditis elegans</i>	Dr. Morris Maduro	Riverside
J2113	Meinardi, Marta	7	The Effects of Pollution on <i>Pyrocystis fusiformis</i>	Mrs. Liane Martin	Orange
J2114	Mummery, Natalie N.	7	Does Plastic in the Ocean Affect the Filtering Mechanism of the Common Mussel, <i>Mytilus californianus</i> ?	Ms. Christina Jahr	Ventura
J2115	Ramachandran, Shreya	7	Effect of Soap Nut Grey Water on the Environment (Soil and Plants)	Mrs. Celine Pallud	Alameda
J2116	Rhodes, Marley B.	6	The Effects of Acid Rain on Calendulas	Mrs. Brianna Rhodes	Los Angeles
J2117	Sanigepalli, Shravya S.	8	The Effect of Ocean Acidification on <i>Halimeda incrassata</i>	Mrs. Elaine Gillum	San Diego
J2118	Tovar, Samantha	7	Arresting Mitotic Division in <i>Allium cepa</i> Cells: A Phase I Cancer Study	Dr. Daniel Morse	San Bernardino

Junior Division Zoology

Project	Name	Gd	Project Title	Advisor	County
J2201	Bell, Athena M.	8	Hummingbirds and Their Feeding Habits	Mrs. Bonita Hamilton	Ventura
J2202	Bernardi, Alessio C.	8	Monkeyface Prickleback Reaction to Predators	Mr. John Wright	Santa Cruz
J2203	Cresap, Jennifer M.	7	Planaria: The Race to Regenerate	Mr. Joel Briner	Orange
J2204	Criminaldi, Makena M.	7	Shark Stopper: The Use of Samarium and Magnesium to Prevent Shark Attacks	Ms. Debbie Culley	San Diego
J2205	Dean, Kaitlin A.	7	Stop and Smell the Roses: How Choosy Are Insects about Scent?	Mrs. Heather Bridger	Fresno
J2206	Dougherty, Mason S.	6	The Effects of Various Dietary Supplements on the Longevity of <i>Drosophila melanogaster</i>	Mrs. Heather Bridger	Fresno
J2207	Gao, David S.	7	<i>Drosophila melanogaster</i> Addiction to Sugar	Miss Cynthia Wong	Los Angeles
J2208	Hewitt, Benjamin J.	8	Indications of Laterality in Bipedal Dinosaurs Using Gait Analysis from Dinosaur Trackways	Ms. Darshana Shah	Los Angeles
J2209	McDougal, Celeste N.	8	Changes in Arthropod Biodiversity: A Behavioral Study	<none acknowledged>	Santa Cruz
J2210	Miller, Elise S.	7	Worms Can Survive a Drought. Can You?	Mrs. Wendy Karnes	Kern
J2211	Oglesby, Lily C.	7	How Does Variation in Water Salinity Affect the Survival Rate of Mosquito Larvae?	Mrs. Tracy Lawrence	Riverside
J2212	Perryman, Haylee A.	7	Nitrates: A Study of Fish Growth	Mr. Bill Perryman	San Benito
J2213	Risk, Joshua	6	Modeling Stem Cell Growth in a Reclaimed Water Environment Using <i>Girardia tigrina</i> (Planaria Flatworm)	<none acknowledged>	Riverside
J2214	Scott, Ryan J.	6	The Chicken and the Egg: Solar Lights in Chicken Coops Can Double Food Supply for Families in Third World Countries	Ms. Megan Pfau	San Bernardino
J2215	Sloniger, Andrew R. Snyder, Cyrus M.	8 8	Nature vs. Tech	Ms. Elizabeth Conrad Dr. Felix Lapuz	Orange
J2216	Slosberg, Bella L.	7	Mealworm Madness: Are Mealworms Able to Ingest and Digest Polystyrenes Safely?	Ms. Matt Inman	Ventura
J2217	Thangavijayan, Harsha V.	8	Can Light Control Heart Rate?	Mrs. Stephanie Conklin	Orange
J2218	Weller, Eva M.	7	The Effects of Disc Golf on Plethodontidae Salamanders	Mr. Kevin Lane	Humboldt

Senior Division
Applied Mechanics & Structures

Project	Name	Gd	Project Title	Advisor	County
S0301	Arora, Nikhil	11	The Comparative Strengths of 3D Printed Microlattice Materials	Dr. Nikki Malhotra	Ventura
S0302	Barnes, Ryan A.	11	Strength of 3D Printed Interlocking Designs	Mr. Peter Starodub	Los Angeles
S0303	Brodish, Sophia A.	10	An Exoskeleton of the Spinal Cord to Prevent Scoliosis	Miss Kendia Herrington	Fresno
S0304	Catanzaro, Isabella J.	9	Tumbling Polygons: Using Angular Momentum to Flip Polygon Robots	Mrs. Rosalie Wisniew	San Diego
S0305	Chen, Shannon S.Y.	12	Airship Hull Optimization Using Artificial Neural Network and Computational Fluid Dynamic Simulations	Mr. Peter Starodub	Los Angeles
S0306	Cheung, Allen K. Hoang, David N.	10 10	Gravity Wheel Electric Generator: Harnessing Free Energy from Ocean Waves	Mr. George Sousa	Santa Clara
S0307	Cote, Julia V.	11	The Comparison of Strength in Different Shapes When Used in Composite Sandwich Panels	Dr. Rano Sidhu	Ventura
S0308	Ettinger, Kyle J.	10	Multicopter Disabling Net Launcher	Mr. Ted Shinta	Santa Clara
S0309	Herbert, Mitchell T.	9	Mobile Device Activated Package Theft Preventing Lockbox	<none acknowledged>	Placer
S0310	Huang, Charles J.	9	Crystallization of Calcium Carbonate into Chitin in Agaricus bisporus for Synthetic Bone Grafting and Prosthetics	Mr. Jason Lee	Santa Clara
S0311	Ireton, Garron W.	12	Shrapnel or Sorry: A Study of the Effects of Armor's Trajectories on the Effective Energy of a Projectile	Mr. Collin Ireton	Kern
S0312	Jackson, Holly M.	10	CUBOCTimization: Topological Optimization of a Cuboct Truss Bridge Using a Genetic Algorithm	Mrs. Lisa Yi	Santa Clara
S0313	Kao, Patrick D.	10	Stabilizing a High-Power Quadcopter	Dr. Russell Kao	San Mateo
S0314	Khan, Zaid A.	12	A Study of the UV Blocking Ability of UPF Rated Shirts	Mr. Riccardo Magni	Santa Barbara
S0315	Kolland, Benjamin T.	11	Project ARROW: Autonomous Rocket Return on Wings	Ms. Jasmin Gerer	Santa Cruz
S0316	Kumar, Maya S. Sengupta, Anooshree	10 10	A Map-Building, Self-Driving, Voice-Controlled Service Robot for the Visually Impaired	Mr. Chris Spenner	Santa Clara
S0317	Liu, Benjamin C.	9	A Lab-on-a-Chip Device Incorporating Novel Micropumps, Microvalves, and an Acoustic Micromixer for Disease Diagnostics	Dr. Robin Liu	Los Angeles
S0318	Liu, Peter Y.	11	Comparison of the Effect of Fixed and Natural Boundary Layer Transition on Airfoil Drag at Low Reynolds Numbers	Dr. Nikki Malhotra	Ventura

Senior Division
Applied Mechanics & Structures

Project Name	Gd	Project Title	Advisor	County
S0319 Mason, Henry A.	10	Make It or Break It, Now in Color: The Effects of Colorant on the Strength of PLA Polymer 3D Printed Objects	Mr. Thomas Shelby	Monterey
S0320 Modak, Shaunak	11	A Novel Method for Diagnosing Mechanical Component Failure Using Sound	Mr. Greg Burroughs	Santa Clara
S0321 Mukhopadhyay, Labanya	10	A Study of Micro-robotic Motions with Helical Flagella in Low Reynolds Number Liquids	Ms. Mary-Kate Lesoine	Santa Clara
S0322 Pardo, Mia B.	9	Gamma Radiation: The Effects of Shielding	Mr. Levon Dovlatyan	Los Angeles
S0323 Parker, Aaron E.	9	Hyperloop Beta: A New Method of Transportation	Mr. Jason Skaggs	Riverside
S0324 Robertson, Tyler E.	9	Improving Residential Solar Panel Efficiency in a Drought: A New Method to Clean Solar Panels without Water or Manpower	Mr. Wayne Garabedian	Fresno
S0325 Ruprem, Manjit	11	A New Mechatronic Platform for Neuromuscular and Joint System Rehabilitation: Tested for Parsonage Turner Syndrome	Ms. Kendia Herrington	Fresno
S0326 Sauer, Julienne I.	11	HeadSentry: A Real Time System for Preventing Second Impact Syndrome from an Overlooked Concussion in Aquatic Sports	Mr. Franz Sauer	Contra Costa
S0327 Tacescu, Alex C.	12	Project Maverick: An Omni-Directional Robotic Mobility System	Mr. Jonathan Bowns	Fresno
S0328 Thurgam, Sanjeev P.	9	Teaching Tennis to Beginners through the Aid of a Hand Device	Mr. Jim Swansiger	Alameda
S0329 Tingler, Jerret M.	9	Building a Smart Blind to Work Off of a Light Sensor	Mr. Ajay Tingler	Riverside
S0330 Valeriano, Maya A.	10	Breaking Point: The Relationship between Strength and Temperature	Ms. Kathleen O'Neill	Los Angeles
S0331 Varma, Maya	12	Autonomous Smartphone-Controlled Robotic Wheelchair with Beacon-Assisted Navigation	Dr. Tracy Hughese	Santa Clara
S0332 Vasconcelos, Francisca	12	Shape-Shifting Origami Robotics	Mrs. Julia Newman	San Diego
S0333 Weiner, Justin C.	11	The Effect of Football Helmet Inflation on Energy Absorbance	Miss Kalli Ickes	Orange
S0334 Woodside, Alexander	11	Finding a Strong Affordable Material to Construct a Simple Quadcopter Frame	Mr. Jim Bock	Calaveras

Senior Division
Behavioral & Social Sciences

Project	Name	Gd	Project Title	Advisor	County
S0401	Akbar, Mizna Thai, Dayna H.	11 11	The Effects of Aerobic Exercise on Semantic Memory	Mr. Jonathan Bowns	Fresno
S0402	Brdar, Nicholas M.	10	Effects of Online vs. Printed Textbooks	Mrs. Viki Acquistapace	Contra Costa
S0403	Chandrashekar, Shreyas	10	The Effect of Age on Human Thinking Processes	Mrs. Kelly Horan	Santa Clara
S0404	Condon, Andrew C.	9	The Influence of General Anxiety on the Perception of Personal Safety	Mr. Paul Hunt	Orange
S0405	Condon, Emily P.	11	Motor Vehicle Driver Injury and Death in Orange County: Who Is Most at Risk?	Mr. Paul Hunt	Orange
S0406	Duong, Leanna T. Qian, Peizhu	10 12	Analysis of the Impacts of Cultural Changes through Interpretation of Hofstede's Cultural Dimension Theory	Ms. Stacy Stahl	Mendocino
S0407	Ekanayake, Ruwanthi N.	12	Effects of Sleep Quality on Virtual Reality Language Learning	Mr. Peter Starodub	Los Angeles
S0408	Fishman, Lauren R.	11	Expressing Emotion: Physiological, Verbal, and Facial Differences	Dr. Nisha Kunte	Orange
S0409	Gebremariam, Musaiel D. Le, Ryan	9 9	Influence of Math Level and Grade on Number Sequence Recall Accuracy	Ms. Judith Barcelon	Sonoma
S0410	Grant, Zoey R.	11	Gender Influence in the United States Military Correlating to the Imbalance of Gender Diversity in Active Duty Recrui	Mr. Scott Mckee	Sonoma
S0411	Herold, Camryn J.	11	Factors Contributing to the Academic and Social Success of the Emotionally Disturbed Programs within the CVUSD	Dr. Krister Swanson	Ventura
S0412	Joung, Rufina J. Sandhu, Simran K.	10 11	A Study of the Impact of Race on Facial Recognition of Asian Ethnicities	Mrs. Andrea Oliveira-Taylor	Riverside
S0413	Li, Miranda	10	Impact of Patient-Centered Approach Intervention on Women's Knowledge of National Cervical Cancer Screening Guidelines	Ms. Charlene Chang	Los Angeles
S0414	Lipow, Gabriel	9	Does Giving Children the Opportunity to Recycle Increase Waste Output?	Dr. Jonathan Lipow	Monterey
S0415	Lou, Anna J.	11	Closing the Achievement Gap in STEM: Effect of Prior Knowledge on Guidance in Technology-Based Student-Centered Learning	Dr. Susanne Jaeggi	Orange
S0416	Low, Henry G.	11	Assessing the Effectiveness of Virtual Psychotherapies for OCD by Developing a Novel Software Application	Ms. Andrea Adams	Placer

Senior Division
Behavioral & Social Sciences

Project	Name	Gd	Project Title	Advisor	County
S0417	McEvoy, Cassiel T.	12	Music and the Induction of Emotions	Dr. Krister Swanson	Ventura
S0418	Mitchell, Sheyenne E.	9	Can You Taste the Rainbow?	Mrs. Jennifer Achziger	Kern
S0419	Nimmagadda, Saumya	10	The Effect of Support and Knowledge from Coaches and Family on an Athlete's Return to Sport from an ACL Injury	Mr. Jason Lee	Santa Clara
S0420	Sheppard, Meredith S.	11	The Relationship of Depression between Nurses Working Night Shifts and Day Shifts	Dr. Nikki Malhotra	Ventura
S0421	Trimble, Edward A.	10	Using EEG as an Evaluative Tool for Sustained Concentration Studies: Phase III	Dr. Daniel Morse	San Bernardino
S0422	Wille, Anika J.	10	Is Seeing Perceiving? Do Visual Cues Enhance Auditory Attention and Comprehension in a Mixed Speech Background?	Dr. Julien Astruc	San Francisco
S0423	Wong, Nicholas G.	11	Currency Movement Projections and Possible Societal Applications Using Dollar Bill Tracking Data	Mr. Todd Whalen	Sacramento

Senior Division
Biochemistry/ Molecular Biology

Project	Name	Gd	Project Title	Advisor	County
S0501	Ambati, Vardhaan S.	11	A Permutable Nanotherapeutic Using Engineered CRISPR/Cas9: A Personalized Treatment for Cancer Heterogeneity and Viruses	Dr. Thuy Anh Nguyen	Santa Clara
S0502	Baral, Jessika	11	Small Cell Lung Cancer Detection Using Nuclear Factor I/B Expression: Increase Patient Survival in 1 Minute for 1 Dollar	Dr. Julien Sage	Alameda
S0503	Chen, Jerry Jin, Amy	10 10	Combating the Obesity Epidemic: Gene Knockdown and Drug Repurposing to Discover Therapeutic Targets and Novel Treatments	Mr. Chris Spenner	Santa Clara
S0504	Cheung, Caleb E.	9	Moringa oleifera and Boswellia serrata, Natural Calcium, and BMP-6 Inducers to Treat Osteoporosis	Dr. Shiva Sreenath Andrali	Los Angeles
S0505	Cho, Julia H.	12	Genetically Encoded Bioluminescence Resonance Energy Transfer-based Ca ²⁺ Indicator for in vivo and Deep Tissue Imaging	Mrs. Pamela Chow	Santa Clara
S0506	Dahan, Noa E.	10	Identification of MDM2 as a Novel Antiapoptotic Factor in Grade IV Astrocytoma	Mr. Ariel Haas	San Diego
S0507	Dunphy, Amy C.	10	Preventing Urushiol (Poison Oak) Induced Dermatitis by Deactivating the Allergen	Mr. Chris Spenner	Santa Clara
S0508	Ellison, Rochelle M.	12	Effects of Curcumin and Tannic Acid on Amyloid Beta Aggregation: A Novel Potential Therapy for Alzheimer's Disease	Dr. Nikki Malhotra	Ventura
S0509	Ganesh, Durga	12	Angiopoietin-2 Induces Myeloid Cell Adhesion via G Protein-Coupled Receptor X	Mr. Jason Lee	Santa Clara
S0510	Glikbarg, Chloe	11	Identification of a Transdifferentiation Regulating Gene in <i>C. elegans</i>	Dr. Pan-Young Jeong	Santa Barbara
S0511	Gross, Sarah F.	10	pHood Matters: The Impact of Food pH on Health in Its Application to Humans through Testing Chicks and Mice	Ms. Deborah Kenton	Ventura
S0512	Gupta, Shivani	12	A Quantification of Anthocyanin Levels in Fruits	Dr. Sanjay Gupta	Kern
S0513	Guru, Aditya A.	10	Discovery of a Novel Mutation Causing Retinal Degeneration through Genomic Analysis	Dr. Radha Ayyagari	San Diego
S0514	Horton, Krystal R.	9	A Simple Field Detection of Citrus HLB Associated Bacteria in Insect Vectors	Dr. Majunath Keremane	Riverside
S0515	Huch, Kylie M.	12	Quantifying the Extent to Which Traits of Extinct Species Can be Revived via the Bioengineering Method of De-extinction	Mr. Darren Dressen	Santa Clara

Senior Division
Biochemistry/ Molecular Biology

Project	Name	Gd	Project Title	Advisor	County
S0516	Izadyar, Neda	11	Bioengineering of Bone Fragments in Calcium Alginate Using Canine Adipose Derived Stem Cells Exposed to BMP-7	Mr. Mike Antrim	Orange
S0517	Kalvakota, Saichandra	11	Mathematical Models of Cancer Development in the Human Digestive System	Mr. Paul Hunt	Orange
S0518	Kapadia, Krish B. Saklecha, Anjay	9 9	The Use of Lactic Acid Levels in Saliva as a Novel Biomarker for Sepsis	Dr. Erez Podoly	Santa Clara
S0519	Kmet, Ryan D.	12	A Pharmacologic Study Side Effect Prediction through Evaluation of Target and Nontarget Proteins	Ms. Tami Johnson	Kern
S0520	Kopecky, Morgan M.	9	A Novel Silk Fibroin Derived Paper Sensor for the Noninvasive Detection of Diabetes	Mr. Mike Antrim	Orange
S0521	Krishnan, Nishanth	11	Protein Cages with Antibody Binding Capacity for Targeted Drug Delivery	Dr. Jacek Ostrowski	San Diego
S0522	Lalgudi, Pranav V.	11	Identification of Transdifferentiation Regulating Genes in <i>Caenorhabditis elegans</i>	Mr. Jason Lee	Santa Clara
S0523	Mack, Jasmine A.	12	Variations of Zeaxanthin epoxidase and Phosphoglucomutase in <i>Landoltia punctata</i>	Ms. Katherine Huang	Contra Costa
S0524	Mandi, Varun	12	Examining Coding and Non-Coding Regions of Enhancer Landscapes in Vascular Cells (VSMCs) Stimulated with Angiotensin II	Mr. James Kirkpatrick	Orange
S0525	Multani, Gitanjali P. Multani, Priyanka P.	11 11	Early Detection of Epithelial Ovarian Cancer via B7-H4 Quantification in a Microfluidic System	Dr. Ratneshwar Lal	San Diego
S0526	Onyeador, Onyinyechi C.	10	Effects on Mouse Growth of Postnatal Novel Protein Kinase Gene Deletion in Endothelial Cells	Dr. Rebecca Stockton	Los Angeles
S0527	Pan, Jennifer R.	10	Computationally Revealing Protein Targets for Metal-based Drugs	Mr. Michael Tran	Orange
S0528	Patro, Varun Y.	9	Determination of Optimal pH Range for Sucrose-to-Glucose Conversion by Invertase: Selection of Foods for Diabetic Diet	Mrs. Brianna Harris	Ventura
S0529	Phan, Jennifer H.	12	Shedding Light on Proteins: The Effect of Scattered Light on Protease Activity	Mrs. Debbie Lewis	Kern
S0530	Qin, Sophia D.	11	Identifying a Role for Sox2 in the Development of Retinal Astrocytes for Proper Vision	Ms. Amanda Kautzman	Santa Barbara

Senior Division
Biochemistry/ Molecular Biology

Project	Name	Gd	Project Title	Advisor	County
S0531	Santiago, Therese	11	Detection of Biomarker Ciz1 b variant for Early Diagnosis of Lung Cancer	Dr. Daya Upadhyay	Fresno
S0532	Sayana, Anin	12	Accelerating Cancer Immunotherapy: Optimization of an EGFRvIII-based Cancer Vaccine for Improved Glioblastoma Prognosis	Dr. Albert Wong	Santa Clara
S0533	Schlafly, Geneva R.	11	Genomic Reliability of Consumer Tests	Mrs. Kerry Twohig	Santa Cruz
S0534	Soh, Serena J.	11	Maintaining Viability in Cellular Therapies for Age-Related Macular Degeneration during Cryopreservation	Dr. Britney Pennington	Santa Barbara
S0535	Song, Scott S.	11	Development of a Novel Microfluidic System to Study Neurodegenerative Disorders	Mr. Chris Spenner	Santa Clara
S0536	Wang, Justin J.	11	Phasor-FLIM Analysis of Metabolic Effects of Caffeine and Cisplatin on a Triple-Negative Breast Cancer Cell Line	Ms. Joan Elliott	Orange
S0537	Ward, Hannah L.	11	Ultraviolet Fermentation: The Effects of PUVA and PUVB Exposure on <i>Saccharomyces cerevisiae</i> Metabolism	Mr. Jeffrey Sum	Riverside
S0538	Zhang, Caroline C.	11	Investigation of Glucocorticoid Receptor Degradation and Its Antagonists to Address Cancer Drug Resistance	Dr. Nanhai He	San Diego
S0539	Zhang, Daniel D.	10	Developing a Low Cost Noninvasive Prenatal Diagnosis for Genetic Disorders	Ms. My Ingram	San Diego
S0540	Zhu, Clare	12	Quantifying the Complexity of Conformational Transitions in the Partial and Biased Activations of GPCRs	Dr. Lei Shi	Orange

Senior Division Chemistry

Project	Name	Gd	Project Title	Advisor	County
S0601	Ackerman, Cailan A.	11	Absorption of Glyphosate Based Herbicides by Microbeads	Dr. Nikki Malhotra	Ventura
S0602	Bambot, Sakina	9	Bisphenol A Transfer from Receipts: Detection Using TOF-SIMS	Mr. Zoher Bambot	San Mateo
S0603	Barton, Reid A.	12	The Effect of Chloride Ion Concentration in Organolead Halide Perovskite Crystal Based Solar Cells	Ms. Cathy Messenger	Santa Clara
S0604	Chang, Annette	11	Turning Harmful Greenhouse Gas Into Valuable Fuel: A Novel Method for Biogas Reforming	Mr. Mike Antrim	Orange
S0605	Cheng, Audrey	12	Enhancing the Efficiency of Self-Assembled Organic Solar Cells with the Addition of a Second Electron Donor and Graphene	Dr. Miriam Rafailovich	Santa Clara
S0606	Chizhik, Isaac W.	11	Mixing Up a Better Lab: Wavelength Choice Affects Accuracy and Consistency of the UV-Vis Spectroscopy Analysis	Dr. Christopher Harrison	San Diego
S0607	Chun, Bradley K. Locke, Jaden G.	9 9	An Analysis of the Effects of CO ₂ on the Dissolution CaCO ₃ in Marine Life	Mrs. Michele Hampton	Riverside
S0608	Cruz, Jona Victoria G.	9	Dissolving Alka-Seltzer Tablets in Different Liquids	Dr. Pamela Durkee	Monterey
S0609	Freedman, Max	9	Bang for Your Buck: Designing and Building Hydrogen Fuel Cells	Ms. Patty Freedman	Santa Cruz
S0610	Garcia, Linett	9	Using Ice to Determine the Efficiency of Basic Types of Salt	Dr. Pam Durkee	Monterey
S0611	Harakas, Alexandra K.	9	The Effect of Wood Ash on the Fire Retardancy of Paint	Mrs. Susan Ackermann	Orange
S0612	Karroum, James G., II	11	Inhibiting the Corrosion of Metals Using Cathodic Protection	Mrs. Michele Dolphin	Los Angeles
S0613	Karthik, Anjini	12	Combating Viral Outbreaks: Rapid and Selective Detection of Viruses Using Inexpensive Polymer Films	Ms. Jennifer Thomas	Santa Clara
S0614	Korshkov, Richard A.	9	Got Water? Salt Water to Fresh Water	Ms. Kelly Samuelson	Placer
S0615	Krock, Matthew C.	12	Optimization of Period IV Transition Metal-Phosphate Complex Concentration for Efficient Water Electrolysis	Mr. Dennis Whieldon	Riverside
S0616	Lau, Sophia	11	The Effect of UV Radiation on the Photoelectrochemical Conversion System of Organic Dye-Sensitized Photovoltaic Cells	Mr. Narquiz Cervantes	Santa Clara
S0617	Lee, Channing C.	9	Sports Drinks vs. Fruit Juices: Which Has a Higher Conductance, Meaning More Electrolytes?	Mr. Franklin Parmar	Orange

Senior Division
Chemistry

Project	Name	Gd	Project Title	Advisor	County
S0618	Lee, Victoria	12	Nanowire Sensing of Iron (III) in Millimolar Concentrations	Mr. Rajen Dutta	Orange
S0619	Luebke, Marcus X.S.	10	Running on Water: Electron Superhighway for Optimization of Real-Time Production of H ₂ and O ₂	Mr. Nicole Cerra	San Mateo
S0620	Macias, Leslie J.	10	Electrolyte Challenge: Gatorade vs. Orange Juice	Mrs. Kacee Fujinami	Monterey
S0621	Moxley, Zachary D.	11	Characterization of Biomedical Graphene	Dr. Nikki Malhotra	Ventura
S0622	Pritz, Joshua M.	12	Investigation and Applications of the Lithium-Oxygen Battery Cell Cathodes	Dr. Nikki Malhotra	Ventura
S0623	Shah, Bhavin T.	11	Diffusivity and Solvation of Alkali and Halogen Ions in Solid and Aqueous Battery Electrolytes	Mrs. Dominique Evans- Bye	Los Angeles
S0624	Stahovich, Kimberly A.	9	What Are the Effects of External Carbohydrate Contaminants on Blood Glucose Measurements Made with a Glucometer?	Mrs. Jaime Hiraoka	Riverside
S0625	Tacto, Clarissa M.	12	The Intermolecular Attraction of Aspirin and Acetaminophen in Plastics	Dr. Gian Grant	Los Angeles
S0626	Wu, Michael D.	10	An Analysis of SOA Produced from a Novel Liquid-Phase Reactor and Their Impacts on Climate	Mrs. Julie Pomerleau	Orange
S0627	Yang, Erika	10	Developing a NanoFET Biosensor Based on MoS ₂ 2D Material for Detecting Low Concentration Illness-Related Molecules	Dr. Xiaogan Liang	Alameda

Senior Division
Electronics & Electromagnetics

Project	Name	Gd	Project Title	Advisor	County
S0901	Batterman, Nicholas C.	12	Forehead Powered Headlamp	Mrs. Pamela Durkee	Monterey
S0902	Chan, Kaitlyn J.	10	Conversion of Pedal Power to Electricity	Ms. Mary Rustia	San Mateo
S0903	Cohen, Adam S. Gerber, Aaron R.	10 10	Soordi: Glasses to Hear Again	Ms. Annabella Kraut	Orange
S0904	Goutam, Arya	9	ResQ: A Low Cost Wearable Device that Automatically Detects Falls and Immediately Alerts Family Members Worldwide	Ms. Jennifer Selby	San Mateo
S0905	Hartman, Austin M. van Bruggen, Edryd O.	11 11	Ultrasonic Rangefinders Aiding the Visually Impaired	Dr. Don Louie	San Mateo
S0906	Hase-Liu, Matthew M.	11	Improving the Efficiency of a Coilgun with the Use of Non-Uniform Coil Density and Current Reversal via H-Bridges	Dr. Roy Rocklin	Santa Clara
S0907	Hathaway, Alisa Y.	10	A Customized Directional Antenna System to Focus WiFi Signals	Mr. Peter Starodub	Los Angeles
S0908	Henning, Robert C.	12	The Exchange Improving Unit: An Auditory Device for Directional Filtering: A Second-Year Study	Mrs. Angelika Termin	San Diego
S0909	Jaffarove, Sasha	10	Cave Mapper	Mr. Gregory Kielian	Santa Cruz
S0910	Jones, Cameron C.	9	Laser Etching of Graphene Oxide to Create High Energy Density Micro-Supercapacitors	Dr. Miriam Allersma	Santa Clara
S0911	Kato, Hayato S.	11	The Behavior of a Swarm of Simple Robots Expressing Collective Intelligence	Mrs. Julie Pomerleau	Orange
S0912	Krishnan, Venkat V.	10	Using Optical Flow Modeling Methods and Sensor Fusion to Create a Novel Low-Cost Autonomous Emergency First Responder	Mr. Evan Winiger	Alameda
S0913	Liu, Patrick	9	Project POE: Tri-Sensor Cardiac Monitoring System	Mr. Joseph Huber	Orange
S0914	Lujano, Luis A.	12	Comparing Generators	Mr. Kyle Webster	Kern
S0915	Martin, Blake A.	10	Solar: Cell vs. Mirror	Mr. Keith Martin	Orange
S0916	Narain, Anchit	12	Enhancing the Rate Capability of the Ni-Co-O System Supercapacitor Electrode Using NH3 Treatment	Mr. Tianyi Kou	Fresno
S0917	Ngan, Bennett	11	A Solar Thermoelectric Generator Utilizing a Phase Change Thermal Battery	Mr. Daniel Ngan	Santa Clara
S0918	Pretorius, Cade	9	Digital Stethoscope to Assist Detection of Irregular Heartbeats	<none acknowledged>	Riverside
S0919	Raghunathan, Atul	10	Recovering and Recycling Excess Thermal Energy to Improve the Net Efficiency of Common Lighting Sources	Mr. Charles Williams	Santa Clara

Senior Division
Electronics & Electromagnetics

Project	Name	Gd	Project Title	Advisor	County
S0920	Seshadri, Anish	11	Wearable Diagnostic Point of Care Instrument for AGE Correlated Degenerative Diseases Using Smartphone Technology	Mrs. Linda Segal	Santa Clara
S0921	Singh, Anshul	10	Prototyping a Quadrotor Collision Avoidance System Using Ultrasonic Ranging with NodeJS and Arduino Platforms	Mrs. Elaine Gillum	San Diego
S0922	Torres, Ana D. Valencia, Arien A.	10 10	How Does Light Intensity Affect the Resistance of a Photoresistor?	Mr. Lorand Incze	Monterey
S0923	Tremsin, Vasily A.	10	Am I Protected from that UV Sunlight? Personal Devices for Prevention and Preliminary Detection of Skin Cancer	Mrs. Roxanna Jackman	Contra Costa

Senior Division
Environmental Engineering

Project	Name	Gd	Project Title	Advisor	County
S1001	Arst, Kaitlyn A.	10	Using Superabsorbent Biodegradable Hydrogel to Decrease Water Use and Improve Drought Stress on Agronomic Plants	Mrs. Sangeeta Arst	Los Angeles
S1002	Arumugam, Ainesh	9	Smart Irrigation Controller Using Computation and Analysis of DGCI of Plants by Image Processing for Water Conservation	<none acknowledged>	Orange
S1003	Beltran, Ricardo A.	9	Investigation on the Effectiveness of Potential Sorbent Materials When Collecting Oil	<none acknowledged>	Monterey
S1004	Benedict, Annie C.	11	Development of a Household Direct-Steam-Generation Solar-Powered Water Recovery System	Mr. Peter Starodub	Los Angeles
S1005	Davila, Jacquelyn M.	11	A Pair of Biosticks	Mrs. Sharon Shipley	Sacramento
S1006	Eggleston, Michele L.	10	Is It Clear? Is It Clean? Methods for Testing and Treating Water with Cheap Materials for Use in Developing Countries	Mrs. Trudy Pachon	San Diego
S1007	Houlihan, Matthew M.	10	Water-Wise Farming	Mr. Paul Hunt	Orange
S1008	Humphrey, Atticus J.	10	Bromelain Feed Supplement: A Pollution Mitigation Strategy	Mr. Davin Aalto	Fresno
S1009	Isozaki, Christopher D.	10	Separating Carbon Dioxide from the Atmosphere to Help Minimize Global Warming: Year1	<none acknowledged>	Los Angeles
S1010	Jain, Ishan Jayanthan, Dillon Sangha, Neil	11 11 11	The Engineering of Carbon Dioxide Reduction, Part 2	Mrs. Minu Basu	Contra Costa
S1011	Jain, Shomil	10	Developing an Artificial Turf Field with Thermoelectric Generators for Heat Absorption and Electricity Generation	Mrs. Cathy Messenger	Santa Clara
S1012	LaCapria, Oliver W.	10	Removing Nitrogenous Waste from an Ecosystem	Mr. Paul Hunt	Orange
S1013	Lara De Nova, Juan C.	12	Bioremediation: The Effect of Oil-Eating Bacteria on the Oxygen Production of <i>Elodea canadensis</i>	Mr. Riccardo Magni	Santa Barbara
S1014	Lee, Juwon	10	Designing an Environmentally Friendly Fire Retardant and Extinguisher Using Kelp	Ms. Valerie Thompson	Orange
S1015	Lum, Lauren M. Vo, Victoria N.	11 11	The Effect of the Addition of Acetic and Nitric Acids to Natural Dyes on the Electrical Output of a DSSC	Mr. Mike Antrim	Orange

Senior Division
Environmental Engineering

Project	Name	Gd	Project Title	Advisor	County
S1016	Man, Cassandra K.	10	The Effect of Visible Light Irradiation on Photocatalyst Mediated Decolorization of Crystal Violet in Wastewater	Mr. Mike Antrim	Orange
S1017	Matthias, Nicole S. Russell, Rhiannon A.	12 12	The Effects of Additives on Soil Stability	Mr. Kyle Webster	Kern
S1018	Morreale, Marc L. Sercel, Nicholas C.	9 9	Investigation of CO2 Enhancement for Kratky Hydroponics in Greenhouses for Low Water Consumption Agriculture	Mrs. Cynthia Sercel	Los Angeles
S1019	Nagaraj, Gajan R.	11	Drought or Deluge: Creating a Novel Ground Water Basin for the Efficient, Economic, and Eco-friendly Capture of Runoff	Mr. David Clark	Santa Clara
S1020	Plese, Alyssa L.	11	Analyzing Biodegradation of Polystyrene by Mealworms	Mr. William Schlegel	San Bernardino
S1021	Rabano, Cole R.	9	Mustard Algae: Swimming Pool Pest or Vegetable Garden Growth Enhancer?	Mrs. Susan Ackermann	Orange
S1022	Roberts, Amanda T.	10	Is It Possible to Turn CO2 Waste into a Usable Product?	Dr. Rahul Sangodkar	Santa Barbara
S1023	Russo, Kaitlyn A.	11	The Effect of Vertical Gardening on Soil Quality	Mrs. Carolyn Mendonca	Fresno
S1024	Sahai, Ritika P.	12	The Reduction of Hexavalent Chromium through the Use of Steel Wool and Ferrous Sulfate	<none acknowledged>	San Bernardino
S1025	Shah, Sanjana V.	9	Smart Flood Sensor: Detect, Analyze, and Predict Water Accumulation in City's Drainage System	Mrs. Debbie Frazier	Santa Clara
S1026	Tessman, Alana R.	10	Testing (EA) Bioremediation for Treatment of Sumps, Percolation Ponds, and Produced Water Intended for Agriculture	Mr. John Erickson	Kern
S1027	White, Tyler	12	Biosand Filter: Which Model Works Best?	Mr. Riccardo Magni	Santa Barbara
S1028	Whiting, Erica S.	11	Digestion of Styrofoam by Mealworms (larvae of Tenebrio molitor): The Effect of a Nutritional Boost	Ms. Mary Hines	Los Angeles
S1029	Yin, Jeffrey L.	11	Utilizing Floating Solar Panels to Save Dry Reservoirs: Folsom Lake	Dr. Hengbing Zhao	Yolo

Senior Division
Environmental Science

Project	Name	Gd	Project Title	Advisor	County
S1101	Agatep, Alvin Kristoff E.	10	An Analysis of the Effect of Effluent on the Water Quality of the Santa Ana River	Mrs. Michele Hampton	Riverside
S1102	Agdashian, Diana	10	Potable Water Analysis	Mr. John Shirajian	Los Angeles
S1103	Amparano, Mireya	11	Decomposition of Foam Cup Alternatives	Mr. Sunny Kaura	Riverside
S1104	Castro, Angie M. Manlapeg Schager, Jessica Ann	11 11	Wetlands and Water Quality	Ms. Bayley Lawrence	Riverside
S1105	Chau, Natalie	12	How Do Chemically Treated Seeds Affect the Quality of Soil in Comparison to Untreated Seeds?	Mr. Patrick Allamandola	Santa Clara
S1106	Crawford-Shelmadine, Hunter C.	10	Lumbriculus variegatus and Man-Made Hazards: What Is the Tipping Point?	Ms. Cheryl Shelmadine	San Mateo
S1107	Felizarta, Philip M.	11	A Climate Model for Predicting Global Mean Temperature Anomalies	<none acknowledged>	Kern
S1108	Manseau, Julianna O. Ussat, Amelia K.	11 11	The Effects of Vegetation and Urbanization on Bird Abundance	Ms. Jane Orbuch	Santa Cruz
S1109	Patel, Evan A.	11	Intertidal Acidification: A Study on Local Adaptation	Ms. Gina Contolini	Monterey
S1110	Song, Madeline J.	11	EI Betweeno: Morisita-Horn Index Correlates Rainfall Variability with Crop Yield	Mrs. Julia Newman	San Diego
S1111	Welch, Ashley N. Zinkievich, Maxwell S.	10 10	EI Nino's Effects on San Lorenzo Valley's Atmospheric Inversions	Ms. Jane Orbuch	Santa Cruz
S1112	Zhai, Albert J.	11	A Web-based Global Plant Productivity Information System	<none acknowledged>	Los Angeles

Senior Division
Mammalian Biology

Project	Name	Gd	Project Title	Advisor	County
S1201	Ambatipudi, Mythri	10	Using Circadian Rhythm Gene SNPs, Sleep-Wake Phenotypes, and MRI Morphometrics to Diagnose Cognitive Impairment Diseases	Mrs. Linda Segal	Santa Clara
S1202	Chugh, Rehet K.	10	Autologous Canine Plasma	Dr. Sukhwinder Chugh	Fresno
S1203	Cordero, Alexandria A. Garcia, Genesis Le, Melanie T.	12 12 12	The Effect of Different Environmental Conditions on Wildlife Activity	Mr. Kyle Webster	Kern
S1204	Gallagher, Bailey M.	9	Effect of Height of a Jump on a Horse's Hip Angle	Mr. Paul Hunt	Orange
S1205	Klein, Paytra A.	11	Onions to Treat Dry Eyes Syndrome	Mr. Alan Krause	Orange
S1206	More, Camryn L.	9	Cold vs. Allergy: The Use of Nasal Cytology to Determine if High School Students Can Predict Their Own Diagnosis	Dr. Daniel More	Monterey
S1207	Risk, Madison	9	The Effect of Chronic Sleep Deprivation and Blue Light Using a Nocturnal House Mouse (Year 7)	<none acknowledged>	Riverside
S1208	Sandhu, Onkar S.	12	A Novel Risk Score for Predicting Readmission in Patients with Chest Pain	Dr. Bipin Joshi	Fresno
S1209	Williams, Kayla L.	10	Mouse Runner: An Investigation on the Effects of Energy Drinks on Mouse Capability	Mrs. Debbie Lewis	Kern

Senior Division
Mathematics & Computer Science

Project	Name	Gd	Project Title	Advisor	County
S1401	Antony, Varghese Kumar, Raja S. Lun, Jonathan V.	11 11 11	Tejon Conservancy Oak Identification App	Mr. Kyle Webster	Kern
S1402	Arora, Rohan	10	Aegis: A Biosensor for Hydration Status	Mr. Evan Winter	Alameda
S1403	Bao, Rong	11	How to Wrap a Sphere	Dr. Phillip Wenzel	Monterey
S1404	Bernal, Guadalupe	9	Autonomous Robot Navigation Using Computer Vision for Exhaustive Path-Finding	Mr. Tyler Johnstone	Sacramento
S1405	Bolya, Daniel McLeod, Dylan M.	12 11	Using Artificial Intelligence Systems for Autonomous Visual Comprehension and Handwriting Generation	Mr. Eric Wright	Sacramento
S1406	Chiang, Vivian R.	10	Motion Detection in Video Surveillance	Ms. Kathleen Koch	Santa Clara
S1407	Devalapurkar, Sanath K.	10	The Algebra and Geometry of Quasicategories	Dr. Marcy Robertson	Los Angeles
S1408	Dhar, Aditya A.	11	Predicting and Identifying Forced Human Displacement Hotspots Using Multiple Linear Regression and Neural Networks	Mr. Chris Spenner	Santa Clara
S1409	Gargeya, Rishab Shah, Manan A.	11 11	Automated Diagnosis of Diabetic Retinopathy in Fundus Images: A Novel Synthesis of Biological and Data Driven Approaches	Mr. Chris Spenner; Dr. Daniel Rubin	Santa Clara
S1410	Ghosh, Dhruva J.	10	Viseme Analysis: Implementing Contour Sequence Classification to Augment Speech Recognition	Mr. Prasanta Ghosh	Contra Costa
S1411	Joshi, Tanisha M.	11	A Novel Cognitive Knowledge Harvesting Approach to Train a Self Learning System for Drug Predictive Models	Dr. Susan Lato	Santa Clara
S1412	Kaul, Adiyen Vichare, Sohan M.	10 9	Hawkeye: Unmanned Search and Rescue Missions through Intelligent Drones Guided by Computer Vision & Dynamic Pathfinding	Mr. Eric Ferrante	Santa Clara
S1413	Kazmie, Sarah H.	11	DermatoScan 2.0: Image Analysis Optimizations for the Early Detection of Skin Cancer	Dr. Nikki Malhotra	Ventura
S1414	Krishnamurthy, Preetha S.	10	Compression Based Data Mining for Assessing Similarity in Object Textures in Multiple Images	Mrs. Michele Hampton	Riverside
S1415	Movva, Rajiv	10	Halo: A Machine Learning Assisted System to Detect Concussions in Sports	Dr. Eric Nelson	Santa Clara
S1416	Nadig, Mihika	11	Application of a Deep Learning Architecture Using Convolutional and Recurrent LSTM Networks to Video Classification	Mr. Vijayasai Nadig	San Diego
S1417	Nahum, Gabriel Neiman, Zachary M.	11 11	C-Color: Colorblind Smartphone Application	Ms. Annabella Kraut	Orange

Senior Division
Mathematics & Computer Science

Project	Name	Gd	Project Title	Advisor	County
S1418	Pho, Kevin K.	10	Digital Fingerprints: Constructing One-Way Hash Functions	Ms. Kathleen O'Neill	Los Angeles
S1419	Ramadurgam, Kalyani	11	Improved Machine Perception During Autonomous Driving via Semisupervised Deep Learning and Multisensor Datastream Fusion	Mrs. Julia Newman	San Diego
S1420	Rao, Tejas N.	9	Reduce Accidents with Automobile Driving Tracker Using Raspberry Pi, Python, and OBD Port	Mrs. Bharathi Udupi	San Mateo
S1421	Shah, Shalin V.	11	Voice: Computer Vision Algorithms to Counter Age-Related Macular Degeneration, Glaucoma, and other Pathological Typhlosi	Mrs. Christina Migge	Orange
S1422	Sundrani, Nikhil Sundrani, Sameer	9 10	The Use of Photoplethysmography (PPG) to Develop a Prototype Heart Rate Wristband to Monitor Life Threatening Arrhythmia	Mrs. Brenda Royce	Fresno
S1423	Tacescu, Robert G.	10	Safecopter: Developing a Collision Avoidance System Based on an Array of Time-of-Flight 3D Cameras	Mr. Jonathan Bowns	Fresno
S1424	Xu, Michelle C.	10	Determining the Protein Structure from Ant Colony Optimization Using Energy Minimization Derived from the Ising Model	Mr. Charles Beilin	Orange
S1425	Zlokapa, Alexander M.	11	Predicting Future Body Mass Index with an Artificial Neural Network	Mrs. Mary Jane Zlokapa	Contra Costa

Senior Division
Microbiology (General)

Project	Name	Gd	Project Title	Advisor	County
S1501	Badger, Ava J. Bauerle, Annika E.	11 11	E. coli Contamination in Shingle Mill Creek	Ms. Jane Orbuch	Santa Cruz
S1502	Bairaboina, Sourish Bansal, Akshaj	9 9	Testing the Veracity of Cope's Rule on Microorganisms	Ms. Ani Hanoian	Contra Costa
S1503	Brundage, Stephany R.	10	The Death of Diatoms	Mrs. Erin Vaccaro	Mendocino
S1504	Chen, Maggie S.	10	Combating Antibiotic Resistant Bacteria Using Tissue Adhesive Hydrogel with Cell-Membrane Coated Nanotherapeutics	Mr. Ariel Haas	San Diego
S1505	Ensari, Pelin	10	The Discovery and Test of a New Biologically Produced Acne Cream: Lacnend	Dr. Semsı Ensari	Orange
S1506	Essien, Michelle A. Kim, Everett N. Kwong, Dianna	12 12 12	Comparing the Efficiency of Viral Phages to Those of Antibiotic and Antibacterial Compounds in Combating E. coli B	Dr. Teri Osborn	Riverside
S1507	Filler, Elan E.	12	A Novel Treatment for Candida glabrata Infection	Mrs. Julie Munoz	Los Angeles
S1508	Gupta, Shayle	9	In Search of the Ideal Protection for Humans from Physiologic Burns: Analysis of Ultraviolet Radiation Protective Agents	Dr. Laura Schoepf	Riverside
S1509	Jiang, Bowen	10	Towards a Novel Method for Combating Harmful Cyanobacteria in Freshwater	Dr. Gordon Wolfe	Butte
S1510	Kang, Anthony K.	11	New Antibiotics: Conjugative Transfer of Cytotoxic Genes for Targeted Cell Elimination	Mr. Ariel Haas	San Diego
S1511	Kifer, Allison M.	11	Using Yeast to Model Expired Sunscreen's Effectiveness	Ms. Elizabeth Lopez	Alameda
S1512	Kim, Janie	11	Development of an Effective, Low-Cost Hospital Room Disinfection System	Ms. Monika Kumaraswamy	San Diego
S1513	Krishnan, Kamyā	9	The Effect of Sucralose on the Growth of Gut Microbiota	Mrs. Pamela Chow	Santa Clara
S1514	Kundu, Ashima	11	The Effect of Different Temperatures on the Chemotaxis of Physarum polycephalum toward Food in a Maze	Mr. Mike Antrim	Orange
S1515	Lee, Louis M. Lok, Vincent	12 12	Therapeutic Potential of Lactobacillus acidophilus to Mitigate Escherichia coli Infection in Artemia	Dr. Nikki Malhotra	Ventura
S1516	Lee, Matthew G.	11	The Future of Food: The Effects of Red Abalone on Spirulina's Nutrient Concentration	Ms. Julie Munoz	Los Angeles
S1517	Li, Andrew Tong Yang, Robert Zhou, Matthew	10 10 10	The Effects of Different Transition Metal Micronutrients on Carbon Fixation and Silica Intake of T. pseudonana Diatom	Mrs. Kathleen Loia	Santa Clara

Senior Division
Microbiology (General)

Project	Name	Gd	Project Title	Advisor	County
S1518	Merk, Liana N.	11	Effect of Novel Shock Inhibition on Efflux Pump Inhibitor NMP	Mr. Ariel Haas	San Diego
S1519	Neervannan, Anish R.	10	Modeling Deep Learning Neural Net Based Image Recognition to Classify Melanoma Better than a Trained Professional	Mrs. Julie Pomerleau	Orange
S1520	Nieva, Daniela A.	12	Sanitization of Black Tea Using Ultraviolet Radiation	Mr. Daniel Selmeczy	Los Angeles
S1521	Paghasian, Christopher J.	12	Does Silica Depletion Affect the Growth and Domoic Acid Production of <i>Pseudo-nitzschia australis</i> ?	Ms. Pamela Durkee	Monterey
S1522	Patton, Titus M.	11	Antimicrobial Properties of the Natural Flora Found in Stingray Mucus	Mr. Davin Aalto	Fresno
S1523	Rabun, Brett J.	10	Transformation of Antibiotic Resistance in <i>E. coli</i>	Mr. Paul Hunt	Orange
S1524	Reddy, Meghana B.	11	Computer Aided Discovery of Inhibitors of the VP35 Protein of the Ebola Virus	Dr. Jacob Durrant	San Diego
S1525	Singh, Abheer	10	Inhibition of Bacterial Mutagenesis through Polyubiquitination: A Solution to Antibiotic Drug Resistance	<none acknowledged>	Alameda

Senior Division
Physics & Astronomy

Project	Name	Gd	Project Title	Advisor	County
S1701	Bose, Anoushka R. Rathmann-Bloch, Julia E.	12 11	Toward a Better Model of the Extragalactic Background Light: The Value of Splines	Dr. Jonathan Biteau; Dr. David Williams	San Diego
S1702	Cheleden, Spencer M.	11	Evaluation of Silver Based Astronomical Telescope Coatings	Dr. Andrew Phillips	Santa Cruz
S1703	Choi, Jennifer J.	11	Entangling Time Bin Qubits Using an Optical Switch	Dr. Chee Wei Wong	Orange
S1704	Cox, Mariah G.	9	The Effects of Building Materials Used in Sound Wall Construction	Ms. Lorre Stange	Mendocino
S1705	Dholakia, Shashank Dholakia, Shishir	11 11	A Search and Exploration of Multi-Exoplanet Systems Using Novel Photometric and TTV Algorithms for the K2 Mission	Mr. David Iverson	Santa Clara
S1706	Haist, Blake H.	12	Infrared Irradiation of Calcium Hydroxyapatite to Remove Calcified Plaque	Dr. Nikki Malhotra	Ventura
S1707	Hartman, Thomas O. van Bruggen, Alfryd L.	9 9	The Curious Motion of Rolling Cylinders	Dr. Jameshed Ghandhi	San Mateo
S1708	He, Hao Yang	12	Quantum Physics and Glow in the Dark: Observing Luminescent Radiation in Glow in the Dark Materials (Phosphorescence)	Mr. Robert Fabini	Contra Costa
S1709	Kok, James S.	12	How to Hide an Airplane: A Study of Radar Cross Section, Year 2	Mrs. Debbie Lewis	Kern
S1710	Krock, Spencer A.	9	Static and Dynamic Shielding to Advance the Protection of Spacecraft from Cosmic Radiation	Dr. Kevin Krock	Riverside
S1711	Munro, Samuel L.C. Sunga, James D.	9 9	Effects of Added Weight and Tire Material on Climbing and Sliding Friction	Mrs. Debbie Lewis	Kern
S1712	Nguyen, Justin	12	Behavior of Toroidally Confined Plasmas in Sub-Fusion Conditions	Mr. Anthony Nguyen	Alameda
S1713	Nguyen, Minh-Thi	11	The Effect of Dynamics on the Mass Functions of Globular Clusters	Dr. Evan Kirby	Orange
S1714	Oberholte, Hale R.	11	The Relationship between Trajectories with and without Gravity	Ms. Julia Smith	San Bernardino
S1715	Sandoval, Matthew D.	11	The Effect of the Magnitude of RR Lyr on Its Temperature	Mr. Mike Antrim	Orange
S1716	Schaefer-Whittall, Emma R.	9	Time to Score: The Physics of Penalty Kicks	Ms. Adi Welch	Santa Cruz

Senior Division
Physics & Astronomy

Project	Name	Gd	Project Title	Advisor	County
S1717	Steel, Michael M., II	11	Stealthy Shapes: What Geometric Shapes Scatter the Most Electromagnetic Energy?	Mr. Norman Negus	San Diego
S1718	Utrecht, Ethan M.	11	Assessing the Practicality of NEO Deflection Strategies Using Simulation, Year 2	Mr. Peter Starodub	Los Angeles
S1719	Vail, Evan G.	9	Examining Far and Near-Field Doppler Shifts	Mr. Guy Vail	Los Angeles
S1720	Walthall, Sydney A.	9	Radiation Shielding: Testing Simple Radiation Shielding Methods in a Cloud Chamber	Ms. Lynda Smith	Sacramento
S1721	Whitenack, Tamika C.	11	Flute Frequencies	Mr. Robert Fabini	Contra Costa

Senior Division
Plant Biology

Project	Name	Gd	Project Title	Advisor	County
S1801	Biswas, Titash	10	Drowning the California Drought: A Novel Approach of Combining Biochar and Gypsum to Improve Crop Yield	Ms. Orendia Tuason	Los Angeles
S1802	Brennan, Milan S.S.	10	Using a Drone to Measure Cover Crops in Organic Strawberry Furrows	Dr. Eric Brennan	Monterey
S1803	Castillo, Anthony J.	9	Effects of Seed Priming on Germination and Seedling Vigor of Aged Yemeni Watermelon (<i>Citrullus lanatus</i>) Landrace Seeds	Mrs. Michele Dolphin	Los Angeles
S1804	Dehaini, Dina S.	9	Plant Communication Experimentation	Mrs. Najwan Nassereldin	San Diego
S1805	Ditto, Alexander J.	12	Effects of <i>Pisum sativum</i> and Rhizobia Bacteria on the Ammonium Concentration in Martian Regolith Simulant	Dr. Nikki Malhotra	Ventura
S1806	Flemming, Danika R.	11	Investigating the Use of Agricultural Combustion Waste on Brassica Productivity	Mr. Davin Aalto	Fresno
S1807	Garcia, Michael J. Jackson, Patrick V.	9 9	Transforming Plants	Mr. Eric Tom	Los Angeles
S1808	Garg, Anita	10	The Effect of Seeding Styles, Competition, and Slope Orientation on a Native Coastal Sage Scrub Community	Ms. Valerie Thompson	Orange
S1809	Kalavacherla, Sandhya	11	Mutants of Leucine Rich Receptor-like Kinase Proteins Show Increased Biomass: A Proteomic Study	Dr. Renate Weizbauer	Alameda
S1810	Laqua, Nicolas S. Tran, Annam	10 10	Novel Transfection of Macroalgal <i>Azolla</i> and <i>Lemna</i> Mediated by <i>Agrobacterium</i> to Elevate Neutral Lipid Biofuel Production	Mr. Ariel Haas	San Diego
S1811	Mirbabaei, Dina	9	The Effect of the Number of Stomata on the Transpiration Rate of Plants	Mr. Paul Hunt	Orange
S1812	Perez, Sofia Reyes-Zamora, Janet	9 9	The Effects of Increased Air Pressure on Seed Germination	Mrs. Susan Manabe	Santa Cruz
S1813	Poole, Andee L.	10	Effect of Bovine Manure Age on Food Crop Productivity	Mr. Davin Aalto	Fresno
S1814	Xu, Sherry Y.	10	The Effect of Drought on California Native Plant Diversity	Dr. Barbara Fernandez-Going	Orange
S1815	Yardumian, Isabelle H.S.	10	The Effect of Tilting <i>Phaseolus vulgaris</i> Plants at a Forty Five Degree Angle on Biomass and Overall Growth	Mr. Mike Antrim	Orange
S1816	Yon, Elina B.	11	The Effects of Silicate Applications on Drought Tolerance and Growth of <i>Lolium perenne</i> and <i>Lactuca sativa</i> var <i>Longifolia</i>	Mrs. Cathy Messenger	Santa Clara
S1817	Yuva Raju, Teevyah	10	Drought Impact on Soilborne Fungal Pathogen of Tomato	Mr. Hung Doan	Sacramento

Senior Division Toxicology

Project	Name	Gd	Project Title	Advisor	County
S2101	Aljewad, Barah N. Mosch, Jennifer L.	12 12	The Effect of Cigarette Litter on the Urban Ecology of <i>Armadillidium vulgare</i>	Ms. Jennifer Claudio	Santa Clara
S2102	Camarena, Gissell De Anda, Jose, Jr. Sanchez, Jonnathan L.	10 10 10	<i>Galleria mellonella</i> Immune System Response to an Insecticide	Mr. Antonio Gamboa	Los Angeles
S2103	Faciane, Emma L. Minassian, Hayley L. Wright, Julia M.	11 11 11	The Behavioral Effects of Sodium Lauryl Sulfate on <i>Caenorhabditis elegans</i>	Dr. Nikki Malhotra	Ventura
S2104	Key, Homin Sandhu, Jaskirat S. Yamaguchi, Shotaro	10 9 9	Testing Various Factors Affecting <i>Varroa</i> Mites	Mrs. Esther Ibarra	Kern
S2105	Liu, Isabella G.	10	A Nano Particular Conundrum: Antibacterial Activity of Zinc Oxide Nanoparticles against Soil Microbes: Nitrobacteraceae	Mr. Todd Samet	Marin
S2106	Maxey, Nykolas A.	11	Inhibiting <i>Zophobas morio</i> Larva Development with UV Light: A Phase III Expansion	Dr. Daniel Morse	San Bernardino
S2107	Mehrotra, Isha Mehrotra, Rohan	10 10	Novel Interactions between Parkinson's Risk Genes and α -synuclein Reveal Disease Mechanisms and Pathway-Based Therapies	Mr. Jason Lee	Santa Clara
S2108	Moser, Matthew S.	12	Metalloprotease Inhibitors as Lead Candidate Drugs to Treat Lymphatic Filariasis and Other Roundworm Infections	Dr. Judy Sakanari	Marin
S2109	Nguyen, Emily T.	10	Effects of Glyphosate Toxicity on <i>Caenorhabditis elegans</i> with the Application of the Matrix Projection Model	Ms. Trudy Pachon	San Diego
S2110	Polson, Leigh F.	10	The Effects of Antioxidants on <i>Daphnia magna</i> under Oxidative Stress Conditions	Mr. Paul Hunt	Orange
S2111	Razal, Robbi A.	11	Analyzing the Ecotoxicity of the Surfactant, Cocamidopropyl Betaine, on the Hatching of the Aquatic Crustacean <i>A. salina</i>	Dr. Nikki Malhotra	Ventura
S2112	Slesarenko, Davyd	11	The Effects of Colas on <i>Turbatrix aceti</i>	Ms. Glendy Ramirez-De La Cruz	Los Angeles
S2113	Takiguchi, Lauren P.	10	The Effects of Various Concentrations of Sotalol and Caffeine on the Heart Rate of <i>Daphnia magna</i>	Mr. Mike Antrim	Orange
S2114	Turney, Perrin J.G.	10	Effects of Inhibiting and Enhancing Water Pollutants on Microorganism Mortality at the Arcata Marsh	Mr. Nic Collart	Humboldt
S2115	Yang, Gina Y.	10	Investigating Colony Collapse Disorder: Effects of tau-Fluvalinate on the Health of Honeybees <i>Apis mellifera</i> L.	Ms. Renee Fallon	Santa Clara

Senior Division
Zoology

Project	Name	Gd	Project Title	Advisor	County
S2201	Herbst, Amanda E. Warren, Kelsey B.	11 10	The Effects of Increasing Water Temperatures on Planarian Regeneration	Mrs. Patricia Sadeghian	Santa Barbara
S2202	Hill, Carly A. Lion, Mira L.	11 11	Effect of Sea Surface Temperature on the Presence of Acanthocephalan Parasites in <i>Emerita analoga</i>	Ms. Jane Orbuch	Santa Cruz
S2203	Huitt, Joseph A.	9	Honey, Who Shrunk the Bee Population? Investigating Colony Collapse Disorder	Mrs. Marie Huitt	Butte
S2204	Jeffrey, Robert A. Zehr, Chloe A.	11 11	The Relationship between Terrestrial Salamanders and El Niño Soil Moistures	Ms. Jane Orbuch	Santa Cruz
S2205	Joseph, Edhel Marie A. Pinedo, Nahomy	11 11	Sweet Potato Whitefly Infestation in Agriculture: Examining the Effects of Nitrogen Fertilizer on Whitefly Fecundity	Mrs. Shahida Merchant	Monterey
S2206	Kamarshi, Vivek V.	9	In Search of a Better Fever Drug: Effect of Heat-Sensing Mutations on Behavioral Fevering in <i>Drosophila melanogaster</i>	Mrs. Renee Fallon	Santa Clara
S2207	Koh, Esther E.	10	Sucrose Efflux Mediated by SWEET Proteins as a Crucial Aid for Whitefly Feeding	Dr. Linda Walling	Riverside
S2208	Matin, Shakil A.	11	The Effect of Naproxen on the Respiration of Brine Shrimp	Dr. Nikki Malhotra	Ventura
S2209	Salmond, Elizabeth M.	11	Living the Hydra Life: Hydra Regeneration as Affected by Various Symbiotic Algae	Ms. Gwen Corbett	Orange
S2210	Sathe, Rujuta S.	9	Diagnosing Neurodegenerative Diseases (ALS): Using Infrared Spectroscopy to Test for Neurodegeneration in <i>C. elegans</i>	Mrs. Renee Fallon	Santa Clara
S2211	Virgines, Colin B.	11	The Effects of Calorie Restriction on <i>Drosophila melanogaster</i> Longevity	Dr. Nikki Malhotra	Ventura
S2212	Welch, Isabella C.	9	How Weight Affects the Flight Dynamics of <i>Quetzalcoatlus northropi</i>	Mr. Carl Welch	Ventura
S2213	Xia, Brian S.	11	Single Molecule Based Transgenerational Therapies to Extend Healthspan and Prevent Multiple Aging Related Diseases	Dr. Steve de Belle	San Diego
S2214	Yang, Hongjia (Ashley)	11	Humanin and Daf-2 Increase <i>C. elegans</i> Lifespan and Memory Functionality	Dr. Kelvin Yen	Los Angeles
S2215	Yen, Lauren M.	11	Calcium Content in Neuron Changes with Light Stimulation	Mr. Peter Starodub	Los Angeles



700 Exposition Park Drive
Los Angeles, CA 90037
(323) SCIENCE
www.californiasciencecenter.org