



gsdsef.org



**INFORMATION &
STUDENT EXHIBITOR
DIRECTORY**

March 15 – 18, 2021

- Sponsored By -



Welcome to the 67th Annual Greater San Diego Science and Engineering Fair!



SCIENCE



TECHNOLOGY



ENGINEERING



MATH

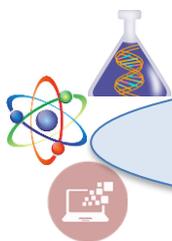
2021 GSDSEF Schedule of Events

<p>Monday, March 15, 2021</p> <p>JUDGING DAY</p>	<p>8:20 – 11:40am Categorical Judging</p> <ul style="list-style-type: none"> Students are assigned judging interview appointment times to meet with Judges virtually. <p>1:00 – 4:00pm Grand Award Judging</p> <ul style="list-style-type: none"> Students are notified in their zFairs account by 1:00 if they have a Grand Award judging interview appointment time.
<p>Tuesday, March 16, 2021</p> <p>Professional Society Judging</p>	<p>8:00 am – 12:00 pm Professional Society Judging Awards</p> <ul style="list-style-type: none"> Students who have been selected for Professional Society judging interviews are assigned interview times.
<p>Thursday, March 18, 2021</p> <p>Virtual Awards Night Activities and Awards Ceremony</p>	<p>5:00 – 5:40 pm Online Science Demonstration by the Student Leadership Board*</p> <p>5:40 – 6:00 pm Scrolling of Professional Society Awards</p> <p>6:00 pm – 8:30 pm Awards Ceremony</p> <p>*** The URL for the <i>Virtual Awards Night Activities and Ceremony</i> will be announced prior to Thursday, March 18 and will be posted on gsdsef.org</p>
<p>March 20 – June 1, 2021</p> <p>GSDSEF Project Showcase</p>	<p>GSDSEF Projects Showcase</p> <ul style="list-style-type: none"> Students' projects will be available for public viewing at gsdsef.zfairs.com for a limited time. <p>GSDSEF 2021 Results</p> <ul style="list-style-type: none"> All 2021 Awards results will be available on the GSDSEF website - gsdsef.org - beginning Saturday, March 20, 2021

The logo design used on 2021 Information and Student Exhibitor Directory front cover and the 2021 T-shirt created by

Eleanor Jung, 10th Grade, Mt. Carmel High School, Student Leadership Board Member

About the Greater San Diego Science & Engineering Fair



Our Mission

To provide a forum encouraging young minds in their independent research in science, technology, engineering, and mathematics - and inspiring the next generation of scientific thought, discovery, and innovation.

This year, the GSDSEF is celebrating its 67th Annual Science & Engineering Fair, our first *virtual* Fair. The GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR (GSDSEF) started planning for its first Science Fair in 1954, and we continue to provide a stimulating experience in science and engineering, despite the challenges presented by COVID-19 over the last year. The unique circumstances of the last year have affected education for thousands of San Diego and Imperial County students, yet over 70 teachers from 50 schools rose to meet the challenge of virtual teaching and learning. *Then they encouraged and motivated students to go above and beyond classroom learning and do a STEM project.* As a regional competition, we encourage students to go beyond classroom studies to do independent research – to ask compelling questions, design and implement innovative solutions, and present and defend results to more than 200 judges who are professionals in their fields—but this year *a special thanks* goes to teachers and students for their commitment to project-based STEM learning.

In this unprecedented year, the GSDSEF Management Committee deserves special recognition. In a typical year, each of the 25 MC members puts in dozens of hours of work to ensure a smooth Fair experience, but this year, because of the planning necessary to produce a virtual fair, that number of hours rose significantly. The GSDSEF MC members met the challenge and the product is a smooth, virtual experience that will permit all students to showcase their science and engineering talents. Two MC members in particular deserve mention because of the enormous number of hours they spent planning, designing, meeting about, testing, debugging (many times over), and retesting the Judging Interview experience to ensure it ran smoothly for students and judges. Without the extraordinary input of time and talent on the part of Dr. Earl Williams and Vickie Driver, the virtual GSDSEF would not have taken place. We all owe them both a huge debt of gratitude.....

The GSDSEF students' STEM achievements showcase how young minds can make an impact in the present and future. *...Inspirational...motivational...transformative...* For over 67 years, the GSDSEF has been encouraging young minds in their pursuits that will define the next generation of scientific thought, discovery, and innovation.

Who May Participate in the GSDSEF

Any student in grade 6 through 12 who attends public, private, parochial or home schools in San Diego County or Imperial County may enter a project for screening and possible participation in the GSDSEF.

Awards and Benefits of Participating in the GSDSEF

- The most important benefit for all student exhibitors is the opportunity to display their projects, meet with other exhibitors, and share projects and results with professional scientists and/or engineers.
- A Certificate of Merit is given to each exhibitor in recognition of his/her efforts.
- First, second, third and fourth place ribbon awards are given for projects in each category in both Senior and Junior Divisions.
- Four Senior Division Grand Prize projects are awarded. These students receive college scholarship awards and the opportunity to compete in the Regeneron International Science and Engineering Fair (ISEF).
- Four Junior Division Grand Prize winners receive cash awards.
- Four Senior and Four Junior Division Grand Prize Runners-up projects receive cash awards.
- Engraved plaques are given to all Grand Prize winners and Runners-up.
- Other Special Awards, presented during the Awards Ceremony to student exhibitors individually, include: Taiwanese American Foundation of San Diego, Fred H. Rohr Memorial Award, Reuben H. Fleet Memorial Award, Mickey Award, Ronald Domb Memorial Award, Professional Engineers in California Government Scholarships, BD Awards, San Diego Wildlife Alliance Awards, and the Student Leadership Board Awards.
- Over 50 Professional Societies and other National Society Awards provide special awards and/or scholarships.
- Top projects in Senior and Junior Divisions are nominated and selected to participate in the California Science & Engineering Fair and nationally affiliated Fairs.
- Junior and Senior Division Teacher of the Year Awards are given a cash award provided by Barbara Friedman.

Special Recognition and Thanks

The Board of Directors and the Management Committee would like to thank the following individuals, groups and organizations for contributing time, talent, financial support, or in-kind support to our Science Fair.

Sponsors and Donations

BD – *Presenting Sponsor*
Broadcom Foundation
PECG (Professional Engineers in California Government)
Sony
Society for Science
Qualcomm
DRS Daylight Solutions
Sony Playstation
Viasat
General Atomics Sciences Education Foundation
Barbara Friedman
Collins Aerospace Systems
Taiwanese American Foundation of San Diego
San Diego Wildlife Alliance
Reuben H. Fleet Science Center
Walter and Betty Zable Foundation
Friends of San Diego

GSDSEF is an Affiliate of the following:

Regeneron International Science and Engineering Fair
Broadcom MASTERS
California State Science Fair



Area Merchants, Businesses, Community Organizations

CoolBox Portable Storage
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67th Annual Greater San Diego Science & Engineering Fair - 2021

BOARD OF DIRECTORS:

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Mr. Phil Gay
Mrs. Wendy Gay
Dr. Donna Kritz-Silverstein, *UCSD*
Dr. Earl Williams, *Naval Information Warfare Systems Command*

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Steve Rodecker, *Science Fair Director*
Sany Zakharia, *Qualcomm, GSDSEF Treasurer*

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Mr. Dale Clarke, *Intuit, Coordinator of Technology and Website*
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Dr. Laura McWilliams, *Haley & Aldrich Inc., Member*
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Mrs. Jessica Ulyot, *SDCS - Gompers Preparatory Academy, Coordinator of GSDSEF Store*
Mrs. Diane Vermeulen, *Professional Engineers in California Government, Member*
Ms. Alexandra Vredenberg, *Member*
Dr. Earl Williams, *NAVWAR, Judging Committee*
Mr. True Xiong, *Sony Playstation, Coordinator of Volunteers, Public Relations Committee*
Mr. Sany Zakharia, *Qualcomm, GSDSEF Treasurer, Coordinator of Grants and Fundraising*

Student Leadership Board Management Committee Members:

Emily Tianshi, *SLB President*
Raj Pabari, *SLB Vice-President of Activities* Jessie Gan, *SLB Vice-President of Outreach*
Aaron Huang, *SLB Secretary* Nadeen Morsi, *SLB Treasurer*

Liaisons:

Mrs. Shirley Miranda, *San Diego City Schools, Liaison to the California Science and Engineering Fair*
Mr. John Spiegel, *San Diego County Office of Education Liaison*
Ms. Janet Estrada, *Imperial County Office of Education Liaison*

The Board of Directors and Management Committee members are volunteers who give their time and expertise to produce the Greater San Diego Science & Engineering Fair.



Student Leadership Board Officers

Emily Tianshi – President
Jessie Gan – Vice President of Outreach
Raj Pabari – Vice President of Activities
Aaron Huang – Secretary
Nadeen Morsi – Treasurer

Student Leadership Board Members:

Kara Fan
Lou Fowler
Kelly Gan
Andrew Gao
Kavya Gupta
Sanjana Gurram
Eleanor Jung
Racel Ligeralde
Edward Liu

Atulya Mandyam
Jessica McWilliams
Margaret Nasry
Adriana Quezada
Joy Ruppert
David Samy
Ainsley Savant
Anjana Shriram
Agastya Sridharan

Kyle Tianshi
Nicholas Usher
Daniel Wang
Kate Wang
Ellen Xu
Lynne Xu
Cecilia Ymaz
Wanyi Zhu

The Student Leadership Board is the GSDSEF's Honor Society. They:

- work closely with the Management Committee to help organize and promote the GSDSEF.
- host six workshops to guide students through the process of conducting and presenting a STEM project.
- conduct a Peer Mentorship Program with students receiving one-on-one advisory from an SLB member.
- run all GSDSEF social media accounts.
- produce a Weekly Saturday Scientist Spotlight series on social media to honor underrepresented scientists.
- present a Virtual Family Day to spread the love for STEM to families in the GSDSEF community.
- organize the t-shirt design competition.
- film tutorial and “how to” videos for the GSDSEF YouTube Channel.
- select two projects for the SLB Awards and present these awards at the Awards Ceremony.

The SLB is a great place for students from diverse backgrounds to share their passion for STEM in the community.

Learn more about the SLB - Message us on:

Instagram (@gsdsef), Twitter (@gsdsefofficial), Facebook (@sandiegosciencefair), or email (gsdsefslb@gmail.com).

The Student Leadership Board would like to thank



for their sponsorship.

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Four Divisions in the GSDSEF:

Junior Division Life Sciences (Grades 6—8); Junior Division Physical Sciences (Grades 6—8)
Senior Division Life Sciences (Grades 9—12); Senior Division Physical Sciences (Grades 9—12)

Project Categories

- Animal Sciences
- Behavioral and Social Sciences
- Biochemistry
- Chemistry
- Computer Science
- Earth and Planetary Science
- Engineering – Electrical and Mechanical
- Engineering – Energy and Transport
- Engineering – Materials and Bioengineering
- Environmental Sciences and Management
- Mathematical Sciences
- Medicine and Health
- Microbiology
- Physics and Astronomy
- Plant Sciences
- Consumer Science/Product Testing (Junior Division Only)

How Projects are Invited to Participate in the GSDSEF

To participate in the GSDSEF, students first go through a Screening process. Students create a 10-slide digital presentation which is screened by professionals from the science, engineering, technology, and education fields. Projects that are “recommended” are invited to participate. In 2021, screeners reviewed over 500 digital presentation for uniqueness and adequate scientific method/engineering design principles.

Who Judges the GSDSEF

This year, 200+ judges from the science and education communities evaluate projects and interview students virtually to determine place awards. These judges are scientists, engineers, technology experts, university professors, specialists and retired educators – the majority of whom have doctorates, masters, or bachelor degrees in their respective fields. Additionally, 50+ professional societies and organizations provide more than 100 special awards and scholarships. The Judges for Grand Awards have 5 or more years of science fair judging experience.



Standards for Judging Science Fair Projects

The GSDSEF projects are judged by Standards aligned with the Regeneron International Science and Engineering Fair.

CREATIVITY:

Originality of problem, uniqueness of approach. The handling and interpretation of data should be commensurate with the grade level of the student. Ingenious use of equipment and materials is considered without regard to the cost of the items involved. The project demonstrates imagination and inventiveness, and often offer different perspectives, new possibilities or new alternatives.

SCIENTIFIC THOUGHT/ENGINEERING GOALS – Design and Methodology:

Scientific Thought: The project shows evidence of depth of study and effort in employing scientific procedures in the solution of a clearly defined problem including study of background, organized procedures, appropriate sampling, orderly recording and analysis of data and the formulation of logical conclusions. Research question is clear, focused and testable, and identifies contribution to the field of study. There is a well-designed plan with systematic, appropriate and complete data collection methods, defined variables/controls, and conclusions are based on results and data analysis. **Engineering Goals:** The project has a clear objective relevant to the needs of the potential user with defined criteria for the proposed solution. The product/process has been tested, is workable and feasible economically and ecologically, and demonstrates the intended design and objective.

THOROUGHNESS:

Science Projects: The study is complete within the scope of the problem. Scientific literature has been searched, experiments have been repeated and careful records have been kept. Data collection and analysis is systematic and sufficient with appropriate application of statistical methods to support interpretation and conclusions. **Engineering Projects:** The project demonstrates the development of the process/prototype/model. Prototype has been tested in conditions/trials of intended usage and demonstrates engineering skills.

SKILL:

Due credit is given for any special skills needed for the construction or use of equipment and for mathematical, computational, and observational & design skills, as well as whether project has been done at a school laboratory or in a research laboratory, and the degree of any assistance, mentoring, or professional guidance has been given.

CLARITY:

The purpose, procedures and conclusion are clearly explained orally and through a display. Graphics and legends are understandable and clear. The project notebook is well organized, neat and accurate, and complete. Sources of ideas, data and assistance are clearly identified and supporting documentation is clearly cited.

TEAM PROJECTS:

The tasks and contributions of each team member are clearly outlined, and both team members are familiar with all aspects of the project. The final work reflects the coordinated efforts of both team members.



ORGANIZATIONS PROVIDING JUDGES TO THE 67th ANNUAL GSDSEF

The GSDSEF thanks the following companies, organizations, and schools for providing judges for the 2021 GSDSEF and would like to express sincere gratitude to the judges for their commitment, dedication, willingness, and flexibility to be a part of this year's virtual judging.

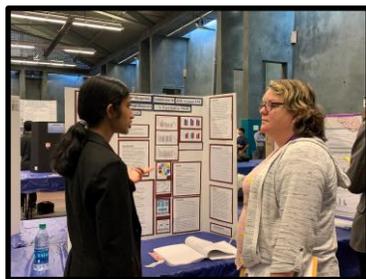
3D Systems Inc.
AT&T
Banck Clinical Research Center
Bastyr University California
BD Biosciences
BEWISE
Biomatrix/Exact Sciences
Booz Allen Hamilton
Caltrans
Capsule Tech
Cibus LLC
Civic Knowledge
Comtech Telecommunications
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De Maximis, Inc
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Loxo Oncology/Bayer & UT MD Anderson Cancer Center
Mesa College
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Trefoil Therapeutics
U.S. Geological Survey
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UC San Diego
UC San Diego Alumni Board
UCSD / Ludwig Cancer Research Institute
UCSD Mechanical and Aerospace Engineering
US Navy
USAF
VCA
Viasat
Welch-Ilmvac Vacuum Pumps
Zim Biosciences
Zova Systems, LLC

Thank you to those who continue to support students and science and engineering education by judging at the Fair:

- Retired engineers, professors, scientists, medical doctors, researchers, and programmers from Janssen Research, Kaiser, Hewlett Packard, SAIC, SDSU, US Navy, UCSD, and other companies and organizations.
Retired educators from various school districts and private schools.





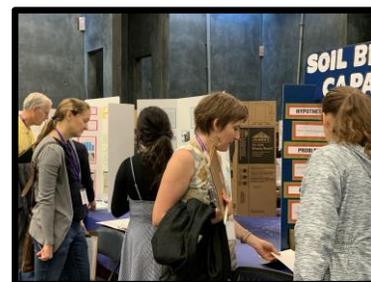
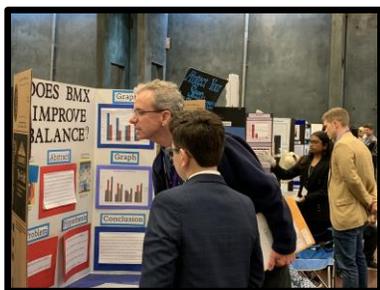
Professional Society and Recognition Awards

Each Professional Society or Organization determines their own judging standards based on their organization’s criteria and award projects accordingly. They provide more than 100 special recognition awards and scholarships to students totaling over \$20,000. Professional Societies and Organizations may choose for GSDSEF to distribute awards and scholarships or they may choose to award students at their society’s board meetings or banquets.

- American Academy of Pediatrics Climate Change and Health Committee
 - American Society of Civil Engineers
 - American Society of Materials International, San Diego Chapter
 - Armed Forces Communications and Electronics Association
 - BD “Advancing the World of Health” Award
 - Broadcom “Coding with Commitment” Award
 - Building Industry Association (BIA) Cares
 - California Association of Professional Scientists
 - California Environmental Health Association - Southwest Chapter/County of San Diego, Dept of Environmental Health
 - California School Nurse Organization: San Diego/Imperial Section
 - Chemical Society, San Diego Section
 - DRS Daylight Solutions Award for Optics and Photonics
 - Fred H. Rohr Award from Collins Aerostructures
 - General Atomics Sciences Education Foundation
 - Hillcrest-Mission Valley Lions Club
 - Kaiser Permanente
 - Marine Technology Society
 - Price-Pottenger Nutrition Foundation
 - Professional Engineers in California Government
 - Regeneron Biomedical Award
 - San Diego Astronomy Association
 - San Diego County Dental Foundation
 - San Diego County Pharmacists Association
 - San Diego County Veterinary Medical Association
 - San Diego County Water Authority
 - San Diego Psychological Association
 - San Diego Zoo Wildlife Alliance
 - Society of American Military Engineers – San Diego Post
 - Scripps Research “Young Scientist” Award
 - Society of Women Engineers - San Diego County Section
 - The Ron Orta Excellence in Biomedical Research Award
 - Torrey Pines Docent Society
 - WaterReuse Association - San Diego Chapter
- ISEF AFFILIATED AWARDS:
- American Meteorological Society
 - American Psychological Association
 - ASM Materials Education Foundation
 - Association for Women Geoscientists
 - DoD STEM Leadership Prize
 - Mu Alpha Theta
 - NASA Earth System Science Award
 - National Oceanic and Atmospheric Administration “Taking the Pulse of the Planet” Award
 - Office of Naval Research (US Navy / US Marine Corps)
 - Regeneron Science Talent Search
 - Ricoh USA, Inc.
 - Society for In Vitro Biology
 - Stockholm Junior Water Prize
 - US Air Force
 - US Agency for International Development (USAID)
 - US Metric Association
 - Yale Science and Engineering Association
- OTHER NATIONAL/INTERNATIONAL AWARDS:
- Lemelson Early Inventor Prize
 - Broadcom MASTERS

The following Special Awards and Recognition are presented on stage during the Awards Ceremony:

- ◆ Arthur Friedman Memorial Science Fair Teachers of the Year – Junior Division and Senior Division – sponsored by Barbara Friedman
- ◆ BD Awards for “Advancing the World of Health”
- ◆ Fred H. Rohr Award
- ◆ Grand Awards
- ◆ Mickey Award in honor of Ron Mickelson
- ◆ Office of Naval Research
- ◆ Professional Engineers in California Government (PECG) Scholarships
- ◆ RED Award - Ronald E. Domb Memorial Award
- ◆ Regeneron Biomedical Award
- ◆ Reuben H. Fleet Memorial Award
- ◆ San Diego Zoo Wildlife Alliance Awards
- ◆ Student Leadership Board (SLB) Awards
- ◆ Taiwanese American Foundation of San Diego



67th Annual Greater San Diego Science & Engineering Fair - 2021



HIGHLIGHTS from the 2020 GSDSEF



In the 2020 66th Annual Greater San Diego Science & Engineering Fair, we had

- over 880 students who submitted projects to be screened into the GSDSEF and over 700 were recommended to participate
- 574 total students who applied and were accepted into the 2020 GSDSEF
- 3 options to be judged (available this year only) - 1) be judged in person, 2) set up their display boards and send in a video for judging, 3) be judged only by their display board and notebook
- 280+ judges who decided the Categorical Place Awards with displays present, by interviewing students in person, and/or reading notebooks and display boards, and, if submitted, viewing videos
- 16 6th graders judged for the first time in the GSDSEF
- 336 Individual Projects and 53 Team Projects were judged in Junior Division
- 47 middle schools participate with 59 teachers/advisors
- 106 Individual Projects and 6 Team Projects were judged in Senior Division
- 28 high schools participate with 36 teachers/advisors
- 79 Professional Societies and ISEF Affiliates who gave awards and scholarships
- 245 Professional Society Awards and Special Awards given to participants totaling over \$24,000
- 89 students nominated for the California Science and Engineering Fair
- 55 students nominated for Broadcom MASTERS (Note: Broadcom MASTERS opened their competition to all Junior Division participants.)
- AND... an ELEMENTARY SHOWCASE with 4 students from Johnson Magnet School

The GSDSEF was fortunate to hold their 66th Annual Science & Engineering Fair before the COVID-19 restrictions were put in place. Modifications were made to maintain safety for students, judges, and volunteers during set-up, judging, and take-down days as precautionary measures as no governmental guidelines had been established prior to Fair Week. The in-person Awards Ceremony which usually draws 1400+ attendees was cancelled also as a precautionary measure and all results were put on the GSDSEF website.

CATEGORY AWARDS:

Junior Division: 96 First Place, 124 Second Place, 130 Third Place, 39 Fourth Place

Senior Division: 39 First Place, 32 Second Place, 31 Third Place, 4 Fourth Place



GRAND AWARDS:

Senior Division Life Science Grand Awards

Rina Cao- Gr. 11, University City HS - *ISEF Finalist*

Kate Wang- Gr. 11, Canyon Crest Acad - *ISEF Finalist*

Senior Division Physical Science Grand Awards

Francisco Catanzaro- Gr. 11, Cathedral Catholic - *ISEF Finalist*

Benjamin Faktor- Gr. 11, Canyon Crest Acad - *ISEF Finalist*

Senior Division Life Science Runners-Up Grand Awards

Andrew Gao- Gr. 10, Canyon Crest Acad- *ISEF Finalist*

Eleanor Jung- Gr. 9, Mt. Carmel HS

Senior Division Physical Science Runners-Up Grand Awards

Ellen Xu- Gr. 9, Del Norte HS - *ISEF Finalist*

Vivek Vijayakumar- Gr. 11, San Marcos HS

The Taiwan Award

Jeffrey Wang- Grade 11, The Bishop's School

Junior Division Life Science Grand Awards

Sydney Zhang- Gr. 7, Mesa Verde MS

Bhadra Rupesh- Gr. 8, The Rhoades School

Junior Division Physical Science Grand Awards

Kyle Tianshi- Gr. 8, The Cambridge School

Nicholas Usher- Gr. 8, Classical Academy MS

Junior Division Life Science Runners-Up Grand Awards

Leia Ryan- Gr. 8, The Rhoades School

Josh Kozak- Gr. 7, All Hallows Academy

Junior Division Physical Science Runners-Up Grand Awards

Nandana Madhukara- Gr. 7, Pacific Trails MS

Aleister Steadman- Gr. 8, Wangenheim MS

For complete 2020 GSDSEF Results of category award winners, special award winners, and professional society award winners, please check under the About tab on our website, gsdsef.org.

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Highlights from Affiliated Fairs:

Due to Covid-19 restrictions, the California State Science Fair and the Regeneron International Science and Engineering Fair (ISEF) were cancelled. Broadcom MASTERS and Regeneron Talent Search held virtual competitions.

REGENERON SCIENCE TALENT SEARCH

The talent search is sponsored by the Society for Science & the Public and Regeneron Pharmaceuticals Inc., and is the nation's oldest science and math competition for high school seniors. The top 40 finalists are chosen from 1,760 applicants. Each Top 40 finalist receives at least \$25,000. The top 10 awards range from \$40,000 to \$250,000. Students in the Top 300 and their schools are awarded \$2,000.

Top 40 Finalists

Jessie Gan, San Diego Jewish Academy
Jeffrey Wang, The Bishop's School

Top 300 Finalists:

Sanjana Gurram, Westview High School
Emily Tianshi, The Cambridge School



Note: Regeneron Talent Search Finals Week is March 10-17, 2021.

Broadcom MASTERS Virtual Fair 2020 Results

The 2020 Broadcom MASTERS had 3,476 applicants from 34 states, plus Puerto Rico from which the top 300 were selected. The top 30 finalists were then chosen from this group. All Top 30 finalists receive a \$500 cash award and compete for over \$100,000 in prizes.

TOP 30 Finalist:

Agastya Sridharan, 8th Grade, Thurgood Marshall MS



TOP 300 Finalists:

Arjun Chatha, Gr. 8, The Rhoades School
Daniel Hotz, Gr. 8, Mount Helix Academy
Jennine Manalo, Gr. 8, Saint Rita's Catholic School
Tejas Ravi, Gr. 7, The Rhoades School
Bhadra Rupesh, Gr. 8, The Rhoades School
Agastya Sridharan, Gr. 8, Thurgood Marshall MS
Kyle Tianshi, Gr. 8, The Cambridge School



SENIOR DIVISION

Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
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Senior Division - Biochemistry

SR-BCH-276	Berkowitz	Alejandro	9	The Structure and Mechanisms of Alpha-Synuclein in Relation to Parkinson's Disease	Canyon Crest Academy	W. Slijk
SR-BCH-023	Bhalla	Sonakshi	11	Correlating PSEN1 Gene Homology of Animals with Alzheimer's Protein Using Bioinformatics Tools	Del Norte High School	F. Liao
SR-BCH-201	Delouri	Pia	11	Bye Leukemia! Sincerely, RNAi	Canyon Crest Academy	W. Slijk
SR-BCH-016	Gan	Jessie	12	Calculating ENTH Domain Membrane Bending Constants for Continuum Modelling through CGMD	San Diego Jewish Academy	P. Hagarman
SR-BCH-034	Gantla	Maanaskumar	10	Development of a Soy-Based Alternative Cheese	Canyon Crest Academy	W. Slijk
SR-BCH-149	Givens	Emily	11	Gliadin Protein Levels in Gluten Produced by Varying Countries	Canyon Crest Academy	W. Slijk
SR-BCH-104	Wang	Daniel	11	Tackling COVID-19: A General Approach to Develop Novel "Superglue" Drugs	Torrey Pines High School	B. Belyea
SR-BCH-214	Wang	Kate	12	Application of Multi-omics Network Analysis to Identify Therapeutics for Atherosclerosis	Canyon Crest Academy	W. Slijk

Senior Division - Behavioral & Social Sciences

SR-BEH-088	Bundogji	Danna	10	Online Learning and Mental Health: Is Journaling the Answer?	Bright Horizon Academy	N. Nasereldin
SR-BEH-018	Guevara	Angela	11	Can Music or Calming Sounds Affect How Well Teenagers Concentrate?	Central Union High School	L. Rueda
SR-BEH-007	Krishnamurthy	Hari	10	Predictive Behavioral Modeling of Global Asylum Adjudications - United States versus the European Union	Canyon Crest Academy	W. Slijk
SR-BEH-090	Munoz	Priscila	11	Parental Influence on Their Child's Political Beliefs	Central Union High School	L. Rueda
SR-BEH-061	Park	John	9	Has COVID-19 Made Students Better Liars?	Canyon Crest Academy	W. Slijk
SR-BEH-224	Sharma	Uma	9	The Circadian Rhythm: In Lockdown	Del Norte High School	K. Pytel

67th Annual Greater San Diego Science & Engineering Fair - 2021

Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Senior Division - Behavioral & Social Sciences (cont'd)						
SR-BEH-152	Shriram	Anjana	11	Investigating the Bilingual Advantage in Verbal Fluency & Its Relation to Executive Functioning in ASL vs. Non-ASL Individuals	Canyon Crest Academy	W. Slijk
SR-BEH-261	Thaper	Mehar	9	Exploring Effects of an Inconsistent and Variant Teaching Environment on the Psychological State of Educators	Canyon Crest Academy	W. Slijk
SR-BEH-094	Zerboni	Dasha	10	Preventing Injuries from All Terrain Vehicles in Children	Canyon Crest Academy	W. Slijk
Senior Division - Chemistry						
SR-CHM-071	Wei	Abigail	10	Hydrogen Peroxide Just Got a Bit More Basic, or Not?	Canyon Crest Academy	W. Slijk
Senior Division - Computer Sciences						
SR-CSC-017	Bantval	Pranav	10	Can an Enhanced Deep Residual Network Be Used to Enhance CCTV Images Stored in Poor Resolution?	Canyon Crest Academy	W. Slijk
SR-CSC-097	Chatha	Arjun	9	Social Distance Detection: Utilizing AI for COVID-19 Guidelines	Canyon Crest Academy	W. Slijk
SR-CSC-241	Chilakapati	Nithin	11	Remote Piano Instruction by Locally Rendering 3D Animations of Keys & Pedals from MIDI Files	Canyon Crest Academy	W. Slijk
SR-CSC-084	De	Rohit	10	Multi-qubit Hopping Deutsch-Jozsa Algorithm with Steganography to Defeat MITM Attacks During QKD	Del Norte High School	J. Buehler
SR-CSC-143	Gupta	Yash	11	Analyzing the Effectiveness of Novel Classification Techniques for Detecting Knee Cartilage Damage	Canyon Crest Academy	T. Mauro
SR-CSC-282	Hou	James	10	Probabilistic Approach to Analyzing Racial Bias in BERT on an Attribute Basis	The Bishop's School	M. Jaiclin
SR-CSC-025	Kang	William	11	Creating a Novel miRNA Descriptor System for Predicting miRNA Disease Association	Canyon Crest Academy	W. Slijk
SR-CSC-027	Kapoor	Ishan	10	Deep Learning Approach for Depression and Stress Evaluation Using Facial Analysis	Del Norte High School	S. Kapoor

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Senior Division - Computer Sciences (cont'd)						
SR-CSC-287	Khan	Mohammad	10	Using Machine Learning Algorithms to Predict the Spread of a Pandemic	Bright Horizon Academy	N. Naserelddin
SR-CSC-229	Kuang	Andrew	11	Neural Architecture Search to Differentiate Asthma and COPD	Canyon Crest Academy	A. Norbeck
SR-CSC-178	Nayak	Ayush	10	A Deep Learning Approach to Complex Variation and Motif Detection for Phenotypes in Genomics	Westview High School	M. Ingram
SR-CSC-073	Ng	Annabel	11	Improving Deep Neural Clinical Prediction Models with Textual Data Augmentation	Westview High School	D. David
SR-CSC-179	Pillai	Nitya	11	Network Intrusion Detection Using Artificial Intelligence	Del Norte High School	J. Mortensen
SR-CSC-141	Rosenbaum	Maya	11	A Novel Multi-Layered Method For Image Steganography	Canyon Crest Academy	W. Slijk
SR-CSC-123	Singh	Rajdeep	11	Threat Detection from Surveillance Camera Feeds	Canyon Crest Academy	W. Slijk
SR-CSC-037	Sumpena	Edmund	11	Digital IoT Geofencing for Anti-Wandering Application: A Machine Learning Approach	Westview High School	D. David
SR-CSC-216	Xu	Amy	11	A Machine Learning Approach to Alzheimer's Diagnosis through miRNA Biomarkers	Canyon Crest Academy	W. Slijk
Senior Division - Engineering: Electrical & Mechanical						
SR-EEM-228	Alwazir	Issa	10	Deleting Drunk Driving	Bright Horizon Academy	N. Naserelddin
SR-EEM-239	Alwazir	Solaiman	10	Precision Using Control Algorithm	Bright Horizon Academy	N. Naserelddin
SR-EEM-222	Catanzaro Catanzaro	Francisco Marcus	12 9	Biomimetic Robotic Swarms for Obstacle Avoidance and Object Detection	Cathedral Catholic High School	M. Rafie
SR-EEM-257	Fang	Jimmy	11	A Low-Cost Optical Quantum Random Number Generator	Torrey Pines High School	B. Belyea
SR-EEM-161	Khanvilkar	Manav	10	SMART Connected Walker for the Elderly	Canyon Crest Academy	D. Celniker
SR-EEM-206	Kuo	Marc	11	AnimalNet, A Decentralized Network for Monitoring Feral Animal Populations	La Jolla High School	J. Kuo

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Senior Division - Engineering: Electrical & Mechanical (cont'd)						
SR-EEM-074	McWilliams	Jessica	10	In-situ Pore Water and Sediment Sampler	Scripps Ranch High School	P. Fowler
SR-EEM-128	Zeng	Michael	11	VAMP: A Versatile Autonomous Mobile Robotic Platform for Agility-Centered and Human-Servicing Applications	The Bishop's School	B. Heldt
Senior Division - Engineering: Energy & Transport						
SR-EET-225	Schremmer	Bella Rose	10	Clean Coastal Energy by a Piston-Buoy Rack and Pinion WEC System	University City High School	J. Bosch
Senior Division - Engineering: Materials & Bioengineering						
SR-EMB-114	Anderson	Ashton	9	The Impact Absorption Measurement of Non-Newtonian Fluids	Point Loma High School	M. Anderson
SR-EMB-049	Fan	Kara	10	Dragonflies Beat Infection! Fabrication of Antibacterial Nanostructures for Orthopedic Implants	Westview High School	S. Halander
SR-EMB-001	Jeon	Ryan	9	"Jump Trampoline and Clean Water!" Play Type Water Filtering System Development by Leveraging "Appropriate Technology"	Westview High School	S. Halander
SR-EMB-148	Kincal	Mert	11	Formation Of Hydroxyapatite Shells on Alginate Beads for Tissue Engineering	Del Norte High School	K. Pytel
SR-EMB-151	Liu	Gwennie	11	Image Analysis of Osteoarthritic Cartilage Treated in vitro with Chondrogenic Cells	Torrey Pines High School	B. Belyea
SR-EMB-056	Rao	Rahul	9	Fine-Tuning Jump Shots Using Angle Measurements	Canyon Crest Academy	W. Slijk
SR-EMB-154	Tianshi	Kyle	9	NEREID: Nanoparticle Examining Raspberry Pi Empowered Image Processing Detector	The Cambridge School High School	M. Mayne
SR-EMB-158	Wright	Lindsay	12	Relationship Between pH, Elasticity, and Durability of Anion Exchange Membranes	Del Norte High School	I. Liao

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Senior Division - Environmental Sciences & Management						
SR-ENV-029	Agrawal	Ayush	11	Early Warning Detection of Arsenic Contamination from Hyperspectral Remote Sensing and Deep Learning: An Application to Asia	Canyon Crest Academy	W. Slijk
SR-ENV-200	Dai	Nathan	9	The Effect of Air Pollution and Weather on the Spread of COVID-19	Canyon Crest Academy	W. Slijk
SR-ENV-091	Demegillo Nepomuceno	Catherine Lea	10 10	Plastic Reduction Through Photodegradation Under Different Amounts of Time	Scripps Ranch High School	T. Demegillo
SR-ENV-250	Roman	Abby	11	To What Extent Does Thermal Pollution Affect the Growth of Elodea?	Bonita Vista High School	J. Ekstein
SR-ENV-210	Sanchez	Eduardo	11	Oyster Mushrooms and Its Ability to Absorb Motor Oil	Bonita Vista High School	J. Ekstein
SR-ENV-260	Wang Wu	Katie Lucia	10 10	Comparing the Penicillium Camemberti Fungi Grown in Conditions Optimal for Phycomyces Blakesleeanus	Canyon Crest Academy	W. Slijk
SR-ENV-111	Zeng	Audrey	10	The Effect of Particulate Matter Concentrations on COVID-19 Infection Rates	Del Norte High School	H. Xu

Senior Division - Mathematical Sciences

SR-MAT-032	Beniwal	Sara	11	Determining If There is a Correlation Between US Voter Turnout and Characteristics Such as Age, GDP, and Level of Education	Del Norte High School	M. Derksen
SR-MAT-153	Chaturvedi	Archit	10	Mathematics in Epidemiology: Solving For and Analyzing a Nonic Polynomial that Models the Rate of Change Function Pertaining to the Incidence Rate of COVID-19 in Venezuela	Canyon Crest Academy	W. Slijk
SR-MAT-163	Faktor	Benjamin	12	The Non-Homogeneous, Incompressible Navier-Stokes Equations	Canyon Crest Academy	W. Slijk
SR-MAT-115	McLarney	Gavin	10	The Politics of COVID-19	Canyon Crest Academy	W. Slijk

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Senior Division - Mathematical Sciences (cont'd)						
SR-MAT-180	Rethnakar	Nivedita	11	Modeling the Dynamics of the COVID-19 Pandemic	Del Norte High School	J. Buehler
SR-MAT-184	Sridharan	Agastya	9	MNN: A Biologically Inspired Recursive Time-Series Feedback Neural Network Architecture for Increased Generalizability	Scripps Ranch High School	P. Fowler
SR-MAT-213	Um	Christopher	12	Achieving Quantum Parallelism by Analyzing the Interactions Between Particles through a Novel Design of Generalized Grover's Algorithm	Torrey Pines High School	B. Belyea

Senior Division - Medicine & Health Sciences

SR-MED-117	Belbese	Haya	11	The Road to the Cure of Alzheimer's - The Potential Effect of Walnut in Preventing Alzheimer's - A 4 Year Study	Bright Horizon Academy	N. Naserleddin
SR-MED-198	Chiniga	Rishi	11	Evaluation of a Natural Immune Support Juice Blend on Moderate to Severe Rheumatoid Arthritis: Effects on Inflammation and Fatigue	Francis Parker School	R. Tangirala
SR-MED-217	Dandu	Neha	10	An Automatic, Accurate Algorithm for Identifying Tablets	Canyon Crest Academy	W. Slijk
SR-MED-235	Feng	Morgan	11	Investigating and Harnessing Cellular Responses to Interferon in the Fight against Cancer and Viral Infection	Westview High School	M. Christopher
SR-MED-075	Gao	Andrew	11	Machine Learning and Bioinformatics Approach Yields Noninvasive miRNA Biomarkers for Early Lung Cancer Detection	Canyon Crest Academy	W. Slijk
SR-MED-100	Gupta	Kavya	10	Spatiotemporal-Models on Calcium Dynamics Highlighting AMPA Receptors in Dendritic Spine Geometry	Westview High School	M. Ingram
SR-MED-008	Huang	Ryan	11	Antibody Profiling by Novel Multiplexed Immunoassays Revealed Microbiome-mediated Differential Humoral Immunity Related to Diverse COVID-19 Severity	Canyon Crest Academy	W. Slijk

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Senior Division - Medicine & Health Sciences (cont'd)						
SR-MED-176	Hussain	Daanya	9	Effect of EMF on Planaria Growth & Behavior	Bright Horizon Academy	N. Naserelddin
SR-MED-205	Jung	Chris	10	A Machine Learning Approach to Alzheimer's Diagnosis and Pathologic Interpretation	Canyon Crest Academy	W. Slijk
SR-MED-207	Li	Ivan	11	Targeting FGFR Alterations in Pediatric Cancers	Canyon Crest Academy	W. Slijk
SR-MED-208	Li	Eric	11	Single-cell RNA-seq Analysis of Biomarkers in Gastric Cancer Caused by Helicobacter Pylori	The Bishop's School	L. Keller
SR-MED-086	Mandyam	Atulya	11	Novel Biomarker for Identification of Bipolar Disorder Treatment Response	Westview High School	M. Ingram
SR-MED-258	Osman	Shukriya	10	Antioxidants: A Potential Key In Preventing High Risk Diseases	Bright Horizon Academy	N. Naserelddin
SR-MED-182	Rupesh	Bhadra	9	Finding Risk Factors for Severe COVID-19 through a Meta-Analysis of Interferon-Pathway-Affecting Genes	The Bishop's School	L. Keller
SR-MED-185	Su	Nicole	11	Effect of pH and Glycan Presence on Adimab-15878 Binding to Ebolavirus Glycoprotein	Canyon Crest Academy	W. Slijk
SR-MED-021	Surineni	Sreenidhi	11	Contribution of Membrane Raft Redox Signalling to Obesity-Induced Inflammasome Activation and Podocyte Injury	Canyon Crest Academy	W. Slijk
SR-MED-092	Tang	Jason	12	Potential SARS-CoV-2 Nonstructural Protein 15 (NSP15) Inhibitors: Repurposing FDA-Approved Drugs	Canyon Crest Academy	W. Slijk
SR-MED-127	Vermani	Aakarsh	11	Using Machine Learning and Deep Neural Networks to Repurpose FDA-Approved Drugs	Westview High School	M. Ingram
SR-MED-189	Xu	Ellen	10	Developing a Robust Deep Ensemble Network for Kawasaki Disease Early Diagnosis	Del Norte High School	A. Callicott
SR-MED-190	Xu	Shirley	10	ThreshNet: A Novel Machine Learning Technique to Optimize Sensitivity and Specificity Performance	The Bishop's School	M. Jaiclin
SR-MED-031	Yang	Elita	10	Comparing the Centrifugal Cleansings Between Human and Bovine Calf Osteochondral Cores	Pacific Ridge High School	L. O'Brien

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Senior Division - Medicine & Health Sciences (cont'd)						
SR-MED-002	Zhang	Andrew	10	A Novel Blood-Based miRNA Diagnostic Test with Very High Accuracy for Early Screening and Monitoring of Lung Cancer Patients	Del Norte High School	K. Ozuna
SR-MED-264	Zhu	Wanyi	12	The HTLV1 Stimulates Molecular Events that Induce Cancers of the Pancreas, Myeloid Tissue, Lungs, and Intestines	Canyon Crest Academy	W. Slijk
Senior Division - Microbiology						
SR-MIC-202	Dong	Elaine	10	Antibacterial Activities of Polymer Encapsulated Zinc Oxide Nanoparticles	Canyon Crest Academy	W. Slijk
SR-MIC-236	Jung	Eleanor	10	Molecular Dynamics Simulation of Novel Klebsiella pneumoniae Treatment Disrupting the Outer Membrane	Mt. Carmel High School	A. Klingborg
SR-MIC-125	Zhu	Emily	10	Analysis of the Interactions Between SARS CoV-2 Spike Protein RBD Mutants and ACE2 Receptor	The Bishop's School	J. Zedalis
Senior Division - Physics & Astronomy						
SR-PHY-146	Barrett	Aimee	10	Decibels to Broadway- Tap, Tap, Tap!	Central Union High School	L. Rueda
SR-PHY-169	Clairmont	Ryan	11	Morpho-Kinematic and Hydrodynamic Modeling of the Cat's Eye Nebula	Canyon Crest Academy	W. Slijk
SR-PHY-107	Li	Andrew	10	The Age of the Coma Ber Cluster Constrained Using Amateur Data	Canyon Crest Academy	W. Slijk
SR-PHY-227	Vijayakumar	Vivek	12	Comparing the Mg I b and Ca II H&K Lines In Delta Scuti Stars	San Marcos High School	R. Terrill
Senior Division - Plant Sciences						
SR-PLS-249	Nunes	Diego	11	To What Extent Do Algal Blooms Affect the Growth of Duckweed Populations Over 4 Weeks?	Bonita Vista High School	J. Ekstein

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Senior Division - Plant Sciences (cont'd)						
SR-PLS-038	Palayur	Sarah	10	Direct Plant Moisture Measurements to Conserve Water for Agricultural Practices	St. Joseph Academy 9-12	M. Rice
SR-PLS-050	Sengupta	Suvali	11	Effect of Biodegradable Microporous Polymer and Mulch on Water Retention of Eruca Sativa	Westview High School	M. Ingram

JUNIOR DIVISION

Junior Division - Animal Sciences

JR-ANS-268	Alari Cross	Sarah Scout	6 6	The Effect of Positive Reinforcement on the Training Behavior of Goats	City Tree Christian School	M. Lee
JR-ANS-166	Bove Burns	Preston Carlyn	8 8	Young Dog vs Middle-Aged vs Geriatric Dog Saliva	St. John School - Encinitas, CA	G. Heins
JR-ANS-059	Dant	Lily	7	What Activity Will Keep Goats Most Enriched and Engaged?	St. Michael's School - Poway	J. Poling
JR-ANS-093	Konyn	Kiara	8	Prevalence of Early Embryotic Loss in Dairy Cattle	Classical Academy Middle School	H. Cooper
JR-ANS-066	Mandyam	Tanya	7	How Jet Lag Affects Exercise Output	Mesa Verde Middle School	J. Woo
JR-ANS-232	Mansur	Julieta	8	The Effect of Colored Fruit on Fruit Flies	Soille SD Hebrew Day School	S. Jones
JR-ANS-065	Roberts	John	7	How Dogs React to Someone They Know Giving Commands Through a Screen	St. Michael's School - Poway	J. Poling
JR-ANS-003	Rosenberg	Amalya	8	A Treat You Say?	Soille SD Hebrew Day School	S. Jones
JR-ANS-139	Sorman	Gabrielle	7	Will the Amount of Sugar Affect a Hummingbird's Food Preferences?	Nazareth School	M. Reed
JR-ANS-265	Steele	Victoria	7	Nasty Ears	St. Michael's School - Poway	J. Poling

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Junior Division - Biochemistry						
JR-BCH-042	Bantval	Dhruv	6	Do Fresh or Frozen Vegetables Have More Vitamin C?	Sage Canyon Elementary School	K. Daniel
JR-BCH-263	Gao	Sarah	8	Finding Inhibitors of Bacterial Efflux Pump Proteins	Pacific Trails Middle School	S. Thacker
JR-BCH-072	Kazi	Hafsah	8	Impact of Metals and Natural Remedies on Planaria	Bright Horizon Academy	N. Nasereldin
JR-BCH-220	Lawler-Ehr	Sophie	8	Avocado Oxidation	St. Peter the Apostle	T. Fantano
JR-BCH-279	Ostadan	Roya	7	Baking Soda vs Baking Powder: Which Will Rise to the Challenge?	Nativity School	T. Lunn
Junior Division - Behavioral & Social Sciences						
JR-BEH-256	Alrahib	Selma	7	Green, Yellow and Purple Food... YUCK	Nativity School	T. Lunn
JR-BEH-067	Bailleul	Reagan	7	How to Get Better Sleep with Technology or Meditation	St. Michael's School - Poway	J. Poling
JR-BEH-109	Bateman	Siena	8	The Effect of Gender Bias on Kids Favorite School Subjects	The Children's School	D. Quincannon
JR-BEH-116	Cabrera	Elizabeth	7	The Primacy and Recency Effects: Patterns in Our Memory	Nativity School	T. Lunn
JR-BEH-019	Castellanos	Julia	7	Can Working in a Noisy Work Environment Decrease a Child's Work Development?	St. John School - Encinitas, CA	G. Heins
JR-BEH-165	Dodds	Evan	8	Why Can't People Put Video Games Down?	St. John School - Encinitas, CA	G. Heins
JR-BEH-043	Durazo	Sofia	7	Do Middle School Students Remember More with Colored Paper or Black and White Paper	Nazareth School	M. Reed
JR-BEH-192	Foss	Spencer	8	Testing Priming with an Auditory Prompt	San Diego Jewish Academy	D. Dragon
JR-BEH-010	Frank	Sophia	8	Are Eyewitness Accounts Accurate?	St. John School - Encinitas, CA	G. Heins
JR-BEH-046	Leeman	Rebecca	8	Does News Affect the Mood and Stress of Adults?	Soille SD Hebrew Day School	S. Jones
JR-BEH-273	Leftridge	Sofia	8	The Effect of Social Media Usage on Test Scores	City Tree Christian School	M. Lee

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Junior Division - Behavioral & Social Sciences (cont'd)						
JR-BEH-129	Lowy	Hannah	8	Visual vs Auditory Learning	San Diego Jewish Academy	D. Dragon
JR-BEH-177	Marmolejo	Grace	7	Laughing vs. Yawning	St. Francis of Assisi	B. Rajah-Boyer
JR-BEH-110	Montal	Shane	8	The Effect of Gender on Gender Bias in Children	The Children's School	D. Quincannon
JR-BEH-026	Norberg	William	7	De-stressing Time	St. Michael's School - Poway	J. Poling
JR-BEH-131	Odenthal	Jake	7	What Color Is It?	St. John School - Encinitas, CA	G. Heins
JR-BEH-246	Peniche	Amelia	8	Body Image and Mental Health Awareness	The Children's School	D. Quincannon
JR-BEH-245	Pourteymour	Anisa	7	The Effect of Color Psychology	Nativity School	T. Lunn
JR-BEH-082	Roberts	Ella	7	Memorable Music	Bonita Vista Middle School	C. Cardenas
JR-BEH-144	Ruddle	Noelle	8	Auditory, Visual, and Kinesthetic Learning and How It Affected Online School	St. John School - Encinitas, CA	G. Heins
JR-BEH-083	Soberanes	Melissa	7	Mental Health in a Pandemic	Our Lady of Guadalupe Acad	J. Patton
JR-BEH-211	Srour	Angelina	7	What Type Of Commonly/Uncommonly Used Fonts Are Easier for People to Read?	Nazareth School	M. Reed
JR-BEH-080	Weiser	Yael	8	Masked and Answered	Soille SD Hebrew Day School	S. Jones
JR-BEH-278	Wilson	Derek	7	What People Do in Their Free Time	St. Michael's School - Poway	J. Poling
JR-BEH-085	Zamora	Ava	7	Name Brand Clothing Expenses in Adolescence	St. Michael's School - Poway	J. Poling
JR-BEH-138	Zuna	Alexandra	7	Will Peppermints Cause Memory Recall?	Nativity School	T. Lunn

Junior Division - Chemistry

JR-CHM-271	Birdsell	Aureylia	7	The Effect of Length of Heating on Increase of Temperature with Liquids and Vessels	City Tree Christian School	M. Lee
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Junior Division - Chemistry (cont'd)						
JR-CHM-136	Delgado	Maya	7	Which Liquid Affects the Rate of Corrosion?	Bonita Vista Middle School	C. Shimasaki
JR-CHM-041	Gramme Rowin	Tori Grace	7 7	The Distilling of Water	St. Gregory the Great	S. Dasgupta
JR-CHM-015	Kinsley	Kai	7	Bubble Mania	St. Gregory the Great	S. Dasgupta
JR-CHM-036	Plascencia	Cam	8	Different Kitchen Substances' Ability to Extinguish a Flame	Chula Vista Middle School	T. Tom
JR-CHM-064	Scott	Kayla	8	How Veganising a Cupcake Affects Its Baking Time	San Diego Jewish Academy	D. Dragon
JR-CHM-223	Soto	Miriam	8	Charting Evaporation	St. Peter the Apostle	T. Fantano
JR-CHM-098	Sparks	Jackson	7	Soda and Candy Eruption Experiment	St. Michael's School - Poway	J. Poling

Junior Division - Computer Sciences

JR-CSC-199	Dagar	Arnav	7	A Study of AI Agents for Two Player Games	Pacific Trails Middle School	K. Chen
JR-CSC-096	Flores Jr.	Raymond	7	Student Time Management App	St. Michael's School - Poway	J. Poling
JR-CSC-081	Gouslin	Cole	7	Matchbox AI	St. Gregory the Great	S. Dasgupta
JR-CSC-255	Koehnlein	John	8	Battle of Ages	St. Peter the Apostle	T. Fantano
JR-CSC-035	Lara	Christopher	8	Differences in Real World Physics and Virtual Physics	St. John of the Cross Catholic School	G. Krumm
JR-CSC-145	Nguyen	Christopher	8	Caesar Cipher Comparison: C++, Python, and Java	St. John School - Encinitas, CA	G. Heins
JR-CSC-058	Owston	Eva	7	Foxy: A Mobile Application Demonstrating the Application of Artificial intelligence for Virtual Dermatological Care	Coastal Academy	B. Biernacki
JR-CSC-124	Pascual	Ace	7	Unbeatable AI	St. Gregory the Great	S. Dasgupta
JR-CSC-281	Sood	Rohin	8	LinkedIn Algorithm to Automate the Employee Recruitment Process	Oak Valley Middle School	B. Gonzalez

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Junior Division - Consumer Sciences & Product Testing						
JR-CSP-164	Amsalem	Eyal	8	What Surf Wax Is The Stickiest?	Soille SD Hebrew Day School	S. Jones
JR-CSP-267	Birch	Charlotte	6	The Effect of Different Types of Fat On How Cakes Rise, Their Taste, Texture and Appearance.	City Tree Christian School	M. Lee
JR-CSP-011	Brocius	Aasha	8	Are Homemade Cleaning Solutions as Effective as Store-Bought Cleaning Solutions?	The Children's School	D. Quincannon
JR-CSP-212	Carroll Tan	Brynn Claudia	7 7	Uncomfortable Masks	St. Michael's School - Poway	J. Poling
JR-CSP-014	Ceresia	Cameron	7	Bat Performance Testing	St. Gregory the Great	S. Dasgupta
JR-CSP-120	Cheviron Kinnear	Bailey Mikala	7 7	The Unfoggable Facemask	St. Michael's School - Poway	J. Poling
JR-CSP-060	Feliciano	Alexa	7	Golf Ball Layers and Distances	St. Michael's School - Poway	J. Poling
JR-CSP-274	Greenstein	Jessica	8	Effect of Variance of Clothing Sizes from Standard in Perception of Stores	The Children's School	D. Quincannon
JR-CSP-155	Levy	Hadarya	8	Nevermind the Nails	Soille SD Hebrew Day School	S. Jones
JR-CSP-045	Malka	Yaron	8	Does It Tread?	Soille SD Hebrew Day School	S. Jones
JR-CSP-254	May	Luz Olyvia	7	Which Adhesive Tape Works Best to Patch a Deflated Soccer Ball?	Nazareth School	M. Reed
JR-CSP-230	Mirabal	Martina	7	Engineering and Testing Disposable Mask Material Curtain	St. Michael's School - Poway	J. Poling
JR-CSP-057	Terry	Kate	7	Floating Pool Brush	St. Michael's School - Poway	J. Poling
JR-CSP-135	Totalou	Theodora	7	Which Product Preserves Rose Petals Best?	St. Michael's School - Poway	J. Poling
Junior Division - Engineering: Electrical & Mechanical						
JR-EEM-160	Aly	Ziyad	8	Sensors Efficiency In Detecting Objects	Bright Horizon Academy	N. Nasereldin
JR-EEM-197	Bisain	Aditya	6	Home Power Saving Robot	Solana Ranch Elementary School	R. Seelye

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Junior Division - Engineering: Electrical & Mechanical (cont'd)						
JR-EEM-052	Brentnall	Finn	7	Effect of Temperature Change on Battery Longevity	St. Gregory the Great	S. Dasgupta
JR-EEM-102	Horn	Gila	8	STEM Around the World	Soille SD Hebrew Day School	S. Jones
JR-EEM-119	Terry	Chase	7	The Turboprop Engine: What Kind of Propeller Blade Creates the Most Revolutions Per Minute?	Nativity School	T. Lunn
JR-EEM-187	Timm	Isa	8	Designing a Bicycle Powered Charging System	The Children's School	D. Quincannon
JR-EEM-231	Todd	Spencer	7	Fold or Shred?	St. Michael's School - Poway	J. Poling
JR-EEM-159	Williams	Tyler	7	Robotic FireFighter	St. Michael's School - Poway	J. Poling
Junior Division - Engineering: Energy & Transport						
JR-EET-076	Cunningham	Grace	7	Is the Capacity of a Boat Affected by Volume?	Nazareth School	M. Reed
JR-EET-089	Kalyanaraman	Anirudh	8	Optimization of Canard Configuration to Enhance Aircraft Carrier-based Operations	Mesa Verde Middle School	R. Bird
JR-EET-062	Martinez	Santiago	7	Does the Shape of an Airplane's Wing Influence the Distance It Travels?	Nazareth School	M. Reed
JR-EET-105	Murphy Schumann	Brendan Robert	7 7	Tesla Summon Feature vs. Infinity Auto Brake	St. Gregory the Great	S. Dasgupta
JR-EET-077	Parker	Luke	7	Is There a Better Way to Power Ships?	St. Gregory the Great	S. Dasgupta
JR-EET-033	Raagas	Kaitlyn	7	Determining the Production of Volts from Water at Different Temperatures and Falling Heights	St. Gregory the Great	S. Dasgupta
JR-EET-068	Vandenberg	Sawyer	7	How to Silence a Fan-Powered Car	Nativity School	T. Lunn
Junior Division - Engineering: Materials & Bioengineering						
JR-EMB-004	Cresswell	Parker	7	Adjustable Football Gloves	St. Michael's School - Poway	J. Poling
JR-EMB-284	Dujowich	Eduardo	8	How to Block High Pitched Noises	Soille SD Hebrew Day School	S. Jones

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Junior Division - Engineering: Materials & Bioengineering (cont'd)						
JR-EMB-248	Kraljevic Rogers	Charles Kai	7 7	The Water Bottle Project	St. Michael's School - Poway	J. Poling
JR-EMB-103	Paul	Elizabeth	7	Stretchy Pencil Bag	St. Michael's School - Poway	J. Poling
JR-EMB-253	Peikes	Aharon	8	What Type of Wood Pulp Makes Ice the Most Heat Resistant?	Soille SD Hebrew Day School	S. Jones
JR-EMB-006	Romano	Jordan	7	Aerodynamics of Paper Airplanes	Mt. Helix Academy	K. MacDonald
JR-EMB-244	Sadr	Kayhan	8	The Coronaball	The Children's School	D. Quincannon
JR-EMB-022	Xu	Kayley	6	Cooling Straws	The Bishop's School	L. Cummings

Junior Division - Environmental Sciences & Management

JR-ENV-087	Alcala	Abigail	7	Ocean Waste	St. Michael's School - Poway	J. Poling
JR-ENV-047	Arrogante	Nate	8	Does Rainfall and Temperature Affect pH	Coastal Academy	B. Biernacki
JR-ENV-195	Barnes	Leah	8	Formaldehyde in Chula Vista, National City, Coronado, Bonita, and East Lake	Chula Vista Middle School	T. Tom
JR-ENV-196	Barrera	Natalie	8	Distance Traveled of a Disposable Mask	Chula Vista Middle School	T. Tom
JR-ENV-171	DiFrancia	Austin	7	The Impact of Litter on the Earth	St. Michael's School - Poway	J. Poling
JR-PHY-240	Dionne	Colin	8	Reach For the Stars: Part 2	St. Peter the Apostle	T. Fantano
JR-ENV-147	Eiseman	Zachary	8	Effectively Reducing Electromagnetic Radiation From Technology	Soille SD Hebrew Day School	S. Jones
JR-ENV-069	Gehler	Samantha	7	How to Reduce Pollution	St. Michael's School - Poway	J. Poling
JR-ENV-272	Honaker	Andrew	6	The Effect of Ocean Water from Southern California on Phytoplankton	City Tree Christian School	M. Lee
JR-ENV-013	Jackson	Carter	8	Assessing the Effects of Water Contaminants on Algae Degradation	Coastal Academy	B. Biernacki
JR-ENV-270	Johnson	Vincent	6	The Effect of Direction of Solar Panels on Heat Energy	City Tree Christian School	M. Lee

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Junior Division - Environmental Sciences & Management (cont'd)						
JR-ENV-218	Marce	Bernardo	6	Are "Biodegradable" Products Really Biodegradable?	Our Lady of Guadalupe Acad	J. Patton
JR-ENV-078	McWilliams	Alyssa	8	Keeping Office Buildings Cool	Thurgood Marshall Middle School	E. Schumacher
JR-ENV-137	Pham	Adrian	7	Which Surfing Beach Has the Cleanest Water?	Nazareth School	M. Reed
JR-ENV-181	Rivera	Samantha	8	Which Method of Water Purification Removes the Most Dissolved Solids?	Chula Vista Middle School	T. Tom
JR-ENV-233	Rotunda	Alex	8	Fuel Cell vs Fuel	St. Peter the Apostle	T. Fantano
JR-ENV-226	Sessoms	Amiya	8	Cleaning Oil Spills in Tidepools	Farb Middle School	P. Huntington
JR-ENV-183	Simanski	Sonria Rheiglene	8	How Much Water is Wasted When Waiting for the Shower to Warm?	Chula Vista Middle School	T. Tom
JR-ENV-099	Solomon	Addison	7	Something in the Water, Testing Water Alkalinity in San Diego	St. Gregory the Great	S. Dasgupta
JR-ENV-028	Talaga	Kristine	7	Salt Water Desalination	St. Gregory the Great	S. Dasgupta
JR-ENV-118	Verkoczy	Annie	7	Environmental Factors that Increase or Decrease Solar Energy Production in San Diego County, California	St. Michael's School - Poway	J. Poling

Junior Division - Earth & Planetary Sciences

JR-EPL-243	Aron	Nadav	8	The Browns and Greens of Composting	Soille SD Hebrew Day School	S. Jones
JR-EPL-126	Bhat	Neha	8	Using Google Earth Engine to Identify California Gnatcatcher Habitats	Carmel Valley Middle School	N. Clum
JR-EPL-204	Grondalski	John	7	Pollution	St. Michael's School - Poway	J. Poling
JR-EPL-238	Jeff	Evelyn	8	Pollution and Its Effect on the Growth of Plants and Crops	The Children's School	D. Quincannon
JR-EPL-108	Rojas-Morgan	Anabelle	7	The Best Way to Extinguish a Fire	St. Michael's School - Poway	J. Poling

Junior Division - Mathematical Sciences

JR-MAT-142	Broudy	Ariel	8	An Analysis of Prime Knot Counting Functions	Soille SD Hebrew Day School	S. Jones
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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Junior Division - Mathematical Sciences (cont'd)						
JR-MAT-130	Brown	Logan	8	Visualizing Complex, Time Dependent, Fourier Transform Functions in Three-Dimensions	High Tech Middle North County	C. Olivas
JR-MAT-020	Erat	Sidarth	8	Colonel Blotto Game: An Analysis & Extensions to Networks	Erat School	S. Erat
JR-MAT-209	Madhukara	Nandana	8	A Novel Method of Creating Atmospheric Models to Combat Climate Change	Pacific Trails Middle School	S. Thacker

Junior Division - Medicine & Health Sciences

JR-MED-055	Aguilar	Frances	7	Factors Affecting the Body's Response to Exercise	St. Michael's School - Poway	J. Poling
JR-MED-167	Barillas	Nicolas	8	Eye See You	St. Peter the Apostle	T. Fantano
JR-MED-170	Cuevas	Madison	7	Healthy Eating	Nativity School	T. Lunn
JR-MED-173	Estrada Phan	Luke Brett	7 7	Kinesiology Tape Project	St. Michael's School - Poway	J. Poling
JR-MED-203	Fan	Leanne	7	Controlling Middle Ear Infection Using Photodynamic Therapy	Mesa Verde Middle School	J. Woo
JR-MED-285	Franssens	Roman	7	What is the Best Mask Fabric for Stopping Water Molecules?	Nazareth School	M. Reed
JR-MED-262	Gao	William	7	Finding Noninvasive Pancreatic Cancer MicroRNA Biomarkers	Pacific Trails Middle School	S. Thacker
JR-MED-012	Horie	Hana	7	Are Sunglasses as UV Protective as They Say They Are?	St. Gregory the Great	S. Dasgupta
JR-MED-242	Lam	Nadia	8	Spread Soap Not Germs! Does Washing Your Hands Really Clean You?	Our Lady of Guadalupe Academy	J. Patton
JR-MED-266	Morin	Emma	7	The Effect on Different Flooring Types on the Amount of Dust Taken in by a Model Lung	City Tree Christian School	M. Lee
JR-MED-039	Moryosef	Avigal	8	Pills Dissolving Rate	Soille SD Hebrew Day School	S. Jones
JR-MED-188	Xu	Kate	8	Identifying Patterns in Kawasaki Disease Patients through Data Analysis and Visualization	Oak Valley Middle School	K. Smith

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Project ID	Last Name	First Name	Gr	Project Title	School	Tchr/Advr
Junior Division - Microbiology						
JR-MIC-247	Alles	Kailie	8	The Ex-Germinators	St. Peter the Apostle	T. Fantano
JR-MIC-070	Cohen	Simon	8	Human Mouth Bacteria Exposure	Soille SD Hebrew Day School	S. Jones
JR-MIC-051	Dogra	Saanvi	7	Effect of Heme vs. Non-Heme Iron Supplements on Gut Microbiome Fitness	Oak Valley Middle School	B. Gonzalez
JR-MIC-101	Ellis	David	8	Spray Away	Soille SD Hebrew Day School	S. Jones
JR-MIC-172	Emerson	Charlize	8	How pH Levels of Water Affect Yeast Growth	Chula Vista Middle School	T. Tom
JR-MIC-133	Michelsen Michelsen	Lucas Sarah	7 7	Which Cleaning Solution is Best at Eliminating Germs on a Surface?	St. John School - Encinitas, CA	G. Heins
JR-MIC-186	Thomas	Chloe	8	Truth or Myth? 5 Second Rule	St. Peter the Apostle	T. Fantano
JR-MIC-112	Youssef	Sarah	8	The Effectiveness of Herbal Treatments on Staphylococcus	Bright Horizon Academy	N. Nasereddin
JR-MIC-095	Zagursky	Andres	8	Relative Effectiveness of Disinfectants and Ultraviolet C Light In Reducing Bacterial Contamination	Soille SD Hebrew Day School	S. Jones
Junior Division - Physics & Astronomy						
JR-PHY-048	Balkowski	Grace	7	Does the Length of Artificial Turf Blades Affect the Distance a Soccer Ball Travels?	Nazareth School	M. Reed
JR-PHY-168	Ceja	America	8	Do Darker Color Shades Absorb More Heat?	Chula Vista Middle School	T. Tom
JR-PHY-054	Chandra	Vikramaditya Sidharth	8	Estimating the Location of Sagittarius A* using Globular Clusters	San Elijo Middle School	S. Bireddy
JR-PHY-162	Colucci	Alexander	7	The Effect of Weight on the Distance an Object Travels	St. John School - Encinitas, CA	G. Heins
JR-PHY-024	Duarte	Faith	8	Counting the Stars	Coastal Academy	B. Biernacki
JR-PHY-174	Gorman	Charles	6	Pump & Circumstance	Classical Conversations	S. Gorman

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Junior Division - Physics & Astronomy (cont'd)						
JR-PHY-063	Hall	Micah	8	How Does Fin Size Affect Rocket Stability?	Mt. Helix Academy	K. MacDonald
JR-PHY-157	Huntington	Rhiannon	8	Proof Bullet?	Farb Middle School	P. Huntington
JR-PHY-044	Korn	Richard	7	Does How You Hold Your Ukulele Affect the Sound?	St. Gregory the Great	S. Dasgupta
JR-PHY-150	McPhail	Colin	7	Hydraulic Efficiency	St. John School - Encinitas, CA	G. Heins
JR-PHY-237	Muraoka	Cassidy	8	Operation Radiation	Chula Vista Middle School	T. Tom
JR-PHY-005	Palecek	Lyla	7	Altitude's Effect on the Speed of a Lacrosse Ball	St. John School - Encinitas, CA	G. Heins
JR-PHY-122	Putrus	John	8	Items Introduced to Friction vs. Thermal Slime	Mt. Helix Academy	K. MacDonald
JR-PHY-132	Vania	Gabriel	8	When the Soccer Ball Curves: Behind the Scenes	De Portola Middle School	M. Bridges
Junior Division - Plant Sciences						
JR-PLS-283	Adato	Shira	8	The Effect of Mineral Supplements on Plant Growth	Soille SD Hebrew Day School	S. Jones
JR-PLS-113	Bailey	Katie	7	The Garden of Flowers	St. Gregory the Great	S. Dasgupta
JR-PLS-030	Beltran	Faith	7	Determining Greywater Types on the Growth Rates of Osteospermum	St. Gregory the Great	S. Dasgupta
JR-PLS-286	Hastings	Eliana	8	The Effect of Microbes on Plants	Soille SD Hebrew Day School	S. Jones
JR-PLS-175	Hernandez	Natalie	8	Which Gardening Method Produces Higher Lettuce Growth? Hydroponic or Soil?	Chula Vista Middle School	T. Tom
JR-PLS-280	Mendoza	Fatima	8	Will It Grow?	St. Peter the Apostle	T. Fantano
JR-PLS-252	Muniz Sigala	Cielo	7	Using Homemade Fertilizers to Find the Best Results in Radishes	Bonita Vista Middle School	C. Shimasaki

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Junior Division - Plant Sciences (cont'd)						
JR-PLS-219	Territo Wahl	Francesca Avery	7 7	Are Essential Oils More Effective than RoundUp	St. Michael's School - Poway	J. Poling
JR-PLS-053	Tran	Cate	7	Elodea and Photosynthesis	St. Michael's School - Poway	J. Poling

2021 School and Teacher/Advisor Directory

The Board of Directors and Management Committee would like to thank the following schools and their teachers/advisors in San Diego and Imperial Counties for their commitment to and support of students in their independent STEM research for the 67th Greater San Diego Science and Engineering Fair.

JUNIOR DIVISION:

Bonita Vista Middle School... Cardenas, Carla
Bonita Vista Middle School... Shimasaki, Cynthia
Bright Horizon Academy 6-8... Nasereddin, Najwan
Carmel Valley Middle School... Clum, Naomi
Chula Vista Middle School... Tom, Tina
City Tree Christian School... Lee, Michelle
Classical Academy Middle School... Cooper, Hannah
Classical Conversations... Gorman, Sara
Coastal Academy... Biernacki, Bridget
De Portola Middle School... Bridges, Michael
Erat School... Erat, Sanjiv
Farb Middle School... Huntington, Patricia
Mesa Verde Middle School... Bird, Russ
Mesa Verde Middle School... Woo, Jonathan
Mt. Helix Academy... Mac Donald, Kayla
Nativity School... Lunn, Tracy
Nazareth School... Reed, Marilyn
Oak Valley Middle School... Gonzalez, Bonnie
Oak Valley Middle School... Smith, Keri
Our Lady of Guadalupe Academy (Imperial County)...
Patton, Joshua
Pacific Trails Middle School... Chen, Kajyo
Pacific Trails Middle School... Thacker, Samantha
San Diego Jewish Academy 7-8... Dragon, Donovan
San Elijo Middle School... Bireddy, Sreelatha
Soille San Diego Hebrew Day School... Jones, Stephan
St. Francis of Assisi... Rajah-Boyer, Brendan
St. Gregory the Great Catholic School... Dasgupta, Sudipta
St. John of the Cross Catholic School... Krumm, Greg
St. John School - Encinitas, CA... Heins, Gina
St. Michael's School - Poway... Poling, June
The Bishop School... Cummings, Laura
The Children's School... Quincannon, Diana
Thurgood Marshall Middle School... Schumacher, Erin

SENIOR DIVISION:

Bonita Vista High School... Eckstein, Jennifer
Bright Horizon Academy 9-12... Nasereddin, Najwan
Canyon Crest Academy...Celniker, Dvora
Canyon Crest Academy...Mauro, Tony
Canyon Crest Academy... Norbeck, Andrew
Canyon Crest Academy... Slijk, Wendy
Cathedral Catholic High School... Rafie, Marjan
Central Union High School (Imperial County)...
Rueda, Lourdes
Del Norte High School... Buehler, Jo
Del Norte High School... Callicott, Andrea
Del Norte High School... Derksen, Michelle
Del Norte High School... Kapoor, Sabby
Del Norte High School... Liao, Frank
Del Norte High School... Liao, Ifeng
Del Norte High School... Mortensen, John
Del Norte High School... Ozuna, Ken
Del Norte High School... Pytel, Kimberly
Del Norte High School... Xu, Hingwei
Francis Parker School... Tangirala, Rajendra
La Jolla High School... Kuo, James
Mt. Carmel High School... Klingborg, Amy
Pacific Ridge High School... O'Brien, Liz
Point Loma High School... Anderson, Michael
San Diego Jewish Academy 9-12... Hagarman, Patrick
San Marcos High School... Terrill, Robert
Scripps Ranch High School... Demegillo, Thao
Scripps Ranch High School... Fowler, Patty
St. Joseph Academy 9-12... Rice, Michelle
The Bishop's School... Heldt, Ben
The Bishop's School... Jaiclin, Marcus
The Bishop's School... Keller, Lani
The Bishop's School... Zedalis, Julie
The Cambridge School High School... Mayne, Melissa
Torrey Pines High School... Belyea, Brinn
University City High School... Bosch, Jessica
Westview High School... Christopher, Matthew
Westview High School... Domingo, David
Westview High School... Halandar, Scott
Westview High School... Ingram, My-Nga