

The 68th Annual GSDSEF

GRAND AWARDS

2022

Junior Division

Grand Awards

Runners-Up

Junior Division

Grand Award Runner Up - Life Sciences

Ana Brocious

The Children's School, Grade 8

Advisor: D. Quincannon

*The Effect of Carbon Dioxide on
Bioluminescent Dinoflagellates*

Junior Division

Grand Award Runner Up - Life Sciences

Ronald Wyatt

Chula Vista Middle School, Grade 8

Advisor: T. Tom

How Long Does It Take for Superworms to Eat Styrofoam?

Junior Division

Grand Award Runner Up - Physical Sciences

Danielle Leivers-Breise

The Children's School, Grade 8

Advisor: D. Quincannon

Deodorant Alarm

Junior Division

Grand Award Runner Up - Physical Sciences

Dhruv Bantval

Pacific Trails Middle School, Grade 7

Advisor: L. McVay

*Development of Smart Stick with Visual and Ultrasonic
Sensor to Assist Visually Impaired*

Senior Division

Grand Awards

Runners-Up

Senior Division

Grand Award Runner Up - Life Sciences

Matthew Noto

Canyon Crest Academy, Grade 11

Advisor: A. Siegel

*Novel Inhibitors for Conserved Regions of RecA to Slow the
Development of Antibiotic Resistance in Bacteria*

Senior Division

Grand Award Runner Up - Life Sciences

Elaine Dong

Canyon Crest Academy, Grade 11

Advisor: A. Siegel

Crosslinked Zinc Oxide Nanoparticles: A Novel Approach to Combatting Antibacterial Resistance and Nanoparticle Toxicity

Senior Division

Grand Award Runner Up - Physical Sciences

Shirley Xu

The Bishop's School, Grade 11

Advisor: M. Jaiclin

*A Heuristic Solution to the Closest String Problem Using
Wave Function Collapse Techniques*

Senior Division

Grand Award Runner Up - Physical Sciences

Kara Fan

Westview High School, Grade 11

Advisor: M. Ingram

*Insect-inspired Nanopillared Materials to Prevent
Bacterial Growth*

The Taiwan Award

**A Grand Award presented by the
Taiwanese American Foundation of San Diego**

The Taiwan Award

Elaine Dong

Canyon Crest Academy, Grade 11

Advisor: A. Siegel

*Crosslinked Zinc Oxide Nanoparticles: A Novel Approach to
Combatting Antibacterial Resistance and Nanoparticle Toxicity*

Junior Division

Grand Awards

Junior Division

Grand Award – Life Sciences

Leanne Fan

Mesa Verde Middle School, Grade 8

Advisor: R. Bird

Finsen Headphone: A Smart Headphone to Diagnose and Control Middle Ear Infection Using Machine Learning and Light Spectrum

Junior Division

Grand Award - Life Sciences

Kai Moore

The Children's School, Grade 8

Advisor: D. Quincannon

Effect of Kelp Fertilizer on Growth Rate of Eruca sativa

Junior Division

Grand Award - Physical Sciences

Arnav Dagar

Pacific Trails Middle School, Grade 8

Advisor: M. Mareth

*Where's Waldo - A Bayesian Approach for Localizing a
LEGO Robot*

Junior Division

Grand Award - Physical Sciences

Shiloh Dimenstein

Soille San Diego Hebrew Day School, Grade 8

Advisor: S. Jones

LIV: Litter Identification Vehicle

Senior Division

Grand Awards

Senior Division

Grand Award - Life Sciences

Daniel Cai

Torrey Pines High School, Grade 12

Advisor: B. Belyea

*Deep Learning-Aided Diagnosis of Autoimmune
Blistering Diseases*

Senior Division

Grand Award - Life Sciences

Amogh Chaturvedi

Canyon Crest Academy, Grade 11

Advisor: E. Fisher

*A Novel Multi-omics Data Integration Framework Using Attributed
Networks for Biomedical Classification*

Senior Division

Grand Award - Physical Sciences

Ayush Nayak

Westview High School, Grade 11

Advisor: S. Halander

*Using Antimony Indium Quantum Dots for Next Generation
High Mobility Transistors*

Senior Division

Grand Award - Physical Sciences

Rohan Bosworth

Poway High School, Grade 11

Advisor: K. Woldseth

*End-to-End Path Planning and Control for Autonomous Vehicles
Using Inverse Kinematics with Parameterized Arc Length*

The 67th Annual GSDSEF

ISEF Finalists

ISEF Finalists:

Daniel Cai, Torrey Pines High School

Amogh Chaturvedi, Canyon Crest Academy

Ayush Nayak, Westview High School

Rohan Bosworth, Poway High School

ISEF Finalists:

Matthew Noto, Canyon Crest Academy

Shirley Xu, The Bishop's School

**Congratulations to our
2022
Grand Award Winners**