CONNECTICUT SCIENCE & ENGINEERING FAIR

# *Connecticut Science and Engineering Fair 2022 Fair Report*

***The CSEF was held as a virtual fair on March 7th-March 16th, 2022***

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# *2022 CSEF Fair Summary*

*The 2022 fair was held virtually for the second year due to COVID-19 considerations. As a result, all student presentations were judged during consecutive video sessions by Zoom meetings over the course of 5 days. This format allowed for every student to present their projects during preliminary judging as well as during the finalist judging sessions. Although technically challenging, the process was a success with very few problems manifest during the fair or the awards sessions. 383 students participated in the fair with 306 projects presented. The students represented 90 different towns or cities. There were over 257 volunteer judges from both industry and academia who participated. The students were awarded over 175 awards worth over $44,584 from 49 contributing sponsors. Sixteen students proceeded on to further national and international science competitions including seven who went on to the Regeneron International Science and Engineering Fair (ISEF) held in Atlanta, GA. These representatives received 5 Grand awards at the event. The success of the fair depends on CSEF leadership and volunteers and there are plans for it to go to a hybrid format with finalist judging being in-person at Quinnipiac University for 2023.*

# *Links to Student Awards*

## Student Awards by Town:

*https://ctsciencefair.org/media/2022CSFAllAwardWinnersLISTFINALV3.pdf*

## Student Awards by Fair Category:

*https://ctsciencefair.org/media/2022RegFairWinners_Category.pdf*

## Student Special Awards by Granting Organization:

*https://ctsciencefair.org/media/2022SponAwardsV3.pdf*

# *Top Winners Advancing to International Competitions*

## *Regeneron ISEF*

### *CSEF Physical Sciences*

*Removal of Microspheres Water Contaminants, via Calcite-Infused, Coral-like Melamine Sponges*

***Naomi Park*** ***Greenwich High School*** ***Greenwich, CT***

*Real-Time Motion Tracking System and Data Analytics for Live Insects Using Three-Wheeled Servosphere Robot*

***Nicholas Lee*** ***Hopkins School*** ***New Haven, CT***

### *CSEF Life Sciences*

*The use of Prime Editing to Induce and Correct the CFTR-F508del mutation in iPSCs.*

***Benjamin Persily*** ***King School*** ***Stamford, CT***

*Development of Readily Accessible Machine Learning Diagnostics for Early Stage Mild TBI using Eye Tracking Methods*

***Ashley Malkin*** ***Greenwich High School*** ***Greenwich, CT***

### *Alexion Biotechnology*

*Development of a Home N-Terminal Pro-Brain Natriuretic Peptide Assay for the Diagnosis of Congestive Heart Failure*

***Maya Chiravuri*** *Choate Rosemary Hall* *Wallingford, CT*

### *Urban School Challenge*

*Implementing Nontoxic Modified Magnetic Metal Oxide Nanoparticle Enhanced Biochar Filtration for the Efficient Removal of Emerging Contaminants in an Aqueous Solution*

***Snigtha Mohanra*** ***Engineering and Science Magnet*** ***New Haven, CT***

### *Engineering*

*Design of a Novel, Dual-Functioning Tissue Plasminogen Activator and Anticoagulant Therapeutic for Rapid Ischemic Stroke Treatment*

***Ambika Grover*** ***Greenwich High School*** ***Greenwich, CT***

## *Genius Olympiad*

*A novel mitigation technique to control the spread of the invasive Spotted Lanternfly (L. Delicatula) through cardiac glycoside extracts*

***Cooper Carr*** ***Bridgeport Aquaculture Center*** ***Bridgeport, CT***

*The Palingenesis Project*

***Ashley Ramos***

***Bruno Valdivia***

***Katelyn Zayas*** ***Platt Technical High School*** ***Milford, CT***

*Model System Design for Technology-Assisted Insulin Regulation*

***Sydney Borst*** ***Westside Middle School Academy*** ***Danbury, CT***

*Quantifying the interspecific impacts of the native relationships of the Long Island Sound*

***Sarah Davis*** ***Bridgeport Aquaculture Center*** ***Bridgeport, CT***

*Eco-Friendly Remediation of Polycyclic Aromatic Hydrocarbons in Stormwater via Magnesium-Infused Calcite Crystal, Supramolecular Hydrogel Scaffolding*

***Audrey Lin*** ***Greenwich High School*** ***Greenwich, CT***

*Piezoelectric Wind Harvesting Electrical Energy Conversion*

***Dylan Pueschel***

***John Watrous*** ***Academy of Aerospace & Engineering*** ***Windsor, CT***

## *Regeneron ISEF Representatives*

*Removal of Microspheres Water Contaminants, via Calcite-Infused, Coral-like Melamine Sponges*

***Naomi Park*** ***Greenwich High School*** ***Greenwich, CT***

***Awards:*** 2nd Place Grand Award in Environmental Engineering ($2,000)

***ISEF Abstract:***

The detrimental threat microplastics (MPs) have on the environment is well-established. However, their effective and efficient remediation in aquatic environments has yet to be established. This research provides a highly efficient/practical method for the removal of MPs through the creation of an Artificial Coral Sponge (ACS). The ACS was constructed on a 2x2x1.5cm (150µm-pore) melamine sponge, with a PTFE adhesion layer, and CaCO3 for MP-capture. The cubic-shaped ACS removed ~176k-MPs (~93%) in 45 hours, from 0.1mg/ml MP-contaminated fresh or seawater. High MP-concentration, long-term experiments were conducted to examine full capacity of the cubic-ACS. Following 1 week of submersion in 0.5mg/ml MP-contaminated water, SEM analysis highlights MP retention throughout its internal structure, demonstrating that it is not a surface-only remediation device. At full capacity, the ACS can retain 2065k MPs per device. To evaluate ACS reuse properties, a single ACS was used, and reused twice more, in subsequent 0.1mg/ml MP-contaminated water samples. Marginal decline of MP-remediation over 3 “reuses” highlights the ability to reapply the ACS in contaminated water, until its MP-limit is reached. An investigation for optimal ACS shape was conducted. Ellipsoid and cubic shaped devices behaved similarly, further pointing to the internal nature of ACS MP-capture. Finally, prolonged stability studies demonstrate prolonged ACS integrity, as a marine-safe, easy-to-use MP-remediation tool, costing 30¢/tested device, or $12 for a device that mimics a typical 625cm2 coral. In use, the ACS is simply lowered into MP-contaminated water, left until its MP load is reached, and then simply lifted out for MP recovery.

*Real-Time Motion Tracking System and Data Analytics for Live Insects Using Three-Wheeled Servosphere Robot*

***Nicholas Lee*** *Hopkins School* *New Haven, CT*

**ISEF Abstract:**

Servosphere robots are used as omnidirectional treadmills for tetherless motion tracking, presenting improved accuracy to conventional methods while having numerous practical advantages. An area of interest for motion tracking is in machine learning, where a trained model can determine the traits of an insect, e.g., its species, sex, and health, based on its pathing. Last year's work developed a prototype servosphere tracking system, and this project extends that work with three contributions: 1) enhancing the system using a stronger, compacted design with error-reduced motors, a faster camera, and an optical sensor as well as more efficient multithreaded programming in Python, 2) performing stimulus experiments with seven live, naturally-obtained Laius niger and Monomorium minimum subjects, and 3) applying collected motion data to machine learning using a convolutional neural network (CNN) classification model. The experimental results demonstrate the effectiveness of the system in tracking live insect motion, having an average experimental error of 3.23mm along an ideal path. Five of the seven subjects are stimulated with 50g of sweetened honey and have a measured average speed of 11.594mm/s. The two control subjects have an average speed of 5.448mm/s, corroborating expected results and demonstrating the system's robustness with innate and stimulated motion. The developed CNN model aims to classify segmented trajectories based on their directions, such as left, right, or straight, and the system-produced trajectories yield a model accuracy of 64%. In the future, the servosphere robot can be applied to other fields such as neuroscience with fluorescent neural behavior analysis.

*The use of Prime Editing to Induce and Correct the CFTR-F508del mutation in iPSCs.*

**Benjamin Persily** *King School* *Stamford, CT*

**Awards:** 3rd Place Grand Award in Cell and Molecular Biology ($1,000)

**ISEF Abstract:**

According to the Cystic Fibrosis (CF) Foundation, over 70,000 people across the globe suffer from CF, and the life expectancy of patients with CF drops to about the age of 47. CF is an inherited condition that makes a patient's mucus thicker and stickier, which can lead to lung damage and infection. Approximately 70-90% of these cases are caused by a 3-bp deletion known as CFTR-F508del. Given the critical need for novel therapeutic interventions with greater efficacy, we aimed to model this mutation using prime editing and iPSCs to later differentiate and use these cells for studying CF. iPSCs serve as excellent models for disorders that affect different parts of the patient's body, due to their pluripotency. Prime editing serves as a powerful genetic editing alternative to the more traditional CRISPR/Cas9 method, as prime editing is safer and more reliable. Here, we report the successful reprogramming of fibroblasts into iPSCs and cloning of the pegRNAs required for prime editing. We then attempted to use prime editing to both induce and correct this mutation. The efficiency of the correction was higher than that of the induction; however, it was still very low. We are working to optimize the prime editing of the iPSCs via new and improved prime editing methods. Successful demonstration of prime editing in iPSCs holds great potential for not only studying CF in models, but for a wide range of genetic disorders in both research and clinical practice to help improve the lives of these patients.

*Development of Readily Accessible Machine Learning Diagnostics for Early Stage Mild TBI using Eye Tracking Methods*

***Ashley Malkin*** *Greenwich High School* *Greenwich, CT*

***Awards:*** 4th Place Grand Award in Translational and Medical Science ($500)

***ISEF Abstract:***

1.5 million Americans suffer a traumatic brain injury every year. Without proper rest after even a mild concussion, repeated injuries to the brain build up and can lead to complications such as Chronic Traumatic Encephalopathy (CTE) later in life. Yet, especially in high school athletes, it is estimated that over 50% of concussions go undetected, as coaches/parents lack adequate training to make on-field diagnoses, and subsequent visits to medical professionals are often overlooked. A diagnostic device that can rapidly and easily diagnose concussions, on-site and in real-time, is needed. This research develops a portable, rapid eye tracking exam for concussion diagnosis, based on two eye-movement metrics, fixation time and pupil dilation. Each portion of the exam is based on a unique neural network written in Python with Tensorflow-based architecture, which identifies the subtle signs of a concussion that may be missed by human observers. Both models are trained on data from Wetzel, et. al., using fixation and pupil dilation datasets with 3058 and 1112 data points, respectively. The fixation model examines 11 metrics relating to eye fixation, saccades, and gaze velocity, while the pupil dilation model uses 4 metrics relating to pupil area. After training, the fixation model reached 93% accuracy and the pupil dilation model reached 80% accuracy, much higher than the 50% rate of existing concussion diagnostic methods. In use, an athlete who suffered a brain injury will take this new 2-minute eye tracking test, on the field-of-play, using a laptop/eye-tracker. A concussion diagnosis is given immediately after.

*Development of a Home N-Terminal Pro-Brain Natriuretic Peptide Assay for the Diagnosis of Congestive Heart Failure*

**Maya Chiravuri** *Choate Rosemary Hall* *Wallingford, CT*

**Awards:** 4th Place Grand Award in Translational and Medical Science ($500)

**Abstract:**

Congestive heart failure (CHF) affects millions of patients and is associated with a high mortality rate. Early detection and treatment can improve outcomes and avoid hospitalization, but it is often difficult to tell if symptoms are specifically due to CHF or another cause. N. Terminal Pro-Brain Natriuretic Peptide (NT-proBNP) is an excellent biomarker for CHF. The lateral flow assay (LFA) is a technology that can be adapted for use as a home test. The hypothesis is that an LFA can qualitatively detect NT-proBNP and ultimately be used to create a home CHF testing kit. A NT-proBNP assay was created using a universal LFA kit with the appropriate capture and detection antibodies. Recombinant NT-proBNP was used to test the assay at varying concentrations. NT-proBNP was readily detectable using this system and the visual bands on the LFA strips were quantified using an optical densitometry protocol. After optimization of the reagents, NT-proBNP levels down to 5,000 pg/mL were detectable. This puts the test in the range of NT-proBNP levels that have been described for patients hospitalized with CHF. This test was repeated with purchased human serum spiked with recombinant NT-proBNP and showed detection at similar concentrations. Ultimately the goal is to create a simple visual test and so the LFA strips were shown to 20 blinded volunteers confirming detection of NT-proBNP at levels of 5,000 pg/mL and higher. These results show that a home NT-proBNP test is feasible and could be used for early detection and treatment of CHF

*Implementing Nontoxic Modified Magnetic Metal Oxide Nanoparticle Enhanced Biochar Filtration for the Efficient Removal of Emerging Contaminants in an Aqueous Solution*

***Snigtha Mohanra*** Engineering and Science Magnet New Haven, CT

**ISEF Abstract:**

Many water sources contain emerging contaminants that currently lack sufficient regulation but lead to debilitating health and environmental effects, yet current standard water treatment processes cannot remove most such contaminants from water. This project researches the usage of doped biochar enhanced by the addition of metal oxide nanoparticles for removing specific emerging contaminants, namely pharmaceuticals, pesticides, microplastics, and oil, from water. Biomass content derived from either coconut shell or rice husk, both of which are abundant natural scrap materials, was individually pyrolyzed into biochar. Further, each biochar sample was separately tested with the enhancement of synthesized Fe304 and Mn02 nanoparticles. With biochar's advantageous absorption properties further enhanced by the increased surface area available for sequestration of contaminants through the addition of metal oxide nanoparticles, it was expected that an efficient contaminant removal method would be devised. Pharmaceutical and pesticide removals were measured using liquid chromatography mass spectrometry (LC-MS), microplastic removal was measured using digital WiFi light microscopy, and oil removal was measured using light spectrometry. Coconut shell biochar enhanced by the addition of Fe304 nanoparticles was the most effective design tested, removing 65.69% of acetaminophen and 50.09% of ibuprofen (pharmaceuticals), 61.05% of glyphosate (pesticide), 56.26 % of PETE microplastics, and approximately 71.83% of gasoline oil. This demonstrates considerably efficient removal through this inexpensive, environmentally-friendly, easily-implementable, and sustainable method. A prototype of a standard filter with compartments for sand and biochar filtration was developed using 3D modeling software and will be further refined for real-world Implementation.

*Design of a Novel, Dual-Functioning Tissue Plasminogen Activator and Anticoagulant Therapeutic for Rapid Ischemic Stroke Treatment*

***Ambika Grover*** Greenwich High School Greenwich, CT

**Awards:** 1st Place Grand Award in Biomedical and Health Science ($5,000) and ($1,000 for both her school and CSEF)

**ISEF Abstract:**

Stroke is the second leading cause of death worldwide, with 15 million people suffering from its debilitating effects each year. 87% of strokes are ischemic, where an artery narrows or becomes wholly blocked due to a thrombus. Tissue Plasminogen Activator (PA) iS a protein that activates the conversion of plasminogen to plasmin, an enzyme responsible for the breakdown of clots. While tPA is the leading emergency treatment for ischemic stroke, it possesses several shortcomings, including a non-localized nature and increased risk of hemorrhage. Similarly, no existing therapeutic candidates have both dissolved the thrombus and simultaneously deterred the coagulation cascade, the process by which a thrombus is actively built. Herein, a rapid, clot-specific, and dual-functioning microbubble system, utilizing tPA and anticoagulant Dicumarol, was engineered to create a more effective emergency therapeutic. To begin, fabrication of the magnetic interior nanoparticles was completed by synthesizing Dicumarol-Carboxylic-acid coated Fe;O nanoparticles. Next,
Si02-tPA was fabricated, and added to complete the subsequent encapsulation layer of the nanoparticles. Finally, peptides CGSSSGRGDSPA and GRGD were conjugated to the nanoparticle's surface, to promote selectivity for platelets and fibrin, and ensure clot-specific adhesion and release. A vertical gel channel-system, composed of fibrinogen, thrombin, and agarose, was developed to validate clot dissolution function of the new therapeutic, which was 2x that of tPA alone. As a final verification component, in-vitro clots were created using
~100ul of whole-blood, in a 96-wellplate. Successful therapeutic-induced dissolution of thrombus was observed via increased absorbance throughout the visible spectral region, due to liquification of the clot.

## Accompanying Team for Regeneron ISEF

Dr. Mathieu

Freeman CSEF

Board Member

Research Director, Greens Farms Academy, Westport

Dr. Frank LaBanka

CSEF Fair Director

Principal, Westside Middle School Academy Magnet, Danbury

Catherine

Piscitelli

Research

Director

Amity Regional High School, Woodbridge

### University of Connecticut Academic Excellence Scholarship

*Design of a Wearable, Skin-Specific UVB Sensor for Instantaneous Detection of Skin-Damaging Radiation*

**Yurika Sakai** Grade 11 Greenwich, CT

### University of Hartford Scholarships

*Creating a Frequency-Emitting Program to Enhance Mosquito Capture and Surveillance Efforts in Response to the Spread of Mosquito-Borne Diseases*

**Daniel Liu** Grade 11 Woodbridge, CT

**Award:** Excellence in Science or Math ($30,000)

*Assessing the Efficacy of Botanical Repellents Against Blacklegged Ticks*

**Ava Anderson** Grade 11 Ridgefield, CT

**Award:** Excellence in Science or Math ($30,000)

*Increasing Elasticity, Durability, and Function of Wearable PANI-sence pH Health Monitors for Superhydrophobic, Textile Framework*

**Madeline Minichetti** Grade 11 Greenwich, CT

**Award:** Excellence in Engineering or Technology ($30,000)

*Remediation of Fire-Foam PFAs From Contaminated water Using an Eco-Friendly and Reusable Water Filtration System*

**Adam Kleshchelski** Grade 11 Cos-Cob, CT

**Award:** Excellence in Engineering or Technology ($30,000)

### University of New Haven Scholarships

*Biodegradation of Polystyrene by Bacteria Found in The Gut Tenebrio Molitar Larvae*

**Tori Simmons** Grade 11 Norwich, CT

**Sara Smith** Grade 11 New London, CT

**Award:** 4 Year Scholarship ($96,000)

*Flexibility with Flying: Replicable and Attachable Aerial Robot with Multi-Degree-of-Freedom* **Siyi Lu** Grade 11 Kent, CT

**Award:** 4 Year Scholarship ($96,000)

*A New Hybrid: Harnessing the Power of Friction*

**Michael Neiss** Grade 11 Guilford, CT

**Award:** 4 Year Scholarship ($96,000)

### Quinnipiac University Scholarships

Middle School:

*Wall-Climbing Soft Robot*

**Thomas Gerlach** Grade 7 Ellington, CT

**Award:** 4 Year Scholarship ($30,000)

High School:

*JARVITS: A Novel Deep Learning IoT Traffic Control System for Real-Time Detection and Signal Optimization*

**Ryan Kim** Grade 11 New Haven, CT

**Award:** 4 Year Scholarship ($30,000)

**Winning Projects of Regular Categories**

| Awd | CSF - Life Sciences | | | | | CSF - Physical Sciences | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LT | L7 | L8 | LS | LST | PT | P7 | P8 | PS | PST |
| 1 | 1007 | 2006 | 2515 | 3030 | 3515 | 4003 | 5011 | 5525 | 6082 | 6502 |
| 2 | 1012 | 2019 | 2509 | 3009 | 3507 | 4014 | 5007 | 5510 | 6054 | 6505 |
| 3 | 1005 | 2012 | 2504 | 3117 | 3522 | 4013 | 5009 | 5514 | 6042 | 6514 |
| 4 | | 2010 | 2516 | 3038 | | | 5008 | 5505 | 6080 | |
| 5 | | 2016 | 2503 | 3091 | | | 5005 | 5522 | 6071 | |
| M | 1003 | 2018 | 2517 | 3002 | 3509 | 4007 | | 5508 | 6003 | |
| M | 1004 | | | 3020 | 3512 | 4009 | | 5509 | 6021 | |
| M | 1016 | | | 3054 | 3519 | 4010 | | | 6027 | |
| M | | | | 3068 | 3527 | | | | 6028 | |
| M | | | | 3078 | | | | | 6031 | |
| M | | | | 3097 | | | | | 6039 | |
| M | | | | 3101 | | | | | 6057 | |
| M | | | | 3106 | | | | | 6058 | |
| M | | | | 3110 | | | | | 6060 | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |

**Winning Projects of Special Categories**

| Awd | Energy | | Petit Foundation | | Envir Science | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Middle | High | Middle | High | Middle | High | | | | |
| 1 | 5508 | 6063 | 2509 | 3005 | 2019 | 3061 | | | | |
| 2 | 5008 | 6013 | 5505 | 6003 | 5525 | 6039 | | | | |
| 3 | 5506 | 6065 | 5509 | 6091 | 2509 | 6027 | | | | |
| M | 5516 | 6001 | 1003 | 3002 | 4010 | 3002 | | | | |
| M | | 6504 | 2012 | 3008 | 4013 | 3007 | | | | |
| M | | | 4002 | 3041 | 4014 | 3008 | | | | |
| M | | | 5011 | 6011 | | 3021 | | | | |
| M | | | 5514 | 6081 | | 3082 | | | | |
| M | | | | | | 3502 | | | | |
| M | | | | | | 3507 | | | | |
| M | | | | | | 3512 | | | | |
| M | | | | | | 6042 | | | | |
| M | | | | | | 6080 | | | | |
| M | | | | | | 6082 | | | | |
| M | | | | | | | | | | |

| Awd | Biotechnology | | | Urban School | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7th | 8th | 9 - 12th | Middle | High | | | | | |
| 1 | 1003 | 2515 | 3117 | 2006 | 3009 | | | | | |
| 2 | 2019 | 5514 | 3030 | 5514 | 3002 | | | | | |
| 3 | 2010 | 4010 | 3025 | 5009 | 6067 | | | | | |
| 4 | 1016 | 2512 | 3091 | 5505 | 6505 | | | | | |
| 5 | 2012 | 4013 | 3063 | 2010 | 3006 | | | | | |
| M | 1001 | 1002 | 3071 | 1005 | 3514 | | | | | |
| M | 1009 | 1014 | 3096 | 1017 | 6009 | | | | | |
| M | 2003 | 5504 | 3101 | 2001 | 6063 | | | | | |
| M | 2014 | 5510 | 3107 | 4006 | 6064 | | | | | |
| M | 2016 | 5515 | 6066 | 4013 | 6072 | | | | | |
| M | | | | 5006 | | | | | | |
| M | | | | 5510 | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |

**Winning Projects of Special Categories**

| Awd | Energy | | Petit Foundation | | Envir Science | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Middle | High | Middle | High | Middle | High | | | | |
| 1 | 5508 | 6063 | 2509 | 3005 | 2019 | 3061 | | | | |
| 2 | 5008 | 6013 | 5505 | 6003 | 5525 | 6039 | | | | |
| 3 | 5506 | 6065 | 5509 | 6091 | 2509 | 6027 | | | | |
| M | 5516 | 6001 | 1003 | 3002 | 4010 | 3002 | | | | |
| M | | 6504 | 2012 | 3008 | 4013 | 3007 | | | | |
| M | | | 4002 | 3041 | 4014 | 3008 | | | | |
| M | | | 5011 | 6011 | | 3021 | | | | |
| M | | | 5514 | 6081 | | 3082 | | | | |
| M | | | | | | 3502 | | | | |
| M | | | | | | 3507 | | | | |
| M | | | | | | 3512 | | | | |
| M | | | | | | 6042 | | | | |
| M | | | | | | 6080 | | | | |
| M | | | | | | 6082 | | | | |
| M | | | | | | | | | | |

| Awd | Biotechnology | | | Urban School | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7th | 8th | 9 - 12th | Middle | High | | | | | |
| 1 | 1003 | 2515 | 3117 | 2006 | 3009 | | | | | |
| 2 | 2019 | 5514 | 3030 | 5514 | 3002 | | | | | |
| 3 | 2010 | 4010 | 3025 | 5009 | 6067 | | | | | |
| 4 | 1016 | 2512 | 3091 | 5505 | 6505 | | | | | |
| 5 | 2012 | 4013 | 3063 | 2010 | 3006 | | | | | |
| M | 1001 | 1002 | 3071 | 1005 | 3514 | | | | | |
| M | 1009 | 1014 | 3096 | 1017 | 6009 | | | | | |
| M | 2003 | 5504 | 3101 | 2001 | 6063 | | | | | |
| M | 2014 | 5510 | 3107 | 4006 | 6064 | | | | | |
| M | 2016 | 5515 | 6066 | 4013 | 6072 | | | | | |
| M | | | | 5006 | | | | | | |
| M | | | | 5510 | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |

**Winning Projects of Special Categories**

| Awd | Energy | | Petit Foundation | | Envir Science | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Middle | High | Middle | High | Middle | High | | | | |
| 1 | 5508 | 6063 | 2509 | 3005 | 2019 | 3061 | | | | |
| 2 | 5008 | 6013 | 5505 | 6003 | 5525 | 6039 | | | | |
| 3 | 5506 | 6065 | 5509 | 6091 | 2509 | 6027 | | | | |
| M | 5516 | 6001 | 1003 | 3002 | 4010 | 3002 | | | | |
| M | | 6504 | 2012 | 3008 | 4013 | 3007 | | | | |
| M | | | 4002 | 3041 | 4014 | 3008 | | | | |
| M | | | 5011 | 6011 | | 3021 | | | | |
| M | | | 5514 | 6081 | | 3082 | | | | |
| M | | | | | | 3502 | | | | |
| M | | | | | | 3507 | | | | |
| M | | | | | | 3512 | | | | |
| M | | | | | | 6042 | | | | |
| M | | | | | | 6080 | | | | |
| M | | | | | | 6082 | | | | |
| M | | | | | | | | | | |

| Awd | Biotechnology | | | Urban School | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7th | 8th | 9 - 12th | Middle | High | | | | | |
| 1 | 1003 | 2515 | 3117 | 2006 | 3009 | | | | | |
| 2 | 2019 | 5514 | 3030 | 5514 | 3002 | | | | | |
| 3 | 2010 | 4010 | 3025 | 5009 | 6067 | | | | | |
| 4 | 1016 | 2512 | 3091 | 5505 | 6505 | | | | | |
| 5 | 2012 | 4013 | 3063 | 2010 | 3006 | | | | | |
| M | 1001 | 1002 | 3071 | 1005 | 3514 | | | | | |
| M | 1009 | 1014 | 3096 | 1017 | 6009 | | | | | |
| M | 2003 | 5504 | 3101 | 2001 | 6063 | | | | | |
| M | 2014 | 5510 | 3107 | 4006 | 6064 | | | | | |
| M | 2016 | 5515 | 6066 | 4013 | 6072 | | | | | |
| M | | | | 5006 | | | | | | |
| M | | | | 5510 | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |
| M | | | | | | | | | | |

| UTC | | CSTA | CASE | QU | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Middle | High | Middle | High | Middle | High | | | | |
| 4003 | 6013 | 2515 | 3009 | 5007 | 6049 | | | | |
| 4006 | 6032 | 5525 | 3030 | | | | | | |
| 5505 | 6049 | | 6082 | | | | | | |
| | 6071 | | | | | | | | |
| | 6505 | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## Student/Project Statistics

**Projects**

| Project Category | JrTm | 7th | 8th | Sr | SrTm | Total | % |
|---|---|---|---|---|---|---|---|
| Life Sciences | 16 | 16 | 13 | 102 | 25 | 172 | 56% |
| Physical Sciences | 14 | 11 | 23 | 77 | 9 | 134 | 44% |
| **Total** | 30 | 27 | 36 | 179 | 34 | 306 | |
| Percent | 10% | 9% | 12% | 58% | 11% | 100% | |

| Project Grade | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---|---|---|---|---|---|---|---|
| Life Sciences | 23 | 22 | 14 | 16 | 56 | 41 | 172 |
| Physical Sciences | 14 | 33 | 5 | 14 | 30 | 37 | 133 |
| **Total** | 37 | 55 | 19 | 30 | 86 | 78 | 305 |
| Percent | 12% | 18% | 6% | 10% | 28% | 25% | 100% |

| Project Gender | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---|---|---|---|---|---|---|---|
| Male | 16 | 26 | 7 | 12 | 45 | 35 | 141 |
| Female | 20 | 29 | 12 | 17 | 40 | 42 | 160 |
| Not Given | 1 | 0 | 0 | 1 | 1 | 1 | 4 |
| Total | 37 | 55 | 19 | 30 | 86 | 78 | 305 |

**Students**

| Student Category | JrTm | 7th | 8th | Sr | SrTm | Total | % |
|---|---|---|---|---|---|---|---|
| Life Sciences | 37 | 16 | 13 | 102 | 53 | 221 | 58% |
| Physical Sciences | 31 | 11 | 23 | 77 | 20 | 162 | 42% |
| **Total** | 68 | 27 | 36 | 179 | 73 | 383 | |
| Percent | 18% | 7% | 9% | 47% | 19% | 100% | |

| Student Grade | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---|---|---|---|---|---|---|---|
| Life Sciences | 32 | 34 | 18 | 21 | 72 | 44 | 221 |
| Physical Sciences | 17 | 48 | 5 | 17 | 34 | 41 | 162 |
| **Total** | 49 | 82 | 23 | 38 | 106 | 85 | 383 |
| Percent | 13% | 21% | 6% | 10% | 28% | 22% | 100% |

| Student Gender | 7 | 8 | 9 | 10 | 11 | 12 | Total |
|---|---|---|---|---|---|---|---|
| Male | 21 | 34 | 8 | 18 | 58 | 36 | 175 |
| Female | 26 | 47 | 14 | 19 | 46 | 48 | 200 |
| Not Given | 2 | 1 | 1 | 1 | 2 | 1 | 8 |
| **Total** | 49 | 82 | 23 | 38 | 106 | 85 | 383 |

**Summary**

| Category | Students | | | Student Gender | | | Schools | |
|---|---|---|---|---|---|---|---|---|
| | Jr | Sr | Total | Male | Fem | Total | Jr | Sr |
| Life Sciences | 66 | 155 | 221 | 83 | 132 | 221 | | |
| Physical Sciences | 65 | 97 | 162 | 92 | 68 | 162 | | |
| **Total** | 131 | 252 | 383 | 175 | 200 | 383 | | |
| Percent | 34% | 66% | | 46% | 52% | | | |

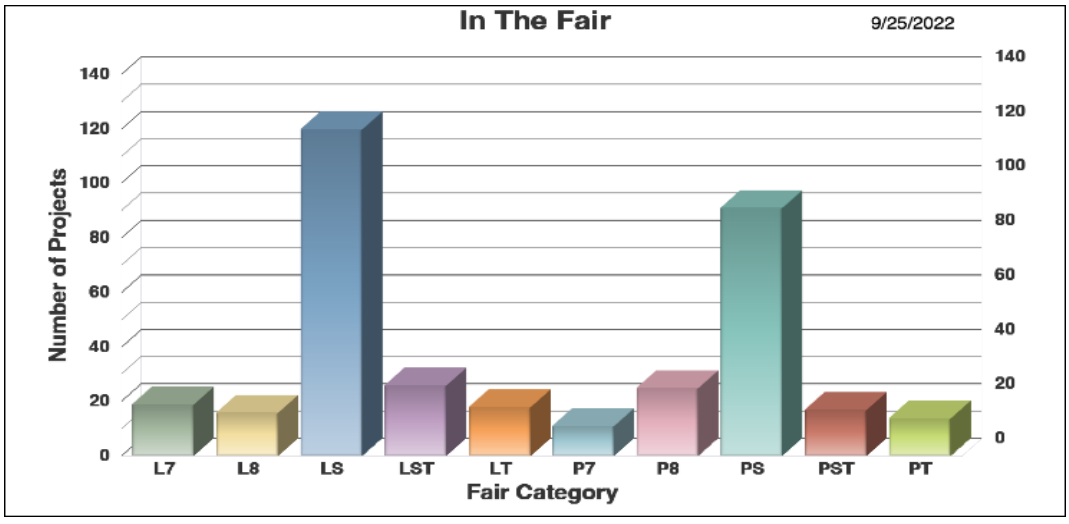
| Category | Projects | | | Individual Projects | | | Team Projects | | |
|---|---|---|---|---|---|---|---|---|---|
| | Jr | Sr | Total | Jr | Sr | Total | Jr | Sr | Total |
| Life Sciences | 45 | 127 | 172 | 29 | 102 | 131 | 16 | 25 | 41 |
| Physical Sciences | 48 | 86 | 134 | 34 | 77 | 111 | 14 | 9 | 23 |
| **Total** | 93 | 213 | 306 | 63 | 179 | 242 | 30 | 34 | 64 |
| Percent | 30% | 70% | | 26% | 74% | | 47% | 53% | |

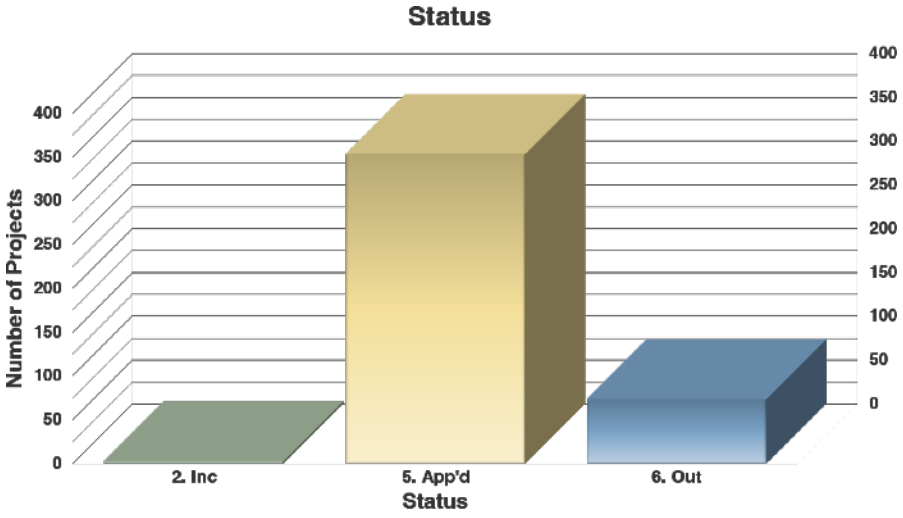
**Awards**

| Projects --> | Regular Awards | | | Special Awards | | | All Awards | | |
|---|---|---|---|---|---|---|---|---|---|
| **Category** | Jr | Sr | Total | Jr | Sr | Total | Jr | Sr | Total |
| Life Sciences | 28 | 39 | 67 | 19 | 28 | 47 | 32 | 50 | 82 |
| Physical Sciences | 28 | 47 | 75 | 24 | 44 | 68 | 34 | 61 | 95 |
| **Total** | 56 | 86 | 142 | 43 | 72 | 115 | 66 | 111 | 177 |
| Percent | 39% | 61% | | 37% | 63% | | 37% | 63% | |

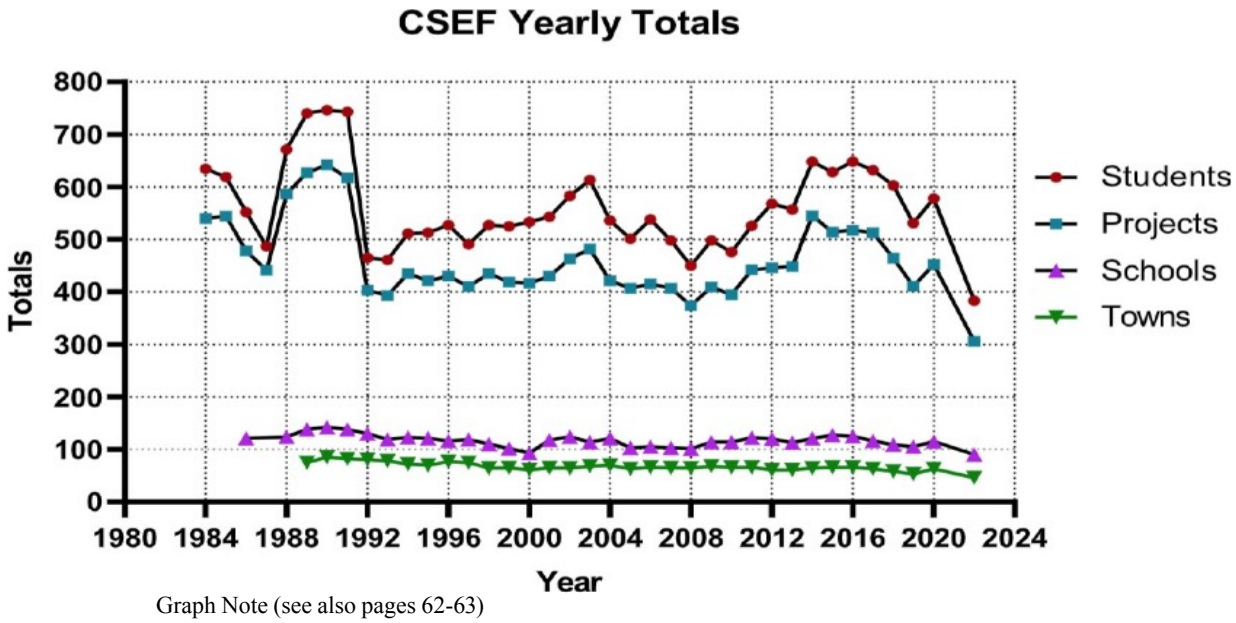
**Honors**

| Category | Hon | Projects | | | | Students | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Jr | Sr | Total | % | Jr | Sr | Total | % |
| Life Sciences | 1 | 18 | 21 | 39 | | 26 | 29 | 55 | |
| Physical Sciences | | 18 | 17 | 35 | | 26 | 21 | 47 | |
| **Sub Total** | | 36 | 38 | 74 | 24% | 52 | 50 | 102 | 27% |
| Life Sciences | 2 | 17 | 63 | 80 | | 25 | 73 | 98 | |
| Physical Sciences | | 16 | 42 | 58 | | 21 | 45 | 66 | |
| **Sub Total** | | 33 | 105 | 138 | 45% | 46 | 118 | 164 | 43% |
| Life Sciences | 3 | 10 | 43 | 53 | | 15 | 53 | 68 | |
| Physical Sciences | | 14 | 27 | 41 | | 18 | 31 | 49 | |
| **Sub Total** | | 24 | 70 | 94 | 31% | 33 | 84 | 117 | 31% |
| **Total** | | | | **306** | | | | **383** | |






This graph shows the number of projects that were eventually entered into the fair as well as those that were not accepted based on SRC requirements, incomplete paperwork, or rules violations




Graph Note (see also pages 62-63)

1988 - Junior Individuals (LJ, PJ) were separated into L7, L8 and P7, P8 to reduce size of categories for judging prcess. 1991- Senior Teams (LST, PST) were added to the fair categories.

1992 - Maximum reservations for middle schools was changed from 6 to 3 projects per school.

1993 - Maximum reservations for middle schools was changed to 4 projects per school at request of teachers.

2014 - Maximum reservations for middle schools was changed to 6 projects and high schools to 15 projects.

2016 - Maximum reservations for middle schools was changed to 10 projects and high schools to 15 projects.

# Historical Data on CSEF Fair Location and Project Information

| Year | Location | # Projects | # Students | # Towns | # Schools |
|---|---|---|---|---|---|
| 1984 | University of Connecticut, Stores | 540 | 634 | NA | NA |
| 1985 | Quinnipiac College, Hamden | 544 | 619 | NA | NA |
| 1986 | Quinnipiac College, Hamden | 478 | 552 | 121 | NA |
| 1987 | Connecticut College, New London | 441 | 487 | NA | NA |
| 1988 | Connecticut College, New London | 587 | 671 | 124 | NA |
| 1989 | Trinity College, Hartford | 627 | 740 | 138 | 75 |
| 1990 | Trinity College, Hartford | 642 | 746 | 142 | 85 |
| 1991 | Quinnipiac College, Hamden | 617 | 743 | 138 | 82 |
| 1992 | Quinnipiac College, Hamden | 403 | 465 | 130 | 81 |
| 1993 | U.S. Coast Guard Academy, New London | 393 | 461 | 119 | 78 |
| 1994 | U.S. Coast Guard Academy, New London | 435 | 511 | 123 | 72 |
| 1995 | University of Connecticut, Stores | 421 | 513 | 121 | 70 |
| 1996 | Connecticut College, New London | 430 | 527 | 116 | 77 |
| 1997 | Connecticut College, New London | 410 | 491 | 119 | 75 |
| 1998 | Quinnipiac College, Hamden | 435 | 527 | 110 | 64 |
| 1999 | Quinnipiac College, Hamden | 419 | 525 | 102 | 65 |
| 2000 | Quinnipiac College, Hamden | 416 | 533 | 93 | 61 |
| 2001 | Quinnialac University, Hamden | 430 | 543 | 118 | 65 |
| 2002 | Quinniaiac University, Hamden | 463 | 583 | 124 | 64 |
| 2003 | Quinniaiac University, Hamden | 482 | 613 | 114 | 68 |
| 2004 | Quinniaiac University, Hamden | 421 | 536 | 121 | 70 |
| 2005 | Quinniaiac University, Hamden | 407 | 501 | 103 | 63 |
| 2006 | Quinniaiac University, Hamden | 415 | 538 | 105 | 66 |
| 2007 | Quinniaiac University, Hamden | 407 | 498 | 103 | 65 |
| 2008 | Quinniaiac University, Hamden | 374 | 450 | 101 | 64 |
| 2009 | Quinniaiac University, Hamden | 409 | 498 | 114 | 68 |
| 2010 | Quinniaiac University, Hamden | 395 | 476 | 114 | 66 |
| 2011 | Quinniaiac University, Hamden | 442 | 526 | 122 | 66 |
| 2012 | Quinnialac University, Hamden | 446 | 568 | 120 | 61 |
| 2013 | Quinniaiac University, Hamden | 448 | 557 | 113 | 61 |
| 2014 | Quinniaiac University, Hamden | 545 | 648 | 121 | 64 |
| 2015 | Quinniaiac University, Hamden | 514 | 628 | 127 | 66 |
| 2016 | Quinniaiac University, Hamden | 517 | 648 | 125 | 66 |
| 2017 | Quinniaiac University, Hamden | 513 | 632 | 116 | 63 |
| 2018 | Quinniaiac University, Hamden | 464 | 603 | 109 | 58 |
| 2019 | Quinniaiac University, Hamden | 411 | 578 | 103 | 53 |
| 2020 | Virtual Fair | 452 | 578 | 115 | 63 |
| 2021 | Virtual Fair | NA | NA | NA | NA |
| 2022 | Virtual Fair | 306 | 383 | 90 | 46 |

**Project Category Totals by Year**

| Year | LT | L7 | LJ | L8 | LS | LST | PT | P7 | PJ | P8 | PS | PST | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1984 | 58 | - | 137 | - | 74 | -- | 36 | - | 162 | - | 73 | -- | 540 |
| 1985 | 41 | - | 155 | - | 68 | -- | 34 | - | 175 | - | 71 | -- | 544 |
| 1986 | 36 | - | 125 | - | 60 | -- | 38 | - | 152 | - | 67 | -- | 478 |
| 1987 | 26 | - | 136 | - | 63 | -- | 20 | - | 157 | - | 39 | -- | 441 |
| 1988 | 37 | 70 | | 89 | 47 | -- | 47 | 94 | | 144 | 59 | -- | 587 |
| 1989 | 56 | 76 | | 93 | 64 | -- | 57 | 91 | | 121 | 69 | -- | 627 |
| 1990 | 63 | 105 | | 89 | 83 | -- | 41 | 78 | | 102 | 81 | -- | 642 |
| 1991 | 56 | 80 | | 87 | 75 | 6 | 56 | 67 | | 110 | 74 | 6 | 617 |
| 1992 | 32 | 35 | | 60 | 79 | 7 | 23 | 45 | | 60 | 62 | 0 | 403 |
| 1993 | 37 | 53 | | 58 | 47 | 4 | 23 | 45 | | 74 | 49 | 3 | 393 |
| 1994 | 31 | 40 | | 70 | 64 | 14 | 25 | 49 | | 88 | 51 | 3 | 435 |
| 1995 | 34 | 46 | | 57 | 60 | 11 | 37 | 53 | | 68 | 50 | 5 | 421 |
| 1996 | 40 | 42 | | 64 | 53 | 14 | 37 | 44 | | 76 | 54 | 6 | 430 |
| 1997 | 35 | 51 | | 49 | 60 | 11 | 32 | 41 | | 80 | 49 | 2 | 410 |
| 1998 | 35 | 58 | | 61 | 56 | 15 | 30 | 58 | | 54 | 58 | 10 | 435 |
| 1999 | 40 | 46 | | 39 | 63 | 18 | 39 | 49 | | 63 | 58 | 4 | 419 |
| 2000 | 46 | 46 | | 44 | 62 | 11 | 43 | 42 | | 59 | 50 | 13 | 416 |
| 2001 | 36 | 47 | | 56 | 78 | 7 | 54 | 38 | | 56 | 45 | 13 | 430 |
| 2002 | 43 | 44 | | 63 | 74 | 27 | 36 | 47 | | 59 | 58 | 12 | 463 |
| 2003 | 39 | 54 | | 57 | 59 | 32 | 42 | 44 | | 78 | 64 | 13 | 482 |
| 2004 | 32 | 40 | | 44 | 67 | 16 | 42 | 38 | | 65 | 58 | 19 | 421 |
| 2005 | 21 | 35 | | 48 | 54 | 24 | 35 | 51 | | 72 | 56 | 11 | 407 |
| 2006 | 22 | 25 | | 46 | 48 | 29 | 33 | 47 | | 76 | 63 | 26 | 415 |
| 2007 | 20 | 38 | | 28 | 66 | 16 | 38 | 48 | | 65 | 76 | 12 | 407 |
| 2008 | 19 | 38 | | 46 | 59 | 29 | 14 | 47 | | 51 | 61 | 10 | 374 |
| 2009 | 24 | 40 | | 35 | 83 | 18 | 27 | 53 | | 44 | 69 | 16 | 409 |
| 2010 | 19 | 30 | | 36 | 75 | 16 | 23 | 52 | | 61 | 65 | 18 | 395 |
| 2011 | 22 | 31 | | 42 | 85 | 11 | 25 | 60 | | 62 | 86 | 18 | 442 |
| 2012 | 27 | 34 | | 43 | 92 | 20 | 34 | 44 | | 54 | 74 | 24 | 446 |
| 2013 | 20 | 31 | | 38 | 89 | 14 | 44 | 53 | | 58 | 86 | 15 | 448 |
| 2014 | 17 | 45 | | 43 | 144 | 17 | 29 | 55 | | 65 | 109 | 21 | 545 |
| 2015 | 25 | 41 | | 43 | 118 | 25 | 31 | 62 | | 64 | 91 | 14 | 514 |
| 2016 | 32 | 63 | | 53 | 105 | 22 | 38 | 39 | | 68 | 71 | 26 | 517 |
| 2017 | 17 | 34 | | 37 | 132 | 36 | 27 | 38 | | 71 | 97 | 24 | 513 |
| 2018 | 15 | 30 | | 35 | 101 | 44 | 28 | 38 | | 54 | 92 | 27 | 464 |
| 2022 | 16 | 16 | | 13 | 102 | 25 | 14 | 11 | | 23 | 77 | 9 | 385 |

| Town | School | Reserved | | | In Fair | | | | Type | Path | UC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type = 1= Middle School; 2 = High or Middle School | | MS | HS | Total | Project | Students | MS | HS | | | |
| Ansonia | Assumption School | 2 | 0 | 2 | ** | ** | ** | ** | 1 | | |
| Ansonia | Emmett O'Brien Technical | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Avon | Avon Old Farms School | 0 | 1 | 1 | 2 | 2 | 0 | 2 | 2 | | |
| Avon | Farmington Valley | 3 | 0 | 3 | 3 | 3 | 3 | 0 | 1 | | |
| Avon | Talcott Mountain | 6 | 0 | 6 | 6 | 6 | 6 | 0 | 1 | | |
| Bethel | Bethel High School | 0 | 2 | 2 | 1 | 1 | 0 | 1 | 2 | | |
| Bozrah | Fields Memorial School | 4 | 0 | 4 | 2 | 3 | 2 | 0 | 1 | | |
| Bridgeport | Bridgeport BOE | 10 | 15 | 25 | ** | ** | ** | ** | 2 | bp | x |
| Bridgeport | Bridgeport Regional | 0 | 10 | 10 | ** | ** | ** | ** | 2 | bp | x |
| Bridgeport | Bullard-Havens Technical | 0 | 3 | 3 | ** | ** | ** | ** | 2 | bp | x |
| Bridgeport | Park City Prep Charter | 10 | 0 | 10 | ** | ** | ** | ** | 1 | bp | x |
| Cheshire | Cheshire High School | 0 | 7 | 7 | 5 | 5 | 0 | 5 | 2 | | |
| Cheshire | Dodd Middle School | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | | |
| Cheshire | St. Bridget School | 2 | 0 | 2 | 2 | 2 | 2 | 0 | 1 | | |
| Clinton | THE MORGAN SCHOOL | 0 | 3 | 3 | 3 | 3 | 0 | 3 | 2 | | |
| Danbury | Danbury High School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | | x |
| Danbury | Henry Abbott Technical | 0 | 3 | 3 | 1 | 1 | 0 | 1 | 2 | GS | |
| Danbury | St. Gregory the Great | 8 | 0 | 8 | 8 | 11 | 8 | 0 | 1 | | |
| Danbury | Westside Middle School | 10 | 0 | 10 | 9 | 11 | 9 | 0 | 1 | | x |
| Danielson | H.H. Ellis Technical High | 0 | 3 | 3 | ** | ** | ** | ** | 2 | GS | |

| Town | School | Reserved | | | In Fair | | | | Type | Path | UC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type = 1= Middle School; 2 = High or Middle School | | MS | HS | Total | Project | Students | MS | HS | | | |
| Darien | Darien High School | 0 | 10 | 10 | 7 | 7 | 0 | 7 | 2 | | |
| East Lyme | East Lyme High School | 0 | 6 | 6 | 3 | 5 | 0 | 3 | 2 | | |
| Ellington | Ellington High School | 0 | 0 | 0 | ** | ** | ** | ** | 2 | | |
| Ellington | Ellington Middle School | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | | |
| Enfield | Chiaravalle Academy | 8 | 0 | 8 | 8 | 19 | 8 | 0 | 1 | | |
| Fairfield | Fairfield College | 0 | 4 | 4 | 1 | 1 | 0 | 1 | 2 | | |
| Farmington | Miss Porter's School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | | |
| Fishers Island | Fishers Island School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | | |
| Glastonbury | Glastonbury Public | 0 | 15 | 15 | 7 | 7 | 0 | 7 | 2 | GP | |
| Greenwich | Brunswick School | 0 | 15 | 15 | 13 | 23 | 0 | 13 | 2 | | |
| Greenwich | Central Middle School | 2 | 0 | 2 | ** | ** | ** | ** | 1 | | |
| Greenwich | Eastern Middle School | 2 | 0 | 2 | ** | ** | ** | ** | 1 | | |
| Greenwich | Greenwich Academy | 0 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | | |
| Greenwich | Greenwich Catholic | 4 | 0 | 4 | 4 | 6 | 4 | 0 | 1 | | |
| Greenwich | Greenwich Country Day | 0 | 7 | 7 | 6 | | | | 2 | | |
| Greenwich | Greenwich High School | 0 | 15 | 15 | 18 | 18 | 0 | 18 | 2 | | |
| Greenwich | Sacred Heart Greenwich | 0 | 15 | 15 | 7 | 10 | 0 | 7 | 2 | | |
| Greenwich | Western Middle School | 2 | 0 | 2 | ** | ** | ** | ** | 1 | | |
| Groton | Ella T. Grasso Technical | 0 | 3 | 3 | ** | ** | ** | ** | 1 | GS | |

| Town | School | Reserved | | | In Fair | | | | Type | Path | UC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type = 1= Middle School; 2 = High or Middle School | | MS | HS | Total | Project | Students | MS | HS | | | |
| Guilford | Guilford High School | 0 | 3 | 3 | 3 | 3 | 0 | 3 | 2 | | |
| Hamden | Eli Whitney Technical | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Hamden | Hamden Hall Country Day | 4 | 8 | 12 | 9 | 10 | 4 | 5 | 2 | | |
| Hamden | Sacred Heart Academy | 0 | 10 | 10 | 8 | 9 | 0 | 8 | 2 | | |
| Hartford | A.I. Prince Technical High | 0 | 0 | 0 | ** | ** | ** | ** | 2 | GS | |
| Hartford | Environmental Sciences Magnet School | 3 | 0 | 3 | 1 | 1 | 1 | 0 | 1 | | x |
| Hartford | Renzulli Academy | 4 | 0 | 4 | 4 | 5 | 4 | 0 | 1 | | x |
| Hartford | Watkinson School | 0 | 0 | 0 | ** | ** | ** | ** | 2 | | |
| Kensington | St. Paul School | 6 | 0 | 6 | 1 | 1 | 1 | 0 | 1 | | |
| Kent | Kent School | 0 | 4 | 4 | 3 | 3 | 0 | 3 | 2 | | |
| Manchester | Howell Cheney Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Manchester | Manchester High School | 0 | 7 | 7 | 5 | 5 | 0 | 5 | 2 | | x |
| Manchester | Saint James School | 3 | 0 | 3 | 1 | 1 | 1 | 0 | 1 | | |
| Meriden | H.C. Wilcox Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Middlebury | Westover School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | | |
| Middletown | / Vinal Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | x |
| Milford | Platt Technical High School | 0 | 3 | 3 | 1 | 3 | 0 | 1 | 2 | GS | |
| New Britain | E.C. Goodwin Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | GS | |
| New Canaan | St. Aloysius School | 4 | 0 | 4 | 2 | 2 | 2 | 0 | 1 | | |
| New Haven | Hopkins School | 0 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | | |

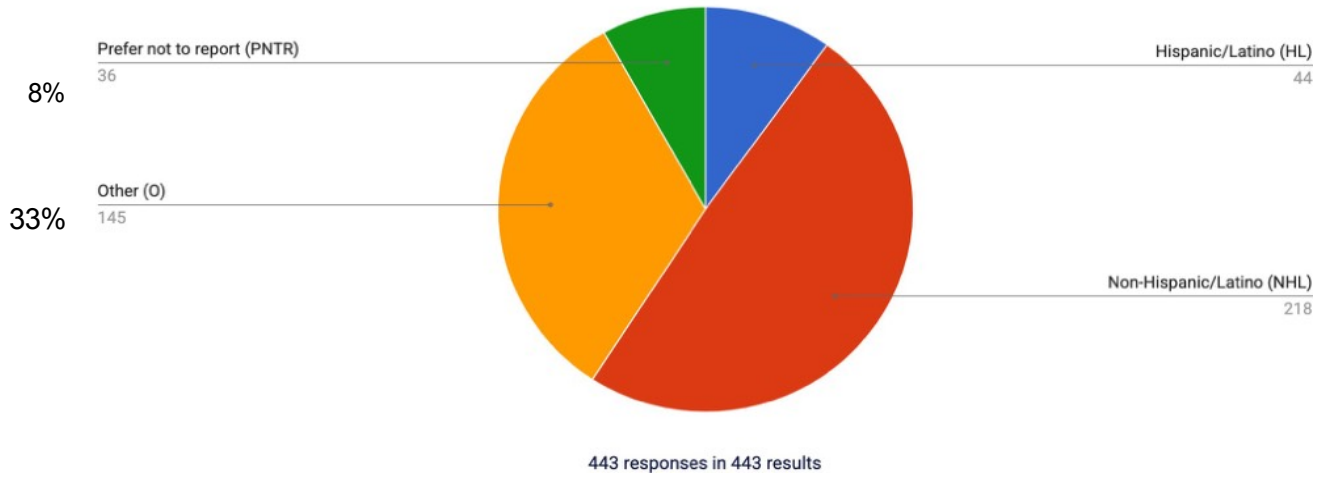
| Town | School | Reserved | | | In Fair | | | | Type | Path | UC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type = 1= Middle School; 2 = High or Middle School | | MS | HS | Total | Project | Students | MS | HS | | | |
| New Haven | Sound School | 0 | 4 | 4 | 3 | 3 | 0 | 3 | 2 | | |
| New Haven | Worthington Hooker Middle School | 0 | 0 | 0 | ** | ** | ** | ** | 1 | | x |
| New London | New London Public Schools | 0 | 10 | 10 | ** | ** | ** | ** | 2 | | x |
| New Milford | Canterbury School | 0 | 3 | 3 | 1 | 1 | 0 | 1 | 2 | | |
| Norwich | Norwich Technical High School | 0 | 8 | 8 | 5 | 10 | 0 | 5 | 2 | GS | |
| Pawcatuck | St. Michael School | 6 | 0 | 6 | 4 | 4 | 4 | 0 | 1 | | |
| Pomfret | Pomfret School | 0 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | | |
| Putnam | Putnam Science Academy | 0 | 1 | 1 | ** | ** | ** | ** | 2 | | |
| Redding | CT STEM Foundation | 0 | 7 | 7 | 4 | 4 | 0 | 4 | 2 | CS | |
| Redding | Joel Barlow High School | 0 | 1 | 1 | ** | ** | ** | ** | 2 | | |
| Ridgefield | Ridgefield High School | 0 | 15 | 15 | 6 | 6 | 0 | 6 | 2 | | |
| Rocky Hill | Rocky Hill High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Salisbury | Salisbury School | 0 | 1 | 1 | ** | ** | ** | ** | 2 | | |
| Sandy Hook | Newtown High School | 0 | 10 | 10 | 6 | 6 | 0 | 6 | 2 | | |
| Shelton | Shelton Intermediate School | 3 | 0 | 3 | 3 | 5 | 3 | 0 | 1 | | |
| Simsbury | Simsbury High School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | | |
| South Kent | South Kent School | 0 | 15 | 15 | ** | ** | ** | ** | 2 | | |
| South Windsor | South Windsor High School | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | | |
| Stamford | Bi-Cultural Hebrew Academy | 3 | 0 | 3 | 3 | 4 | 4 | 0 | 1 | | |
| Stamford | J.M. Wright Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |

| Town | School | Reserved | | | In Fair | | | | Type | Path | UC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Type = 1= Middle School; 2 = High or Middle School | | MS | HS | Total | Project | Students | MS | HS | | | |
| Stamford | King School | 0 | 9 | 9 | 8 | 8 | 0 | 8 | 2 | | |
| Stamford | Stamford High School | 0 | 1 | 1 | ** | ** | ** | ** | 2 | | |
| Storrs | E.O. Smith High School | 0 | 3 | 3 | 3 | 7 | 0 | 3 | 2 | | |
| Suffield | Suffield Academy | 0 | 2 | 2 | 1 | 1 | 0 | 1 | 2 | | |
| Suffield | Suffield High School | 1 | 12 | 13 | 4 | 4 | 0 | 4 | 2 | | |
| Suffield | Suffield Middle School | | | | 1 | 1 | 1 | 0 | 1 | | |
| Torrington | Oliver Wolcott Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Trumbull | Christian Heritage School | 3 | 3 | 6 | 6 | 6 | 3 | 3 | 2 | | |
| Wallingford | Choate Rosemary Hall | 0 | 6 | 6 | 7 | 7 | 0 | 7 | 2 | | |
| Waterbury | ACES at Chase | 10 | 0 | 10 | 5 | 12 | 5 | 0 | 1 | | |
| Waterbury | W.F. Kaynor Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Watertown | The Taft School | 0 | 1 | 1 | ** | ** | ** | ** | 2 | | |
| West Hartford | Mileva Maric Montessori | 0 | 0 | 0 | ** | ** | ** | ** | 1 | | |
| West Haven | Engineering and Science University Magnet | 6 | 8 | 14 | ** | ** | ** | ** | 2 | | |
| West Haven | Notre Dame High School | 0 | 10 | 10 | ** | ** | ** | ** | 2 | | |
| Westport | Greens Farms Academy | 0 | 8 | 8 | 4 | 4 | 0 | 4 | 2 | | |
| Westport | Staples High School | 0 | 10 | 10 | 4 | 4 | 0 | 4 | 2 | | |
| Wilton | Wilton Middlebrook school | 7 | 0 | 7 | 5 | 8 | 5 | 0 | 1 | | |
| Windham | Windham Technical High School | 0 | 3 | 3 | ** | ** | ** | ** | 2 | | |
| Windsor | Academy of Aerospace and Engineering | 0 | 15 | 15 | 6 | 11 | 0 | 6 | 2 | | x |
| Windsor | Madina Academy | 2 | 2 | 4 | 3 | 4 | 1 | 2 | 2 | | |
| Windsor | The Loomis Chaffee School | 0 | 7 | 7 | 6 | 6 | 0 | 6 | 2 | | |
| Woodbridge | Amity Regional High School | 0 | 15 | 15 | 15 | 16 | 0 | 15 | 2 | | |

Returning Students Presenting at CSEF

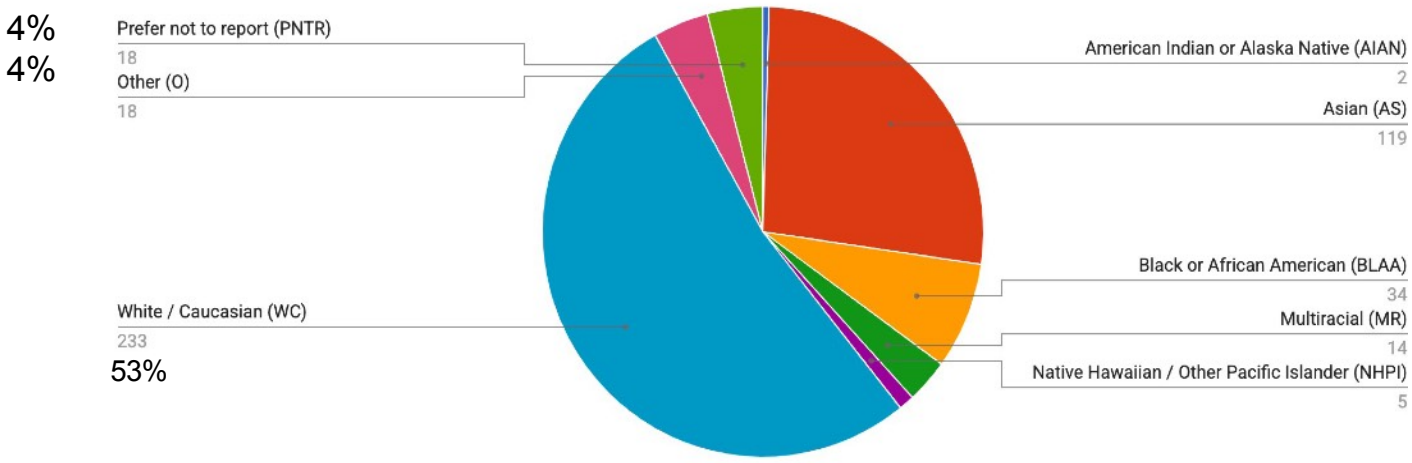
| 5 Year Students (2) | School | Town | Grade | Honors |
|---|---|---|---|---|
| David Boudreau | Fairfield Collage Prep. | Ansonia | 11 | 3 |
| Jack Shanks | Suffield High school | Suffield | 12 | 3 |
| **4 Year Students (4)** | | | | |
| Alman-Imran Anuar | Engineering and Science University Magnet | New Haven | 11 | * |
| Siddant Bhardwaj | Cheshire | Cheschire | 11 | 2 |
| Mehr Chhatre | Sacred Heart Academy | Hamden | 12 | 1 |
| Avie Vasantlal | Suffield High School | Suffield | 12 | * |
| **3 Year Students (7)** | | | | |
| Hassan Aljafar | Suffield High School | Suffield | 12 | 2 |
| Abby Barnett | Sacred Heart Greenwich | Darien | 12 | 2 |
| Ruby Hoffman-Blustajn | Sound School | Hamden | 11 | 2 |
| Sean Lee | Loomis Chaffe School | Los Altos | 12 | 1 |
| Jason Li | Guilford High School | Guilford | 10 | 3 |
| Annie O'Connor | Sacred Heart Greenwich | Rye | 12 | 2 |
| Gabriella Spata | Sound School | New Haven | 11 | 2 |

**Ethnicity:**



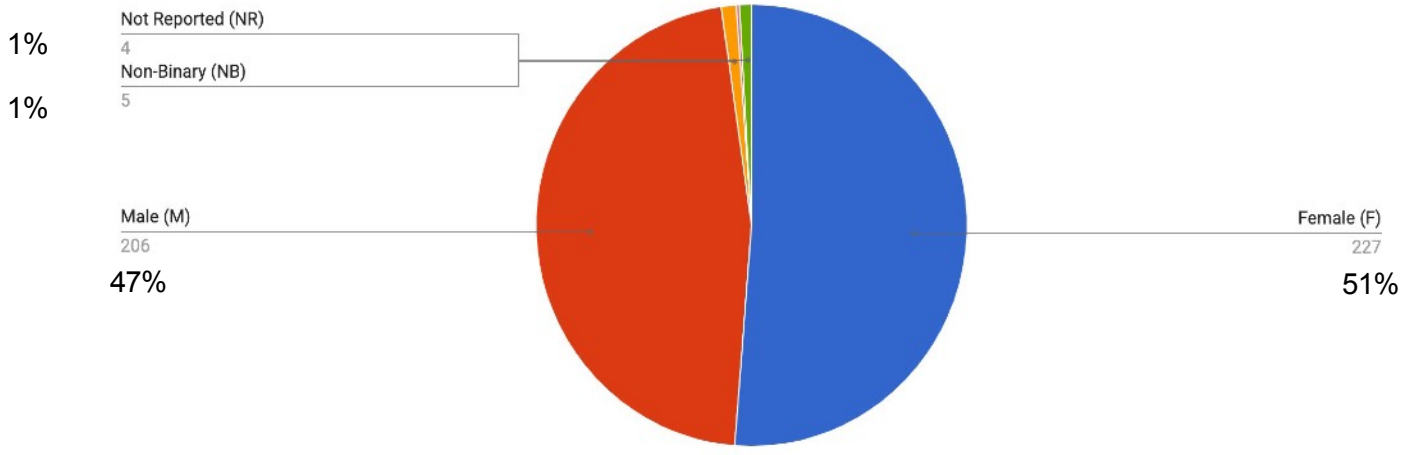

443 responses in 443 results

**Race:**




443 responses in 443 results

**To which gender identity do you most identify?**




443 responses in 443 results

## Summary of Judging Statistics

| Judges' Affiliation | # Judges |
|---|---|
| AIAA | 1 |
| Alexion | 18 |
| Am. Society Safety Professionals (ASSP) | 3 |
| NESS1 | |
| Astronomical Society of Greater Hartford | 3 |
| Avangrid | 4 |
| Banning Family Invasive Species Award | 1 |
| Boehringer Ingelheim | 15 |
| Bristol Myers Squibb retired | 3 |
| CACIWC | 1 |
| Capitol Region Education Council | 1 |
| Collins Aerospace | 2 |
| Conn. Science and Engineering Fair | 6 |
| Connecticut Academy of Audiology | 2 |
| Connecticut Childrens Medical Center | 3 |
| Connecticut College | 2 |
| Connecticut Science Center | 2 |
| Connecticut Technology Council | 1 |
| Connecticut TSA | 1 |
| CT Academy of Science & Engineering | 1 |
| CT-Section IEEE | 3 |
| Earth Forward Group | 2 |
| General Dynamics - Electric Boat | 3 |

| Judges' Affiliation Cont. | # Judges |
|---|---|
| Ensign-Bickford Aerospace & Defense | 1 |
| Eversource Energy | 5 |
| Flightware | 1 |
| Goodrich - Retired | 1 |
| Goodwin University | 1 |
| Southern Conn. State University | 1 |
| Hartford HealthCare | 1 |
| IBM | 1 |
| IFTSA | 1 |
| Jackson Laboratory | 11 |
| John Morgan Architects | 1 |
| Johnson & Wales University | 1 |
| Meta | 1 |
| Nalas Engineering Services | 1 |
| Navy Dept. NUWC-NPT | 3 |
| New Haven Environmental Council | 1 |
| Nutmeg IFT | 1 |
| Otis Elevator Company | 1 |
| Penn State College of Medicine | 1 |
| Pfizer, Inc. | 13 |
| Pratt & Whitney | 3 |
| Project Oceanology | 1 |
| Quinnipiac University | 6 |
| Raytheon1 | |
| Southeastern New England Marine Educator | 3 |
| Sikorsky Aircraft | 4 |
| Talcott Mountain Science Center | 5 |
| The Norwich Free Academy | 1 |
| Travelers | 2 |

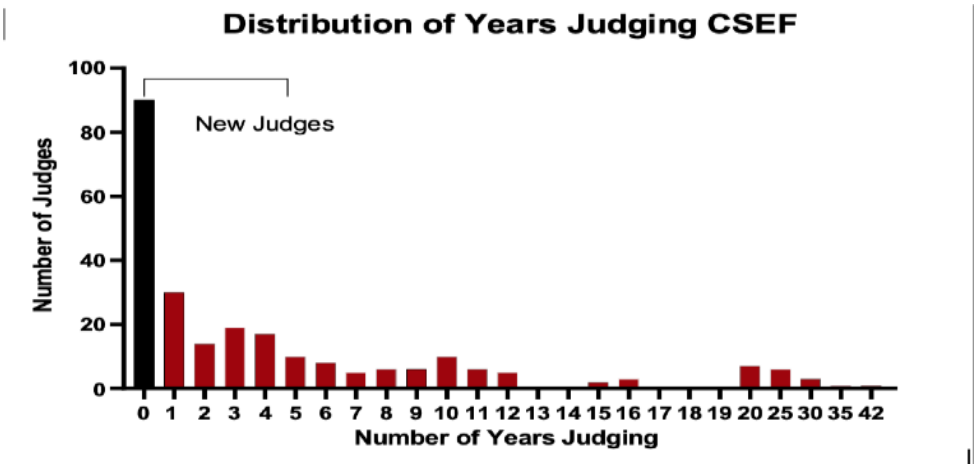
| | |
|---|---|
| University of Connecticut | 6 |
| UConn Health | 1 |
| Unilever | 1 |
| United Technologies (retired) | 3 |
| University of Hartford | 4 |
| University of New Haven | 1 |
| Vanderbilt Chemicals LLC | 1 |
| Western Connecticut State University | 2 |
| Westinghouse | 2 |
| Wisner Memorial Award | 1 |
| Wooster School | 1 |
| Yale University7 | |
| Yale New Haven Health | 1 |
| **Unaffiliated (no affiliation in registration)** | 73 |

**Unaffiliated can include judges which failed to note their affiliation**

**Total Judges =257**

Judges' Affiliation Cont. # Judge

| Judges by Registration Category | # Judges |
|---|---|
| Alternative/Renewable Energy | 5 |
| Alumni & Friends Awards | 9 |
| Applied Technology | 2 |
| Biotechnology | 29 |
| Computational Sciences and Bioinformatics | 4 |
| Computer Science | 7 |
| Engineering | 21 |
| Environmental | 9 |
| Future Sustainability | 8 |
| Life Sciences | 48 |
| Mathematics | 8 |
| Physical Sciences | 20 |
| Quinnipiac U. Scholarships | 2 |
| Raytheon Awards | 5 |
| Special Awards - Connecticut | 38 |
| Special Awards - National | 13 |
| Technical High Schools | 2 |
| Urban School Challenge | 14 |
| Zoom Meeting Moderator for Virtual Judging | 5 |
| **Total Registered Judges** | **249** |




This graph shows the total number of judges broken out by the experience they have judging CS

CONNECTICUT SCIENCE & ENGINEERING FAIR

***Next year's 75th CSEF will be a hybrid fair with both virtual presentation and judging for all students on March 6-18th with finalist judging at Quinnipiac University in Hamden, CT***